Studies in the archaeology of temperate Europe

Ian B M Ralston

Volume I

D Litt

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ABSTRACT OF SUBMISSION FOR HIGHER DEGREE

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Degree in view: D Litt *Date:* November 30th, 2010

Title of Submission: Studies in the archaeology of temperate Europe

This submission consists of monographs, journal articles and other contributions, authored singly or in concert with others, relating to three distinct fields detailed below within the broader domain of the archaeology of temperate Europe. Significant publications that have appeared up to early 2010 are included here, with a small selection of material in press.

(a) The later prehistory of western Europe, especially Gaul, in the first millennium BC. This work is primarily focused on two, separate sub-fields: (i) the development of proto-urban settlements ('*oppida*') and state-level societies in the second and first centuries BC and, (ii) on a precocious, if short-lived, manifestation of state-level societies in the sixth and fifth centuries BC, for which the principal contributions are centred on a share of extensive fieldwork at Bourges-*Avaricum* in central France.

(b) British and more particularly Scottish prehistory of all periods from hunter-gatherer times until the arrival of the Anglo-Normans. A significant proportion of this work represents a consideration of evidence from eastern Scotland between the Tay and the Moray Firth.

(c) Aspects of the development of applied professional archaeology in the UK, especially Scotland, including contributions to the formulation of the scope of archaeological resource management.

Contents

Note

Articles and typescripts with page margins sufficiently wide to be bound conventionally are contained in ***Volume I*** in the order listed below. Articles and *separata* with narrower margins have been placed, again in the order listed below, in ***Volume II***. Books have been submitted individually as originally bound or, in the case of photocopies, in spiral binders.

(a) The later prehistory of western Europe, especially Gaul, in the first millennium BC

2009: (with Sophie Krausz) 'Le siège d'Avaricum en 52 avant J.-C. ou comment les Gaulois se sont-ils défendus contre les Romains', *in eds* Buchsenschutz, O., Chardenoux, M.-B., Krausz, S. and Vaginay, M. *L'âge du Fer dans le boucle de la Loire / Les Gaulois sont dans la ville*, 145-56. Paris/Tours. (= XXXII Colloque Assoc franç Et Ages Fer (Bourges 2008) ; = Rev archéol Centre Fr Suppl 35). ***[Volume I]***

2008: (with Laurence Augier & Olivier Buchsenschutz, *dir.*) *Un complexe princier de l'âge du Fer, L'habitat du promontoire de Bourges (Cher) (VIe-IVe s. avant J.-C.)* Tours/Bourges: Revue Archéologique Centre France Suppl.**32** = Bituriga, Monographie 2007–3 (2008). 200 pp.

2007: (with Olivier Buchsenschutz) 'Dépôts et fortifications à l'âge du Fer', *in eds* Barral, P., Daubigney, A., Dunning, C., Kaenel, G., and Roulière-Lambert, M.-J. 2007 *L'âge du Fer dans l'arc jurassien et ses marges. Dépôts, lieux sacrés et territorialité* à *l'âge du Fer,* 745-64. Besançon: Presses universitaires de Franche-Comté. (= Actes XXIX Coll. Internat. de l'Association française pour l'Étude de l'Age du Fer). ***[Volume I]***

2007: 'Bourges and the earlier Iron Age: an interim view', *in eds* de Jersey, P., Gosden, C., Hamerow, H. and Lock, G. *Communities and connections*. Oxford: Oxford University Press, 217-239. ***[Volume II]***

2006: *Celtic fortifications*. Stroud: Tempus Publishing. 244 pp.

2002: (with Olivier Buchsenschutz *dir.*) *L'occupation de l'âge du Fer dans la vallée de l'Auron à Bourges: installations agricoles, funéraires et cultuelles (X^e – I^er siècle avant J-C).* Bourges: Bituriga Monogr **2001-2** = **22** *Suppl. Rev archéol Centre Fr.* (Tours) 222p.

1999: (with Olivier Buchsenschutz and Jean-Paul Guillaumet *dir.*) *Les remparts de Bibracte: recherches récentes sur la Porte du Rebout et le tracé des fortifications*. 316pp. Glux-en-Glenne: Collection Bibracte, **3**. 316pp.

1996: (with François Boyer and Olivier Buchsenschutz) 'Sondages au sud-ouest de l'oppidum', pp. 226-232 *in* Barral, P., Beck, P., Bernal, J., Boyer, F., Büchsenschütz, O., Flouest, J.-L., Laszlovsky, J., Luginbühl, T., Paratte, C.-A., Paunier, D., Quinn, D., Ralston, I. B. M., Szabó, M., Vitali, D., and Wiethold, J., 'Les fouilles du mont Beuvray, Nièvre - Saône-et-Loire: rapport biennal 1992-1993', *Revue archéologique de l'Est et du Centre-Est,* **46**, fasc 2, 217-293. ***[Volume II]***

1995: 'Fortifications and defence', *in ed.* Green, Miranda, *The Celtic World*, 59-81. London: Routledge. ***[Volume I]***

1994: 'Fortificazioni celtiche dell'Età del Ferro in Europa', *OCNUS*, **2**, 159 - 180. Bologna: Editrice CLUEB (= Quadreni della Scuola di Specializzazione in Archeologia, Università degli Studi di Bologna). ***[Volume II]***

1993: (with Olivier Buchsenschutz, Anne Colin and Kathérine Gruel) 'Approche du Territoire au Second Age du Fer', *in ed.* Daubigney, A., *Fonctionnement social de l'Age du Fer: opérateurs et hypothèses pour la France*, 247-258. Lons-le-Saunier: Centre jurassien du Patrimoine. ***[Volume II]***

1992: *Les enceintes fortifiées du Limousin: les habitats protohistoriques de la France non-mediterranéenne* = Documents d'Archéologie française, **36**. 188 pp. Paris: Maison des Sciences de l'Homme.

1988: 'Central Gaul at the Roman Conquest: conceptions and misconceptions', *Antiquity*, **62**, 786-794. ***[Volume II]***

1987: (with Olivier Buchsenschutz) 'Réflexions sur l'économie de la Gaule d'après César et les données archéologiques', *in eds* Bémont, Colette, Delplace, C., Fischer, B., Gruel, K, Peyre, C and Richard, J.-C., *Mélanges offerts au Dr J.-B. Colbert de Beaulieu*, 163-173. Paris: Le Léopard d'Or. ***[Volume I]***

1981: (with Olivier Buchsenschutz) 'Les fortifications de l'Age du Fer dans le Centre de la France', *Revue archéologique*, 1981/1, 45-66. ***[Volume I]***

1981: 'The use of timber in hill-fort defences in France', *in ed.* Guilbert, G., *Hill-fort Studies: essays presented to A. H. A. Hogg*, 78-103. Leicester: Leicester University Press. ***[Volume I]***

1976: (with John Collis) 'Late la Tène defences', *Germania*, **54**, 135-146. ***[Volume II]***

1975: (with Olivier Buchsenschutz) 'Découverte d'un murus gallicus à Levroux, Indre', *Gallia*, **33**, 27-48. ***[Volume II]***

1975: (with Olivier Buchsenschutz) 'Late pre-Roman Iron Age forts in Berry', *Antiquity*, **49**, 8-18. ***[Volume I]***

SUBMITTED (with Rachel Pope) 'Approaching sex and status in Iron Age Britain with reference to the nearer continent', *in eds* Moore, T. and Armada, L. *Atlantic Europe in the First millennium BC: crossing the divide*. Oxford: Oxford University Press, forthcoming. ***[Volume I]***

SUBMITTED (with Olivier Buchsenschutz) 'La place du complexe princier de Bourges (Cher) dans l'âge du Fer régional à la lumière des fouilles récentes de Port Sec', *in eds* Biel, J / Krause, D *DFG-Schwerpunktprogramms 1171 Frühe Zentralisierungs- und Urbanisierungsprozesse. Zur Genese und Entwicklung frühkeltischer Fürstensitze und ihres territorialen Umlandes*". Stuttgart: Konrad Theiss. forthcoming. ***[Volume III]***

(b) British and more particularly Scottish prehistory of all periods from hunter-gatherer times to the arrival of the Anglo-Normans

2010 (with Stratford Halliday): 'How many hillforts are there in Scotland?', *in eds* Cooney, G., Coles, J., Ryan, M, Sievers, S. and Becker, K. (eds) 2009 *Relics of old decency: Festschrift in honour of Barry Raftery,* 455-467. Wordwell. Dublin. Ireland. ***[Volume I]***

2009: (with John R. Hunter *eds*): *The Archaeology of Britain: an introduction from Earliest Times to the Twenty-First Century.* Abingdon: Routledge. 450 pp.

2009: 'Gordon Childe and Scottish archaeology: the Edinburgh Years 1927-1946', *European Journal of Archaeology* **12** (1-3), 47-90. ***[Volume I]***

2008: (with Andrew Dunwell) *Archaeology and Early History of Angus.* Stroud: Tempus Publishing. 192 pp.

2007: 'Celtic fortifications in the British Isles', *in eds* Berrocal-Rangel, L. and Moret, P. *Paisajes fortificados de la Edad del Hierro Peninsular: las murallas protohistóricas de la Meseta y la vertiente Atlántica en su contexto europeo,* 113-134. Madrid: Real Academia de la Historia / Casa de Velázquez. (= *Bibliotheca Archaeologica Hispana* **28**). ***[Volume II]***

2007: (with Patrick Ashmore) 'The character of earlier Iron Age societies in Scotland,' *in eds* Haselgrove, C. C. and Pope, R. *The earlier Iron Age in Britain and the nearer continent*, 229-247. Oxford: Oxbow. ***[Volume I]***

2005: 'Scottish roundhouses: the early chapters', *Scottish Archaeol Journ* **25.1**, 2003 (2005), 1-26. ***[Volume I]***

2004 (with a contribution on the poetry by Vincent Megaw): 'Beyond barbarian Europe: Stuart Piggott 1910-1996: an appreciation', in *eds* Shepherd, I. A. G. and Barclay, G. J., *Scotland in ancient Europe: the Neolithic and Bronze Age of Scotland,* 13-27. Edinburgh: Soc Antiq Scot. ***[Volume I]***

2004: *The Hill-Forts of Pictland since 'The Problem of the Picts'*. Rosemarkie: Groam House Museum Papers. 54pp. ***[Volume II]***

1999: 'The Iron Age: aspects of the human communities and their environments', *Quaternary Proceedings* 7, 501-512. = *eds* Edwards, K. J. and Sadler, J. *Holocene environments of prehistoric Britain*. Chichester: John Wiley. ***[Volume I]***

1998: (with Diana Murray) 'The excavation of a square-ditched barrow and other cropmarks at Boysack Mills, Inverkeilor, Angus', *Proc Soc Antiq Scot* **127,** 1997 (1998), 359-386. ***[Volume I]***

1997: (with Bruce, Margaret F., Edwards, K. J., Gemmell, A. M. D., Kerr, N. W., Sabine, Kirsty A., Shepherd, I. A. G., Trewin, N. H., Warsop, C. L. M. and Greig, Moira K.) 'Four short cists from North-East Scotland and Easter Ross', *Proc Soc Antiq Scot* **126,** 1996 (1997), 121–155. ***[Volume II]***

1997: 'Pictish homes', *in ed.* Henry, D., *The worm, the germ and the thorn: Pictish and related studies presented to Isabel Henderson*, 18-34. Balneaves, Angus: Pinkfoot Press. ***[Volume I]***

1997: (with Ian Armit) 'Chapter 10: The Iron Age', in *eds* Edwards, K. J. and Ralston, I. B. M. *Scotland: environment and archaeology 8000 BC - AD 1000,* 169-193. New York and Chichester: John Wiley and Son. ***[Volume II]***

1997: (with Ian Armit) 'Chapter 12: The Early Historic Period: an archaeological perspective', in *eds* Edwards, K. J. and Ralston, I. B. M. *Scotland: environment and archaeology 8000 BC - AD 1000,* 217-239. New York and Chichester: John Wiley and Son. ***[Volume II]***

1996: 'Recent work on the Iron Age settlement record in Scotland', *in eds* Champion, T. C. and Collis, J. R., *The Iron Age in Britain and Ireland: recent trends*, 133-153. Sheffield: Department of Archaeology and Prehistory, University of Sheffield. {= Recent Trends Series, **4**} ***[Volume II]***

1993: (with Alan Fairweather) 'The Neolithic timber hall at Balbridie, Grampian Region, Scotland: the building, the date, the plant macrofossils', *Antiquity*, **67**, 313-323. ***[Volume I]***

1987: 'Portknockie: promontory forts and Pictish settlement in the North-East', in *ed.* Small, A., *The Picts: a new look at old problems*, 15-26. Dundee: University of Dundee. ***[Volume I]***

1986: 'The Yorkshire Television vitrified wall experiment at East Tullos, City of Aberdeen District', *Proc Soc Antiq Scot*, **116**, 1986 (1987), 17-40. ***[Volume I]***

1984: (with Kevin Edwards) 'Postglacial hunter-gatherers and vegetational history in Scotland', *Proc Soc Antiq Scot*, **114**, 1984 (1985), 15-34. ***[Volume II]***

(c) Aspects of the development of applied professional archaeology in the UK, especially Scotland, including contributions to the formulation of the scope of archaeological resource management.

2008: (with Andrew Dunwell): *The management of cropmark archaeology in lowland Scotland: a case study from the Lunan Valley, Angus.* Edinburgh: Historic Scotland Inspectorate Research Report. 88pp + loose-leaf maps.

2008: (with Alan Saville; introduction by Norman McFadyen) *Treasure Trove in Scotland; a code of practice*. Edinburgh: compiled on behalf of the Scottish Ministers and the Crown Office. iii+48pp. ***[Volume I]***

2006: (with John Hunter *eds*) *Archaeological Resource Management in the UK: an introduction*. Stroud: Sutton Publishing. 2 edn. xiv + 402 pp. (1 edn = 1993).

2004: 'Archaeologists and the possibility of wilderness creation in Scotland', *in eds* Carver, E. and Lelong, O., *Modern Views - Ancient Lands: new work and thought on cultural landscapes*. Oxford: Brit Archaeol Rep Brit Ser **377**, 81-86. ***[Volume II]***

1993: (with Roger Thomas *eds*} *Environmental Assessment and Archaeology* = Institute of Field Archaeologists Occas. Pap., **5**. Birmingham: Institute of Field Archaeologists. viii + 36 pp. ***[Volume II]***

1983: (with Ian Shepherd) 'Archaeological air photography - the classification of the results', *Scott Archaeol Rev*, **2, pt 1**, 53-60. ***[Volume II]***

Statement of authorship

It is in the nature of much archaeological work, particularly but not exclusively that founded of fieldwork and excavation, for multiple hands and minds to be engaged upon it. The following notes record, as required by *General Regulation 1.4 for Higher Degrees 2009-2010*, 'the precise contribution made by the candidate to each of the works in terms of initiating or leading the research and in writing up the material'. In the case of submissions in French, the writer's language and grammar has always been corrected by another hand, often that of my long-time collaborator, Dr Olivier Buchsenschutz. Pieces published in other European languages have been translated by others. The statements of 'precise contributions' are here given in good faith, although for some of the earlier writings included in this submission my memory of precisely how they were composed is less than impeccable.

Les enceintes fortifiées du Limousin (Ralston 1992) is a moderately-updated French version of my 1983 University of Edinburgh PhD thesis (supervisor Professor Stuart Piggott, FBA; external examiner Professor Sir Barry Cunliffe, FBA) and entitled *The later prehistoric settlement record of non-Mediterranean France with particular reference to Limousin*. No other work included here has been submitted for any other degree or postgraduate diploma.

(a) The later prehistory of western Europe, especially Gaul, in the first millennium BC

2009: (with Sophie Krausz) 'Le siège d'Avaricum en 52 avant J.-C. ou comment les Gaulois se sont-ils défendus contre les Romains'.

The initial idea for tackling this topic came from SK. Its development was done jointly.

2008: (with Laurence Augier & Olivier Buchsenschutz, *dir.*) *Un complexe princier de l'âge du Fer, L'habitat du promontoire de Bourges (Cher) (VIe-IVe s. avant J.-C.)*.

This is the principal report of excavations within the core of Bourges, latterly conducted jointly with the local archaeological service, notably at the research excavation of the Hôtel-Dieu site, which I co-directed.

2007: (with Olivier Buchsenschutz) 'Dépôts et fortifications à l'âge du Fer'.

This paper, initially presented to the AFEAF conference in Bienne, Switzerland, developed from our longstanding collaboration on European Iron Age fortifications. OB had primary responsibility for the continental data, IR for the British.

2002: (with Olivier Buchsenschutz *dir.*) *L'occupation de l'âge du Fer dans la vallée de l'Auron à Bourges: installations agricoles, funéraires et cultuelles (X^e – I^er siècle avant J-C).*

This is the principal report of rescue excavations on the southern margin of Bourges, conducted jointly with OB and the local archaeological service, notably at the Chemin de Gionne site, which I co-directed.

1999: (with Olivier Buchsenschutz and Jean-Paul Guillaumet *dir.*) *Les remparts de Bibracte: recherches récentes sur la Porte du Rebout et le tracé des fortifications.*

This is the final report of the major excavations of the biggest inturned entrance of the mont Beuvray *oppidum*, which I co-directed with OB. J-PG initiated excavations here, and was the overall co-ordinator of the Beuvray project at the time this exercise took place.

1996: (with François Boyer and Olivier Buchsenschutz) 'Sondages au sud-ouest de l'oppidum'.

This is an interim account of exploratory fieldwork in an under-studied part of the mont Beuvray *oppidum*, again conducted jointly with OB. FB contributed in particular on the geology / geomorphology of the sector.

1993: (with Olivier Buchsenschutz, Anne Colin and Kathérine Gruel) 'Approche du Territoire au Second Age du Fer'.

This paper was developed collaboratively, with AC having principal responsibility for the use of ceramic evidence and KG for numismatics.

1987: (with Olivier Buchsenschutz) 'Réflexions sur l'économie de la Gaule d'après César et les données archéologiques'.

This was written jointly.

1981: (with Olivier Buchsenschutz) 'Les fortifications de l'Age du Fer dans le Centre de la France'.

This was written jointly, drawing together our particular regional knowledge. At that stage, I was working in particular in Limousin as well as Berry.

1976: (with John Collis) 'Late la Tène defences'.

This was written jointly. JC had primary responsibility for material from east of the Rhine, and my contributions were particularly to the provision and use of French / Francophone data.

1975: (with Olivier Buchsenschutz) 'Découverte d'un murus gallicus à Levroux, Indre'.

This is the report of our first joint fieldwork, on a site which OB had begun and on which he has continued to work extensively since that time. I was certainly the junior partner in this enterprise.

1975: (with Olivier Buchsenschutz) 'Late pre-Roman Iron Age forts in Berry'.

This joint paper was drafted substantially be me, amalgamating data and hypotheses from both our 'Masters' dissertations. In so far as it can be subdivided, primary responsibility for the Cher data then rested with me and for that from Indre with OB.

SUBMITTED (with Rachel Pope) 'Approaching sex and status in Iron Age Britain with reference to the nearer continent'.

This joint paper grew (obliquely) out of a previous joint paper (not submitted here) and was presented at a Durham University conference in 2007. Its thrust was developed jointly, but RP had primary responsibility of the southern British data deployed here, and IR for the continental material.

SUBMITTED (with Olivier Buchsenschutz) La place du complexe princier de Bourges (Cher) dans l'âge du Fer régional à la lumière des fouilles récentes de Port Sec.

This, originally jointly written in French, was presented at a conference in Stuttgart in 2009. The part based on the Port Sec fieldwork is the product of our joint researches, but aspects of the wider interpretation are developed more particularly from recent research by OB, albeit with inputs from me.

(b) British and more particularly Scottish prehistory of all periods from hunter-gatherer times to the arrival of the Anglo-Normans

2010 (with Stratford Halliday): 'How many hillforts are there in Scotland?'

The initial idea for this contribution was mine, but its development here was done jointly. The Berwickshire and Argyll case studies were developed by SH.

2009: (with John R. Hunter *eds*): *The Archaeology of Britain: an introduction from Earliest Times to the Twenty-First Century.*

This book project (initially published in 1999 but here substantially revised) was developed jointly, with JH taking particular oversight of the post-Roman components and IR of the prehistoric. Our chapter was drafted jointly.

2008: (with Andrew Dunwell) *Archaeology and Early History of Angus.*

This is the overview volume, based on a substantial research / fieldwork / training project under by the Centre for Field Archaeology before it was closed by Edinburgh University, and published in a series of articles primarily by the individual field directors involved. This book was a joint project, led by AD for the later prehistoric components and by IR for the remainder, but then reviewed by the other.

2007: (with Patrick Ashmore) 'The character of earlier Iron Age societies in Scotland.'

The text of this paper was written primarily by IR, but it would not have been possible without PA's detailed consideration of the available isotopic dates, which form the key chronological indicators.

2004 (with a contribution on the poetry by Vincent Megaw): 'Beyond barbarian Europe: Stuart Piggott 1910-1996: an appreciation'.

As stated *supra*.

1998: (with Diana Murray) 'The excavation of a square-ditched barrow and other cropmarks at Boysack Mills, Inverkeilor, Angus'.

This is a joint paper, in which IR was particularly responsible for the *comparanda*.

1997: (with Bruce, Margaret F., Edwards, K. J., Gemmell, A. M. D., Kerr, N. W., Sabine, Kirsty A., Shepherd, I. A. G., Trewin, N. H., Warsop, C. L. M. and Greig, Moira K.) 'Four short cists from North-East Scotland and Easter Ross'.

I did all the fieldwork behind this paper, and drew together the various specialist contributions to it.

1997: (with Ian Armit) 'Chapter 10: The Iron Age'.

This paper is joint work, although IA prepared the first draft. The following item was the mirror image of this.

1997: (with Ian Armit) 'Chapter 12: The Early Historic Period: an archaeological perspective'.

This paper is joint work, although IR prepared the first draft. The previous item was the mirror image of this.

1993: (with Alan Fairweather) 'The Neolithic timber hall at Balbridie, Grampian Region, Scotland: the building, the date, the plant macrofossils'.

This is primarily by me, but AF was responsible for the plant macro studies.

1984: (with Kevin Edwards) 'Postglacial hunter-gatherers and vegetational history in Scotland'.

In this joint paper, KE led on the environmental components and IR on the archaeological.

(c) Aspects of the development of applied professional archaeology in the UK, especially Scotland, including contributions to the formulation of the scope of archaeological resource management.

2008: (with Andrew Dunwell): *The management of cropmark archaeology in lowland Scotland: a case study from the Lunan Valley, Angus.*

This is a joint publication, based on Centre for Field Archaeology fieldwork and research in Angus, but in which IR was the junior partner.

2008: (with Alan Saville; introduction by Norman McFadyen) *Treasure Trove in Scotland; a code of practice.*

This publication went through twenty iterations, as a Code was developed. It was primarily authored jointly with Alan Saville, with inputs from the QLTR / Crown Office and from the other members of the Scottish Archaeological Finds Allocation Panel.

2006: (with John Hunter *eds*) *Archaeological Resource Management in the UK: an introduction.*

This volume, and the new field it attempted to encapsulate (first edition 1993), was devised jointly with JH and our chapter is equally a straightforward collaboration.

1993: (with Roger Thomas *eds*) *Environmental Assessment and Archaeology*

This volume, and the new field it attempted to encapsulate, was devised jointly with RT and our chapter was equally a straightforward collaboration.

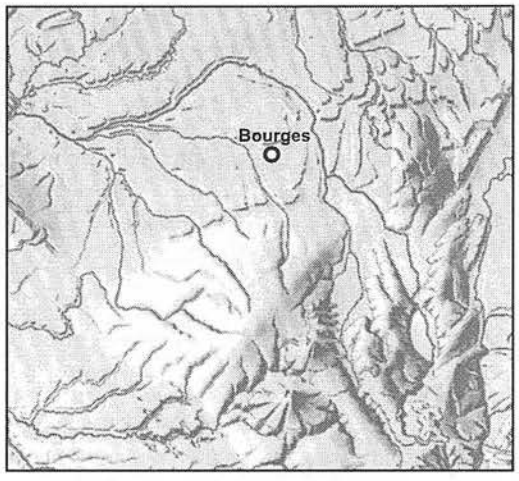
1983: (with Ian Shepherd) 'Archaeological air photography - the classification of the results'.

This paper was a straightforward collaboration, drawing on the initial interpretation of the aerial photography we were then undertaking. IR had particular responsibility for developing the practical method, which drew on contemporary work in France.

2009: (with Sophie Krausz) 'Le siège d'Avaricum en 52 avant J.-C. ou comment les Gaulois se sont-ils défendus contre les Romains', *in eds* Buchsenschutz, O., Chardenoux, M.-B., Krausz, S. and Vaginay, M. *L'âge du Fer dans le boucle de la Loire / Les Gaulois sont dans la ville*, 145-56. Paris/Tours. (= XXXII Colloque Assoc franç Et Ages Fer (Bourges 2008) ; = Rev archéol Centre Fr Suppl 35).

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35e Suppl. à la RACF, 2009, AFEAF 32 L'âge du Fer dans la boucle de la Loire



Sophie **Krausz***
et Ian **Ralston****

Le siège d'*Avaricum* en 52 avant J.-C. ou comment les Gaulois se sont défendus contre les Romains

THE SIEGE OF AVARICUM *IN 52 BC, OR HOW THE GAULS DEFENDED THEMSELVES AGAINST THE ROMANS*

Mots-clés : *Murus gallicus*, *Avaricum*, Rampe d'assaut (*agger*), Rempart massif.

Keywords : Murus gallicus, Avaricum, Agger, *Dump rampart*

Résumé : Le siège d'*Avaricum* est l'un des événements emblématiques de la guerre des Gaules, connu comme d'autres batailles grâce à la description précise de Jules César au livre VII de son œuvre. Au-delà du symbole de la résistance gauloise, cet événement est décisif dans la compétition entre le général romain et Vercingétorix, compétition qui se poursuivra tout au long de l'année 52 avant J.-C. jusqu'à *Alésia*. Le siège et la prise de Bourges par les Romains se produisent à la suite de l'incendie des villes bituriges demandé par Vercingétorix et le refus des habitants d'*Avaricum* de brûler la capitale. En regard des faits historiques, dont la narration laisse de nombreuses ambiguïtés, cet article tente de faire le point sur l'état des fortifications gauloises à *Avaricum* au moment de l'attaque des troupes romaines. Il tente de proposer une restitution du rempart en s'appuyant d'abord sur les éléments techniques donnés par César : description du *murus gallicus* et de ses aménagements au cours du siège, mesures de la rampe d'assaut, présence de tours et de l'armement classique de siège. Ces éléments descriptifs sont ensuite mis en relation avec les vestiges archéologiques de La Tène finale connus à Bourges et surtout avec les caractéristiques connues dans les fortifications bituriges qui existaient dans la cité à l'époque du siège de la capitale.

Abstract : *The siege of* Avaricum *is one of the iconic events during the Gallic war, known – as is the case with other battles – from Caesar's description in Book VII of his account. Beyond its significance for Gallic resistance, this event was critical in the development of the competition between the Roman commander and Vercingetorix, a competition which was to continue through 52 BC until Alesia. The siege and capture of Bourges by the Romans followed the torching of the settlements of the Bituriges ordered by Vercingetorix, and the refusal of the inhabitants of* Avaricum *to burn their capital. With regard to the historical account, which is permeated with several ambiguities, this article reassesses the likely condition of the Gallic defences of* Avaricum *as they came under siege. A reconstruction of the defences is proposed initially on the basis of the technical elements provided by Caesar's text: the description of the* murus gallicus *and of its modifications during the course of the siege, the dimensions given for the assault ramp, and the presence of assault towers and classic siege equipment. These descriptions are then considered alongside the Late la Tène archaeological evidence from Bourges, and more particularly with the characteristics of the other fortifications of the Bituriges broadly contemporary with the siege of the capital.*

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** Professeur à l'Université d'Édimbourg, Écosse, associé à l'UMR 8546-AOROC.

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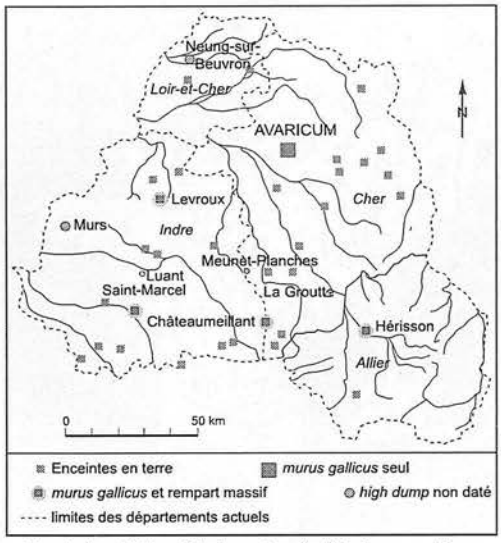


Fig. 1 : La cité des Bituriges et les fortifications gauloises identifiées : *murus gallicus* et remparts massifs (cartographie S. Krausz).

Le siège d'*Avaricum* a fait couler beaucoup d'encre, car cet événement fait partie des grandes manœuvres militaires dont les Romains se sont fait une spécialité, comme à Numance en 133 ou à Alésia en 52 avant J.-C. L'histoire de ces sièges est emblématique de la révolte et de la résistance des peuples conquis, qui, malgré leur ingéniosité, seront très souvent les victimes du génie militaire des Romains ; une armée implacable, d'une puissance technologique supérieure inspirée de la poliorcétique grecque. Au-delà du fait militaire et de sa symbolique au sein du mythe national, le siège d'*Avaricum* marque un tournant décisif dans la guerre, le début d'une compétition entre Vercingétorix et César, qui se terminera quelques mois plus tard lors du siège de la capitale des Mandubiens. Le siège d'*Avaricum* n'est connu qu'à travers le texte de César, développé dans une vingtaine de chapitres du livre VII de la *Guerre des Gaules* (*BG* 14 à 29). La description est méthodique, depuis les motivations du général jusqu'aux détails techniques des choix stratégiques, sans oublier les divers aléas de la météorologie et du moral des troupes. Après avoir soumis les Bituriges à *Noviodunum* (Neung-sur-Beuvron), César décide de marcher sur *Avaricum* car il pense que la prise de la ville « *la plus forte et la plus grande du territoire des Bituriges* » lui assurera le contrôle de ce peuple (*BG* VII, 13 et 14). Dans le même temps, et suite à la série de défaites essuyées par les Gaulois à *Vellaudunum*, *Cenabum* puis *Noviodunum*, Vercingétorix cherche à compromettre l'approvisionnement des troupes de César et recommande aux Bituriges de brûler leurs villes. Les Gaulois, probablement inquiétés par ces défaites, s'exécutent et incendient plus de vingt villes en un seul jour (*BG* VII, 15 : « *amplius XX urbes biturigum incenduntur* »). César installe son camp devant Bourges, au côté sud-est, là où il remarque que les marais et les cours d'eau laissent un étroit passage. Il commence alors le siège, en mentionnant que la circonvallation n'est pas envisageable à cause de la configuration du terrain (marais et cours d'eau). Il construira donc une rampe d'assaut (*agger*), sans indiquer son emplacement exact, pour atteindre le *murus gallicus* qu'il décrit avec force détails (*BG* VII, 23). À la mi-avril, après 25 jours de travaux ininterrompus, de jour comme de nuit et sous une pluie battante, malgré le travail de sape des Gaulois et le renforcement de leur rempart, César prend *Avaricum* et massacre la population.

L'archéologie ne restitue jusqu'à présent rien de cet événement. On pourrait même dire que l'*oppidum* de Bourges a étrangement livré plutôt moins de vestiges qu'un autre. D'après César, *Avaricum* est un *oppidum* important, une ville (*urbs*), avec son rempart, ses portes, ses rues, places et même un *forum* (*BG* VII, 28). Malgré une description qui n'évoque en rien une simple bourgade, César aurait-il exagéré l'importance de cet *oppidum* en le rangeant au rang des *urbes* conquises, mettant ainsi sa personne en valeur (Buchsenschutz, Ralston 1986 : 386) ? Les raisons de la rareté des vestiges du Ier siècle avant J.-C. à Bourges ne sont pas encore totalement élucidées. La destruction de cette occupation par les constructions postérieures depuis l'époque gallo-romaine peut être évoquée. Mais on n'explique pas dans ce cas la bonne conservation par endroits des vestiges du site princier du Ve siècle avant J.-C (Augier, Buchsenschutz et Ralston 2007), quelquefois piégés à l'intérieur des fondations romaines massives. Ce phénomène gagnerait à être étudié en détail sur le promontoire car c'est probablement bien la conservation différentielle qui est en cause à Bourges. On peut supposer que les occupations du Hallstatt D et de La Tène A, plus profondément implantées dans le substrat, ont été mieux protégées des destructions occasionnées par les aménagements postérieurs. Il est probable que les occupations de la fin de La Tène consistaient en bâtiments peu ancrés dans le sol. Les niveaux de La Tène finale, quant à eux, ont dû disparaître lors des forts remaniements commencés dès la période augustéenne. Cette destruction peut être envisagée comme l'anéantissement délibéré de la structure urbaine gauloise, comme si on rayait la ville laténienne de la surface du sol, remparts et travaux du siège de César compris, pour permettre l'expansion physique de la nouvelle ville romaine. Cet acte technique (et symbolique ?) n'implique pas nécessairement l'éradication en profondeur de vestiges plus anciens et pourrait ainsi expliquer une meilleure représentation de ceux-ci au détriment des autres.

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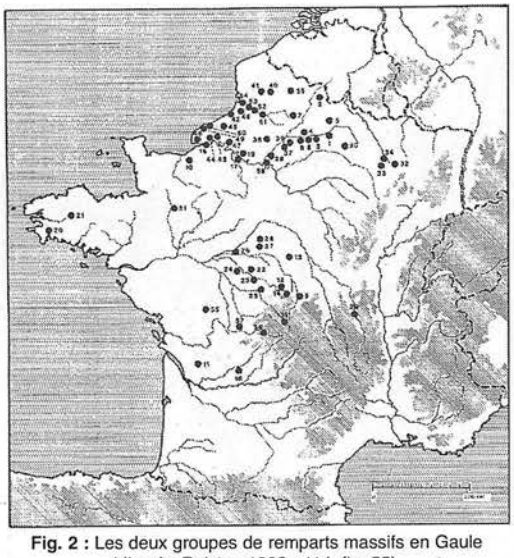


Fig. 2 : Les deux groupes de remparts massifs en Gaule (d'après Ralston 1992 : 114, fig. 55).

Notre propos ne vise ni à refaire l'histoire du siège d'*Avaricum,* ni à en faire une description chirurgicale. Ce qui nous intéresse plutôt, c'est d'utiliser le texte de César pour comprendre, si cela est encore possible, comment l'*oppidum* se présentait dans sa topographie et restituer le type de rempart que le général romain a trouvé face à lui. L'étude de la stratégie de César à *Avaricum*, des techniques qu'il utilise et des mesures qu'il fournit, ajoutée à la connaissance que nous avons des autres sites bituriges, permet d'imaginer la morphologie des fortifications gauloises. Nous essaierons également de réfléchir sur les machines de siège qui ont depuis longtemps attiré l'attention, surtout l'*agger* et les tours mobiles, dont les dimensions peuvent être mises en relation directe avec celles de la fortification biturige contre laquelle elles ont été construites (Rice-Holmes 1899 : 594-601). Cette méthode régressive, associée à la connaissance que nous avons des différents modèles de remparts du centre de la France, devrait permettre de proposer une série d'hypothèses sur l'aspect du rempart gaulois, mais aussi sur ses portes et sur l'organisation interne de l'*oppidum*.

Cette étude s'inscrit à la suite d'un article sur l'architecture et la chronologie des remparts celtiques du Berry et du Limousin (Buchsenschutz, Krausz, Ralston sous presse) dans lequel nous avons réaffirmé qu'il existait dans le centre de la France deux grands types de remparts vers la fin de l'époque gauloise : les *muri gallici* et les remparts massifs (Fig. 1). Les premiers sont construits dans plusieurs cas bien avant la guerre des Gaules, dans les années 100 avant J.-C., peut-être dès 120. Ils correspondent à une mode passagère qui se répand dans une bonne partie de l'Europe occidentale, cristallisant le prestige des villes nouvelles. Ils équipent cependant différents types de sites : des capitales de cité, de grands et petits *oppida*, des résidences aristocratiques. Les seconds sont moins bien connus et se répartissent toujours en deux groupes distincts en Gaule (Fig. 2) : le premier au nord de la Seine rassemble les remparts à talus simple ou (rarement) double. Ils ont été répertoriés en premier lieu par R. E. M. Wheeler et K. M. Richardson (1957) et dénommés « type Fécamp » ; le second groupe est bien circonscrit dans le centre de la France. Un seul exemplaire est bien daté pour le moment à Châteaumeillant. Dans le Berry, les remparts massifs sont systématiquement présents sur les *oppida* dont les surfaces sont supérieures à 20 ha. Malheureusement, dans le cas de Bourges, les données archéologiques directes nécessaires pour déterminer la présence d'une fortification de ce type font défaut. Sur chacun des grands sites bituriges identifiés, les remparts massifs recouvrent un *murus gallicus* antérieur : à Levroux, Saint-Marcel et Châteaumeillant. À ces trois *oppida*, on pourrait ajouter d'autres exemples comme Murs (Indre) et Neung-sur-Beuvron (*Noviodunum*, Loir-et-Cher) qui possèdent chacun un énorme rempart massif, mais comme ils n'ont pas été fouillés, on ne sait pas s'ils recouvrent un *murus gallicus*. À Châteaumeillant, la fouille en 2002 d'un fossé de 45 m de large, à l'avant du talus massif, désigne une fortification résolument défensive dont la hauteur totale atteignait 17 m du fond du fossé au sommet du talus. L'énorme rempart de terre, protégé par une large douve en eau, répond probablement à la menace de la poliorcétique romaine, empêchant l'accès au rempart, le terrassement et l'approche de tours mobiles (Krausz 2007 a).

1. *AVARICUM* : UN *OPPIDUM* SUR LE PROMONTOIRE DE BOURGES

En comparaison de l'importante étendue qu'occupent la résidence princière de Bourges et ses faubourgs entre les VI^e^ et V^e^ siècles avant J.-C. (Augier, Buchsenschutz, Ralston 2007), les vestiges de l'occupation de la fin de La Tène sont ténus et rares. Un plan publié récemment par J. Troadec montre un petit nombre de points de découverte correspondant à cette période, ainsi qu'une forte dispersion (Troadec, 2006 : 132, fig. 1) (Fig. 3). Les niveaux correspondant aux II^e^ et I^er^ siècles avant J.-C. ne concernent toutefois que le sommet du promontoire et débordent peu sur les pentes pour s'étendre sur une surface approchant les 70 ha. L'occupation délaisse naturellement les zones marécageuses qui encadrent l'éperon de tous côtés, mais qui sont plus étendues au nord (zone du Marais de Bourges) et à l'ouest, limitrophes du cours de l'Auron.

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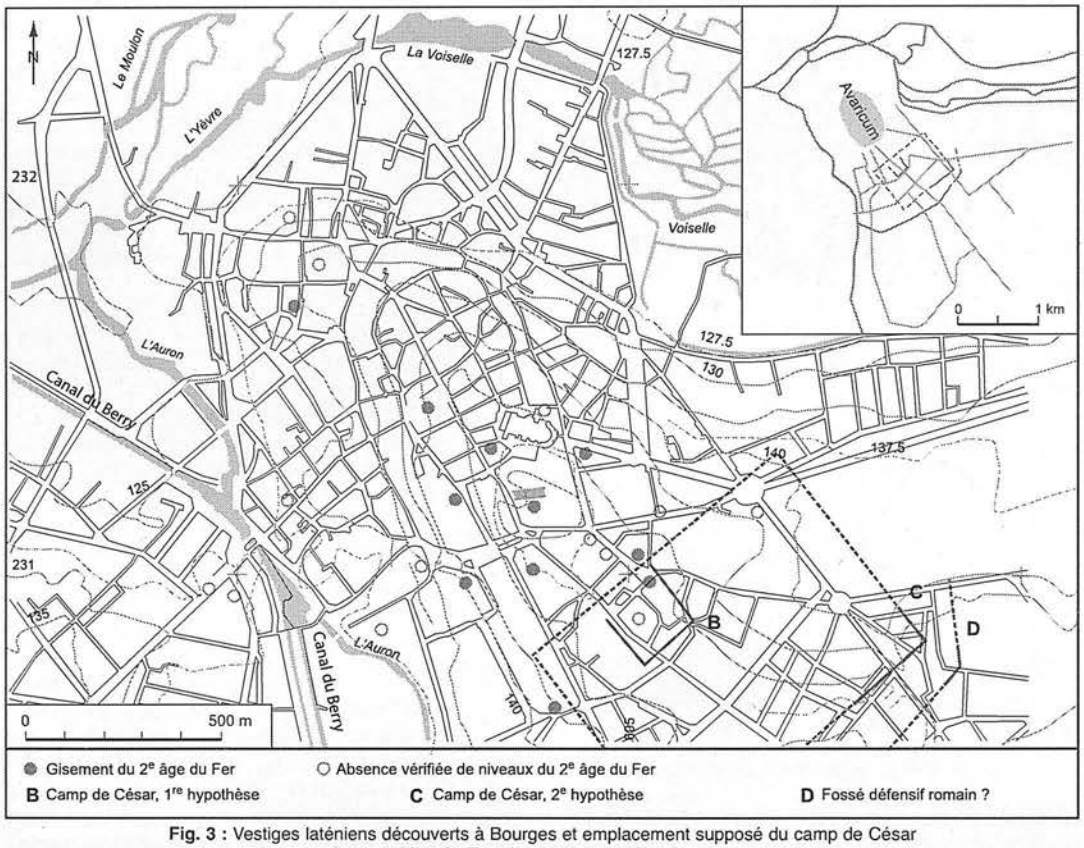


Fig. 3 : Vestiges laténiens découverts à Bourges et emplacement supposé du camp de César (d'après Troadec 2006 : 132, fig. 1).

Le promontoire ménage une plate-forme sommitale horizontale ou en légère pente vers le nord-ouest, dont la superficie atteint environ 40 ha (800 m de longueur pour 500 m de largeur). Les données archéologiques étant très lacunaires dans cette zone urbanisée, il n'est pas possible de dire aujourd'hui si la fortification gauloise couronnait le sommet du promontoire ou si elle englobait une partie des pentes, profitant des marais et cours d'eau pour éviter la construction de fossés. On peut comparer cette situation à celle du *murus* limitrophe du Doubs à Besançon (Fichtl 2007) ; à Bourges, l'alignement du mur gaulois a pu s'approcher des cours des rivières Yèvre et Auron, et n'était donc pas nécessairement proche du sommet de la colline. Les rares vestiges du deuxième âge du Fer découverts sur les pentes, notamment du côté ouest, sont trop mal datés pour affirmer que l'habitat fortifié s'étendait dans cette partie de Bourges au moment de la guerre ; en tout cas, la possibilité d'un habitat externe ne peut pas être exclue aujourd'hui. De ce côté, un fossé découvert dans les années 1960, rue Henri Ducrot et avenue du 95e de ligne, pourrait être antérieur à l'époque gallo-romaine[1]. Il s'agit d'un fossé à profil en V, profond de 5 à 6 m. Si cette structure est contemporaine d'une enceinte de La Tène D, elle pourrait limiter l'extension de l'*oppidum* à l'ouest. Cela reste une hypothèse tout à fait acceptable dans la mesure où l'on ne connaît pas de fortifications gallo-romaines à cet endroit, ce qui pourrait bien révéler une origine plus ancienne pour ce fossé.

2. LE SIÈGE : CHOIX D'UNE STRATÉGIE ET LOCALISATION DU CAMP DE CÉSAR

Pour prendre *Avaricum*, César indique qu'il aurait préféré installer une circonvallation (*BG* VII, 17 *circumvallare*), mais il explique que la nature du terrain ne permettait pas de l'envisager. Nous savons que César n'a utilisé la circonvallation que dans la moitié de ses sièges, nous ne sommes donc pas totalement convaincus par l'exposé de son raisonnement et les arguments qu'il évoque. Depuis le début de la

1. *Bulletin de la Société des antiquaires du Centre* 1963, cité par Troadec 2006 : 124 ; fig. 1 n°25.

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guerre, il a déjà employé cette tactique lors du siège de l'*oppidum* des Atuatuques qu'il entoure d'un vaste retranchement « *circuitu XV milium* »[2] (*BG* II, 29 et 30). La circonvallation est probablement la manœuvre la plus rentable parce qu'elle est plus économique en temps, en moyens matériels et humains qu'un terrassement qui nécessite des engins accessoires normalement construits sur place. De plus, elle permet le blocus plutôt que l'assaut. Dans l'impossibilité, nous dit-il, d'installer un retranchement semblable à celui de 57 avant J.-C., César se rabat donc sur l'édification d'un *agger*. Il présente cette option comme un second choix car elle implique des travaux pénibles, la construction de tours d'assaut, des pertes humaines pendant le terrassement car la manœuvre est forcément proche du rempart ; tout cela sur fond de météorologie défavorable, avec des pluies continuelles.

Dans ce texte, les motivations de César ne paraissent toutefois pas très claires. En effet, dans le monde antique (Gilliver 1999 ; Campbell 2005 a et b), on préfère l'attaque rapide et violente, sinon la circonvallation pour empêcher les sorties et les entrées des ennemis, ce mode d'attaque s'accompagnant des armes classiques de siège, machines de guerre et, dans certains cas, rampes d'assaut. À Bourges, César semble avoir choisi dès son arrivée sur les lieux l'option de longue durée mais sans circonvallation et avec apparemment l'établissement d'un seul camp sur l'accès le plus facile. La présence de Vercingétorix dans les alentours ne semble pas affecter les plans de César, pas plus que l'arrivée de 10 000 hommes de l'armée gauloise dans l'*oppidum* (*BG* VII, 21) à un moment où le siège est déjà bien avancé. On peut s'interroger sur la viabilité des stratégies mises en œuvre des deux côtés, car celles-ci défient la logique : les 10 000 hommes envoyés par Vercingétorix auraient sans doute été plus efficaces à l'extérieur en harcelant les Romains et en les empêchant d'avancer leurs constructions, plutôt que de s'additionner aux habitants d'*Avaricum*, accentuant ainsi les problèmes de ravitaillement, pour une durée indéterminée. Ces incohérences laissent supposer que pour les deux côtés, c'était bien le sort d'*Avaricum* qui était au centre des préoccupations et non la soumission des Bituriges, comme annoncé au VII, 13. En effet, si 10 000 hommes ont pu entrer sans problèmes particuliers, 10 000 ont pu sortir de la même manière. Ceci laisse penser que c'est bien la ville que César convoitait, son objectif n'étant pas au départ le massacre des habitants. Dès le début de la construction de l'*agger*, il nous laisse penser qu'il est sur le point de renoncer à la poursuite du siège. L'armée n'a rien à manger car les Boïens et les Eduens, qu'il harcèle pour son

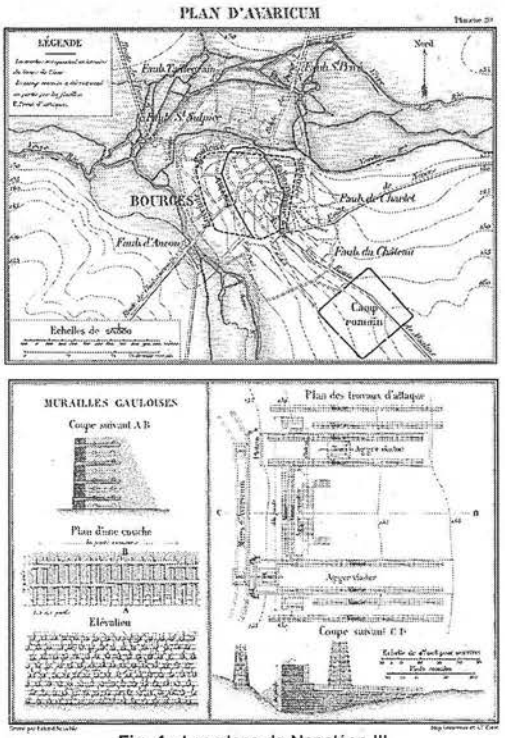


Fig. 4 : Les plans de Napoléon III pour le siège d'*Avaricum* (1865 pl. 20).

ravitaillement, mettent de la mauvaise volonté pour fournir ses troupes (*BG* VII, 17). On est à la fin de l'hiver et les stocks de nourriture et de fourrage sont probablement épuisés. Le général craint que le moral des troupes ne soit au plus bas, mais il n'en est rien : les légionnaires sont galvanisés par les affronts des Gaulois et par le massacre des citoyens romains de *Cenabum*. Ce serait un déshonneur de renoncer (VII, 27). Ce passage montre probablement que la partie ne semblait pas gagnée d'avance pour César. La stratégie qu'il met en place avec la construction d'un *agger* et les conditions générales ne lui semblaient pas tout à fait favorables ou conformes à ce qu'il pouvait espérer pour une prise rapide. Par une pirouette littéraire, il renvoie au courage de ses légions affamées mais prêtes à tout pour défendre leur honneur, dans des conditions qu'il présente à la limite du possible. Il omet toutefois de dire que la pluie est à son avantage, car les défenseurs d'*Avaricum* ne peuvent pas se servir du feu.

Depuis les travaux de Napoléon III, les ouvrages du siège sont placés par tous les chercheurs au sud-est du promontoire, là où César décrit un étroit passage où il campe (*BG* VII, 17 ; Napoléon III 1865) (Fig. 4). Cet endroit correspond actuellement à l'esplanade constituée par le triangle formé par les rues de Séraucourt et Jean Baffier (Fig. 5). Malheureusement,

2. Ces chiffres paraissent énormes : sont-ils exagérés ?

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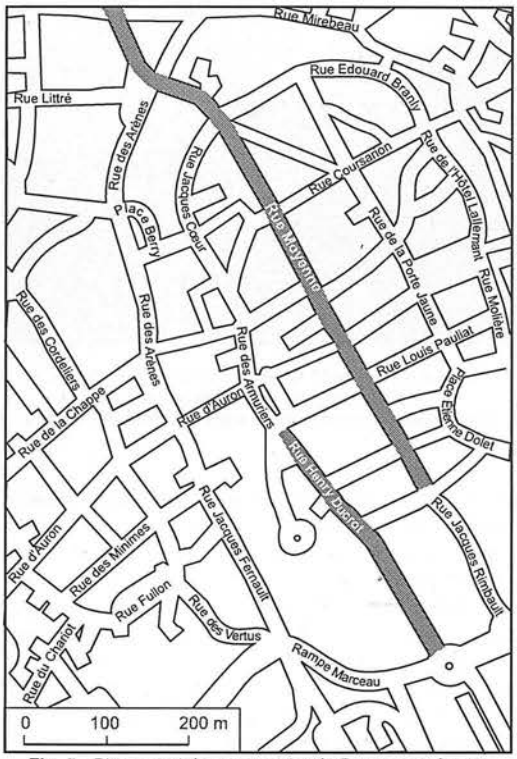


Fig. 5 : Plan actuel du promontoire de Bourges et de ses abords (extrait de Google Maps).

la topographie originelle de la partie méridionale du promontoire ne peut être restituée à cause des réaménagements successifs qui ont affecté ce secteur à l'époque moderne, notamment depuis le XVII[e] siècle. De nombreuses découvertes, notamment des séries de fossés toujours visibles au XIX[e] siècle, permettraient d'accréditer l'hypothèse de la localisation du camp de César à cet endroit, à environ 300 m du haut de la rue Moyenne, vers le sud-est (Troadec 2006 : 125 ; fig. 2 p. 132). La rue Moyenne constitue l'axe principal du centre-ville et la prolongation de la rue Jean Baffier. S'il est à peu près certain que le camp romain se trouvait au sud-est, à proximité de l'étroit passage qu'il mentionne, César ne dit pas si l'*agger* occupait le même secteur. Si l'on regarde d'autres exemples d'*agger*, on observe qu'ils ne sont pas obligatoirement en relation étroite avec un camp, comme à Massada (Yadin 1966). La localisation de l'*agger* est stratégiquement prépondérante, et il est essentiel de disposer d'un grand espace devant le dispositif pour manœuvrer les troupes et les engins.

C'est pourtant l'idée de la localisation de l'*agger* face au camp de César qui a toujours été privilégiée depuis le XIX[e] siècle (voir par exemple le plan de Napoléon III ; Rice-Holmes 1899 ; Wimmel 1974 ; Troadec 2006 : 124). Si César établit son camp à cet endroit, c'est parce que le lieu est stable, qu'il domine la zone marécageuse et qu'il est suffisamment plat pour installer les cantonnements des troupes, mais aussi parce que là, le camp bloque à cet endroit la voie d'accès la plus aisée dans le cas où l'armée de Vercingétorix approcherait. De cet emplacement, situé au sud-est de l'*oppidum*, les Romains pouvaient aussi surveiller une porte qui perçait très probablement le sud de l'enceinte. Cette porte devait se situer dans l'axe de la route de Dun (aujourd'hui rue Jean Baffier) et ouvrait sur la voie centrale qui pénétrait dans *Avaricum* et se dirigeait vers le nord. Ce fait peut être confirmé par les nombreuses découvertes le long de la route de Dun, attribuées aux deux âges du Fer (Pescher 2008).

Malgré le fait que les voiries soient mal connues dans les *oppida*, les exemples de voies axiales sont nombreux comme au Titelberg, à Bibracte ou à Châteaumeillant (Krausz 2007 a). Elles structurent l'aménagement interne de l'*oppidum* et partagent souvent la surface en deux parties presque égales qui sont probablement divisées en îlots d'habitat. À *Avaricum*, cette hypothèse est confortée par des observations archéologiques réalisées lors de plusieurs opérations préventives dans le secteur de l'actuelle rue Moyenne (Troadec 1996 : carte 4). Sous la rue actuelle, une voirie antique existe, avec par endroits des stèles funéraires en remploi (Ruffier, Philippe, Joyeux 1996 : 5). Son tracé est parfois légèrement différent de celui de la rue Moyenne. D'après les observations archéologiques réalisées en plusieurs points, cette voirie antique ne recouvre pas des niveaux d'habitat antérieurs (O. Ruffier, comm. pers.). Il semblerait donc que cette rue, la voie principale nord-sud d'*Avaricum*, était déjà une rue avant l'époque gallo-romaine. Certains auteurs ont envisagé une puissante porte rentrante à cet endroit (Wimmel 1974 : fig.14) mais il n'y a pas d'argument archéologique pour le confirmer. En tout cas, bien qu'ailleurs les portes d'*oppida* aient souvent été des lieux privilégiés pour le combat, César n'a manifestement pas choisi de l'attaquer.

3. LE FOSSÉ DU HAUT DE LA RUE MOYENNE : VESTIGE D'UN TALUS MASSIF DEVANT *AVARICUM* ?

La porte devant laquelle le camp est installé est peut-être la porte principale de la ville. Une autre découverte archéologique datée de 1987 vient conforter cette hypothèse. Lors des fouilles préventives réalisées en haut de la rue Moyenne par J. Troadec, un énorme fossé a été mis au jour. Il mesure 25 m à l'ouverture et au moins 10 m de profondeur (Fig. 6). Son profil est en V et le fond n'a pas été atteint (Troadec 1987). La paroi interne montre un épaulement

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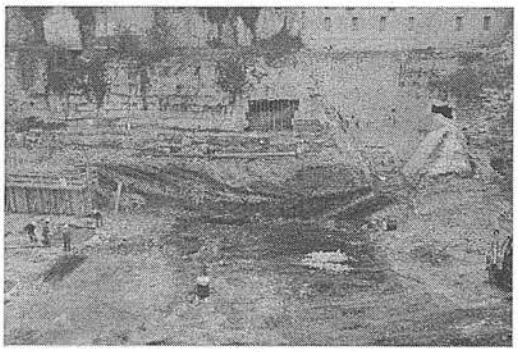


Fig. 6 : Fossé du haut de la rue Moyenne à Bourges lors des travaux d'aménagement de 1987 (cliché J. Troadec, Service archéologique de Bourges Plus).

sous le bord, sorte de ressaut sur lequel des trous de poteau ont été observés (palissade ou traces d'habitat ?). Du mobilier céramique de l'époque augustéenne a été récolté sur cet épaulement. Si ces céramiques sont en place, elles peuvent correspondre au comblement des niveaux supérieurs ; dans ce cas, cette structure a de bonnes chances d'avoir été creusée au cours du I^{er} siècle avant J.-C. Une autre observation vient soutenir cette datation : le creusement du fossé a recoupé une fosse datée de la fin du II^{e} siècle avant J.-C. (Troadec 2006 : 120). Le fossé du haut de la rue Moyenne est donc calé entre le II^{e} siècle avant J.-C. et l'époque augustéenne, avec de bonnes chances d'être contemporain du siège.

Cet énorme fossé offre toutes les caractéristiques d'une structure défensive, large et profonde à la fois (Ralston 2006 : 66). Étant donnée sa situation, même si aujourd'hui sa datation n'est pas absolument certaine, il semble bien qu'il s'agisse du fossé défensif qui se trouvait à l'extrémité de la voie centrale d'*Avaricum* ; il protégeait très probablement une porte et précédait un rempart. La question est de savoir quel type de rempart. On peut noter qu'il semble manquer le fond plat caracteristique de la plupart des « *high dumps* » (Avery 1993) français de la série Fécamp. L'ampleur de cette structure permet de la rapprocher des fossés des enceintes à talus massif, comme celle de Châteaumeillant située à 60 km au sud d'*Avaricum*. Le fossé de Châteaumeillant précède un rempart de barrage, courbe et long de 561 m (Krausz 2007 a). Il mesure 45 m de large pour 3 m de profondeur, son profil est à fond plat. La morphologie et les dimensions du fossé de la rue Moyenne sont différentes, mais on remarque une analogie frappante : le cubage extrait des deux structures, calculé au mètre linéaire, est presque identique : 125 m^3 par mètre linéaire à *Avaricum*[3] et 135 m^3 par mètre à Châteaumeillant (Fig. 7). R. E. M. Wheeler mettait les larges fossés à fond plat en relation avec la série dite « belge » des remparts de type Fécamp, mais on connaît ailleurs des cas de rempart massif précédé d'un fossé en V, au Vieux Reims à Variscourt (Aisne) par exemple. Il fait

3. Cette estimation est calculée au minimum car le fond du fossé de la rue Moyenne n'a pas été atteint ; le calcul prend en compte 10 m de profondeur.

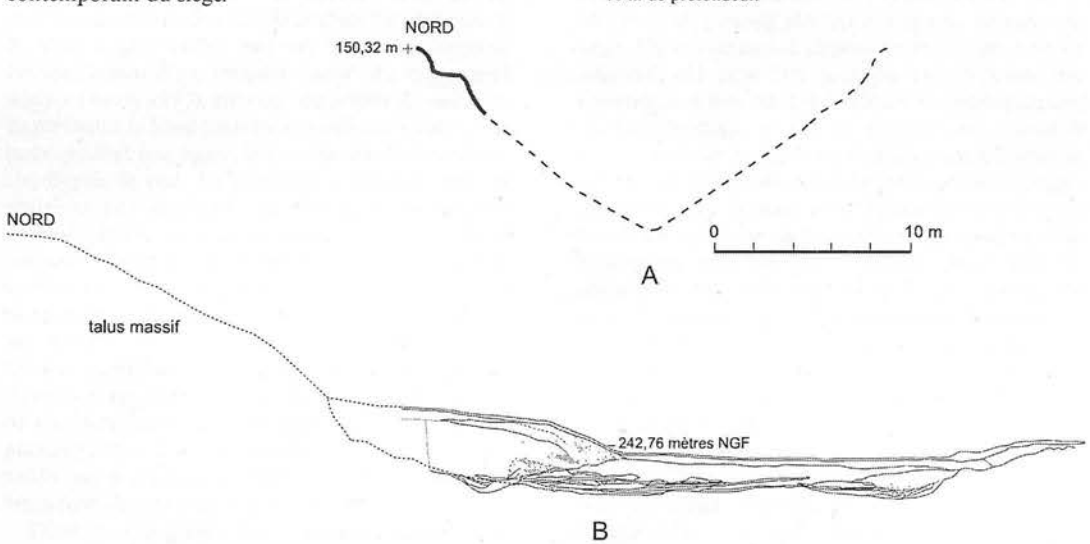


Fig. 7 : Comparaison des fossés défensifs de Bourges et de Châteaumeillant.
A : Profil restitué du fossé du haut de la rue Moyenne à Bourges ; en trait plein, le profil relevé en 1987 (d'après Troadec 1987, fig. C) ; en pointillé, le versant sud restitué (restitution graphique S. Krausz).
B : Coupe du fossé de l'*oppidum* de Châteaumeillant (fouille S. Krausz 2002).

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peu de doute que le fossé de la rue Moyenne fonctionne avec un rempart massif, car l'énorme cubage extrait d'un tel fossé (des milliers de m³) ne peut pas être transporté très loin. Cette extraction a dû servir à construire un talus de calcaire.

La topographie n'étant pas bien connue au sud du promontoire, il n'est pas possible d'estimer la longueur du rempart massif qui serait ici fondamentalement un rempart de barrage. Cette affirmation est confortée par le fait qu'ailleurs en France centrale, les remparts massifs sont généralement des remparts de barrage et probablement d'urgence (Krausz 2007 a et b), essentiellement parce que leur mise en œuvre colossale ne permet pas d'envisager le contour dans un court laps de temps. À *Avaricum*, la construction d'un rempart de barrage pouvait se justifier à cet endroit : le côté méridional du promontoire est probablement l'entrée principale, mais aussi le point le plus vulnérable de par sa position topographique (au-dessus des marais, un accès aisé par le sud-est). Ce rempart massif a donc protégé le côté le plus exposé de l'*oppidum*, comme il l'a fait à Châteaumeillant. La question est de savoir quand ce rempart massif a été construit : au cours du Ier siècle, à un moment où la menace romaine se faisait pressante ? Peut-être était-il en cours de construction au moment du siège ? Si un tel rempart massif a existé à travers la rue qui va devenir le *cardo maximus* de la ville romaine, il n'a pas laissé de vestige dans la topographie actuelle des lieux. Il est possible, en revanche, qu'une étude plus poussée du comblement du fossé du haut de la rue Moyenne puisse éclairer l'histoire des déplacements de ces énormes quantités de matériaux dans les environs. Si ce fossé a été comblé par des sédiments déversés éventuellement d'un rempart massif du type « *high dump* » (Avery 1993), elles ont dû arriver du nord ; si, en revanche, le fossé avait été comblé par les Romains pour installer leur *agger*, le fossé aurait dû être rebouché depuis le sud. La question à laquelle nous ne pouvons pas répondre, en l'absence de données archéologiques, est celle de la position exacte de ce rempart : surmontant et noyant le *murus gallicus* comme à Levroux, Châteaumeillant ou *Argentomagus* ou bien devant lui, formant une ligne double de défenses. L'existence d'un rempart double ne peut être totalement exclue. César mentionne en effet ce type d'enceinte sur l'*oppidum* des Atuatuques (*BG* II, 29) où un double mur défendait une entrée couronnée de grosses pierres et poutres taillées en pointe. L'histoire ne dit pas si cette porte défensive a été spécialement aménagée dans la crainte d'un siège.

Dans ces conditions, si on admet de façon provisoire que l'entrée sud-est de l'*oppidum* de Bourges est protégée par un rempart massif précédé d'un énorme fossé, il devient alors tout à fait improbable que César ait pu installer sa rampe d'assaut à cet endroit. En effet, le terrassement aménagé par le général mesure 300 pieds de large et 80 pieds de haut, soit 24 m de hauteur sur 100 m de large (*BG* VII, 14). La hauteur de l'*agger* paraît énorme, mais si César n'a pas exagéré, la question est de savoir quelle construction faisait 24 m en face pour justifier cette hauteur. Si le rempart massif mesure autour de 15 m de haut comme à Châteaumeillant et qu'on ajoute les 10 m de hauteur du fossé de la rue Moyenne, on obtient 25 m. Mais ceci implique que César comble l'énorme fossé, ce qu'il ne dit pas. Nous avons vu plus haut que chaque mètre du fossé nécessiterait de trouver 125 m³ de matériaux divers, sans compter le temps indispensable au tassement avant de faire circuler une machine au-dessus. La question est d'autant plus complexe qu'on ne connaît pas précisément la topographie ancienne dans le secteur de l'actuelle place du 8 mai 1945. Les rampes d'assaut servaient bien sûr en partie à régulariser le terrain et celle construite à *Avaricum* a pu remplir cet objectif. Mais pour expliquer les chiffres avancés par César, tous les auteurs placent leurs maquettes et reconstitutions du siège depuis le XIXe siècle sur le coté sud-est. On remarque que toutes les restitutions imaginent une dépression - une sorte de vallon - devant le *murus gallicus* (voir par exemple Wimmel 1974 et plus récemment Campbell 2005 a : pl. B). À notre connaissance, même si nous pouvons admettre avec J. Troadec (2006 : 123) que pendant l'Antiquité le relief était plus accidenté, il n'y a pas d'indication, ni archéologique ni géomorphologique, d'une telle dépression dans la topographie ancienne de ce secteur. De plus, l'énorme fossé découvert en 1987 pouvait être plein d'eau au moment du siège. Cette éventualité dépend toutefois du type de substrat, qui peut être plus ou moins perméable. Cependant, César écrit qu'il pleuvait continuellement pendant le siège, ce qui ne pouvait que rendre le comblement de ce fossé particulièrement compliqué. En effet, étant donnée la présence des terres argileuses dans le secteur, la pluie aurait considérablement gêné toutes les tentatives de terrassement, y compris celui de l'*agger*, quel que soit l'endroit choisi pour le construire. Les informations que nous tenons de César ne permettent pas d'envisager que le siège avait eu lieu devant ce fossé sur le côté sud-est : on apprend que les Romains creusent des galeries pour atteindre le rempart (*BG* VII, 22), les Gaulois les attaquent pendant qu'ils sapent. Le creusement de mines ou sapes est une technique de siège tout à fait habituelle, décrite par Apollodore de Damas (*Poliorcétiques* II, 1 et 2) : les soldats sapent le rempart sur la moitié de son épaisseur pour le faire s'effondrer, ils sont protégés par des tortues ou mantelets pendant ces opérations. La présence du fossé de la rue Moyenne interdit l'emploi de cette technique, qui est de toutes façons totalement vaine sur le talus massif. Celui-ci ne peut

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pas s'effondrer même si on tente de le saper sur la moitié de sa largeur[4]. Autre argument, César indique que les Gaulois augmentent la hauteur de leurs tours au fur et à mesure qu'il monte l'*agger* (*BG* VII, 22) puis relient ces tours par un plancher couvert de peaux. On peine à imaginer ce montage au-dessus d'un rempart de terre déjà très haut. La morphologie du talus massif implique que la façade extérieure du rempart est inclinée. Le glacis est obligatoirement oblique, sinon le rempart ne peut pas tenir, contrairement à un mur en pierre ou au *murus gallicus* dont le parement est vertical ou avec un léger fruit. Devant un talus incliné, la stratégie de l'*agger* est inopérante car la rampe doit se trouver au plus près du rempart pour manœuvrer les tours et le pont volant. Au moment de l'assaut, la partie supérieure de l'*agger* doit en effet être très proche du rempart pour avancer les tours mobiles le plus près possible du mur. À noter que dans le cas de l'attaque contre *Noviodunum* des Suessiones (II, 12), très probablement un rempart de type Fécamp, César nous raconte le comblement du fossé et l'utilisation des tours mobiles, mais cependant ne mentionne pas la construction d'un *agger* dans ce cas.

L'étape suivante de la manœuvre classique consiste à abaisser un pont-volant pour atteindre le sommet du rempart, dont la longueur doit se situer aux alentours de 5 à 6 m, 20 pieds selon Apollodore (*Pol.* VII, 2). Pour ne pas basculer, le point de départ du pont-volant ne doit pas être trop haut sur la tour et se situer à l'un des étages supérieurs. L'inclinaison du talus massif rend impossible l'utilisation des deux tours dont César nous assure pourtant la construction et l'utilisation pendant le siège (*BG* VII, 17 et 27). On peut enfin évoquer la célèbre description du *murus gallicus* (*BG* VII, 23), qui semble arriver au point culminant du texte, pour argumenter d'une difficulté supplémentaire à surmonter pour les Romains. Alors que doit-on comprendre : si César a devant lui un rempart massif et un grand fossé, pourquoi se lance-t-il à ce point de la narration dans la description du *murus gallicus* ? Le rapport semble ici totalement en décalage, et on a même évoqué la possibilité que César traitait des *muri gallici* au sens large, ne désignant pas celui d'*Avaricum* en particulier au VII, 23. D'ailleurs il dit « *Muri autem omnes gallici* », tous les murs gaulois, et non *muri Avarici*. Ce passage n'est pas en décalage avec les faits si César a bien attaqué un *murus gallicus*. Il l'est si l'attaque portait sur la porte sud-est d'*Avaricum*, équipée d'un rempart massif et d'un très grand fossé. Si cette hypothèse est acceptable, elle impliquerait que la porte sud-est était renforcée par un talus massif, recouvrant ou doublant un *murus gallicus* à l'avant. C'est toutefois devant cette porte défensive que César a établi son camp, ce qui rendait sa surveillance aisée et permettait le déploiement des troupes dans un espace assez vaste (esplanade actuelle, rue de Séraucourt et ancienne route de Dun). La construction de l'*agger* et des tours mobiles aurait été inopérante à cet endroit, César a nécessairement installé le terrassement dans un autre lieu, là où il pouvait manœuvrer ses machines aisément.

En suivant cette hypothèse, nous pouvons imaginer que les travaux de César ont été placés ailleurs, en face du *murus* d'*Avaricum*, là où il y avait de la place pour assembler les matériaux et faire manœuvrer son armée. À l'endroit choisi, les pentes et la position du *murus* devait rendre possible la construction de l'*agger* décrit par César, haut de 24 m. La zone marécageuse limitrophe de l'Yèvre et de ses affluents semble peu probable, étant données les difficultés pour acheminer les quantités des matériaux nécessaires pour construire l'*agger*, manœuvrer les tours et l'armée. En dépit de la proximité de la vallée de l'Auron, nous avons choisi de développer l'hypothèse selon laquelle le choix de César se serait porté sur ce côté, c'est-à-dire à l'ouest[5]. Mais c'est aussi peut-être l'emplacement le plus facile à saisir dans la topographie actuelle de la ville.

Le côté est du centre-ville actuel est aussi une possibilité qui mériterait d'être étudiée en détail : le dénivelé est important, notamment aux alentours de la rue Bourbonnoux. Mais la topographie ancienne y est plus difficile à restituer et il y a aucune indication tangible de l'emplacement du *murus gallicus* (on a toutefois une fouille près de la Cathédrale, et celle d'une cave de l'hôtel de l'évêque en 1821). Cet endroit offrait probablement suffisamment de place pour faire manœuvrer l'armée, dans les alentours du cours Anatole France. Si les Romains se trouvaient là, l'autre avantage stratégique est qu'ils pouvaient bloquer toute communication entre Vercingétorix, l'armée et la ville ; et ils se trouvaient du bon côté d'*Avaricum* pour faire la liaison avec les Éduens et les Boïens.

4. À Châteaumeillant, le talus massif mesure encore entre 30 et 40 m de large à sa base. Les calculs permettent de restituer une hauteur totale de 15 à 17 m pour le talus, depuis le fond du fossé (Krausz 2007 a).

5. La question de la localisation de l'*agger* de César est purement spéculative dans la mesure où il n'y a aucune donnée, ni textuelle, ni archéologique, donc aucune validation possible pour le moment. À l'exception de l'extrémité sud-est, presque tous les lieux seraient possibles dans le périmètre extérieur du promontoire, sauf aux alentours des zones marécageuses aux abords de l'Yèvre, et vers sa confluence avec l'Auron. Dans cette étude, nous avons essentiellement cherché à montrer que les mesures données par César pour l'*agger* correspondaient bien à la réalité d'un rempart gaulois de type *murus gallicus*. Notre propos n'est donc pas de chercher l'emplacement exact de cette rampe d'assaut.

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4. LE SIÈGE D'*AVARICUM* A-T-IL EU LIEU SUR LE CÔTÉ OUEST OU LE CÔTÉ EST ?

César ne pouvant aborder la porte sud-est, il a probablement porté ses efforts là où la défense gauloise était la plus faible. Sur les flancs est et ouest du promontoire, les versants sont par endroits abrupts et la dénivellation est importante. Sur le côté ouest, le sommet du promontoire culmine à 150 m environ, l'Auron coule à 127 m en contrebas[6]. On a donc sur ce côté une dénivellation de 23 m répartis sur 550 m de longueur (entre l'Auron et la rue Moyenne). La pente monte doucement sur les 350 premiers mètres, puis très brutalement au niveau des rues des Armuriers et Henri Ducrot (Fig. 8) ; l'altitude se stabilise rue Moyenne. Un rempart aurait pu être installé sur la pente, entre les rues des Armuriers et Moyenne, avec ou sans fossé. Le fossé mal daté de l'avenue du 95e de Ligne et rue Henri Ducrot pourrait être en relation avec ce rempart ; cette association signerait la présence d'un murus gallicus, le fossé en question étant trop étroit pour appartenir à un talus massif. Si le rempart a été construit plus bas, là où se trouvera le rempart gallo-romain des IVe et Ve siècles (entre la rue des Arènes/Fernault et la rue des Armuriers), on pourrait envisager que la défense est plus basse et qu'elle utilise le marécage pour complément. Mais dans ce cas, la construction de l'*agger*, la manœuvre de l'armée et des tours ont pu se faire dans un espace très limité.

On ne connaît pas l'ampleur du marécage à La Tène D au niveau de la rue d'Auron, mais on peut constater qu'en gravissant le versant, l'altitude monte de 3 m à 100 m à l'est de la rivière. L'altitude est stable sur les 200 m suivants de la rue d'Auron, probablement hors d'eau. Cette zone que nous prenons pour exemple, située dans l'axe de la rue d'Auron, se trouvait en contrebas du sommet du promontoire, donc en contrebas du rempart. Dans cette situation, la construction d'une terrasse de 24 m de hauteur ne paraît plus démesurée. Dans le cas où le rempart se trouve entre la rue des Arènes et la rue des Cordeliers, il se situe à une altitude de 133 m. Entre la zone hors d'eau de la rue d'Auron et la base du rempart, il y aurait donc 3 mètres. La construction d'un *agger* de 24 m de haut ne se justifie pas. Mais s'il se trouve plus haut, entre la rue des Armuriers et la rue des Arènes, sa base est à 146 m d'altitude. Depuis le bas de la rue d'Auron à 130 m, l'*agger* doit donc monter de 16 m pour atteindre la base du rempart, restent 8 m pour atteindre le chiffre de César. Ces 8 m atteignent la sommet du *murus gallicus*, ou une partie de son élévation, si on estime la hauteur du *murus gallicus* à 4 à 6 mètres (sans parapet). Comme le mentionne César, il faut imaginer des superstructures en bois au-dessus de ce rempart, que les Gaulois édifient au fur et à mesure que l'*agger* et les tours se montent. On pourrait raisonnablement estimer que les Gaulois montent des tours et des parapets d'une hauteur équivalente, soit 4 à 6 mètres supplémentaires. On obtiendrait une défense de 8 à 12 m de hauteur totale. Si on prend le maximum de cette estimation, soit 12 m, le terrassement de 24 m de haut atteindrait les 3/4 de la hauteur totale du *murus gallicus*, laissant un espace libre de 4 mètres. C'est dans cet espace que les 2 tours mobiles ont pu jouer leur rôle et permettre la prise du rempart.

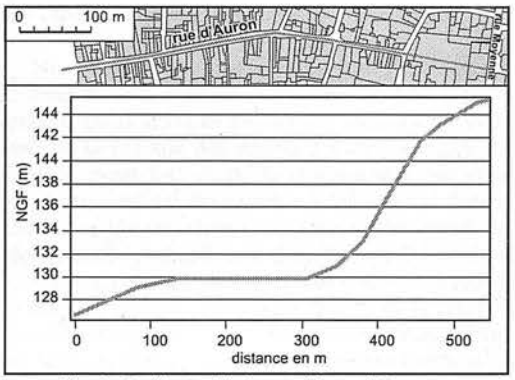


Fig. 8 : Profil actuel de la rue d'Auron à Bourges, de l'Auron à la rue Moyenne (traitement réalisé par B. Pescher d'après la BD Alti ©IGN).

D'après les architectes antiques, la hauteur des tours déployées pour les sièges est variable. Vitruve (*De Architectura*, X, XIII, 4) cite l'ingénieur grec Diades qui recommande de construire de petites tours de 60 pieds de haut pour 17 de large, le sommet devant être un cinquième plus étroit que la base (soit 18 mètres de haut pour 5 m à la base). Le même auteur cite de grandes tours très exceptionnelles, comme celle de 120 coudées de haut pour 23,5 à la base (soit 53,35 m de haut pour 10,44 à la base). Ces chiffres sont évidemment discutables. Leur véracité dépend de l'honnêteté des auteurs mais aussi des matériaux et du temps disponibles lors d'un siège. Quelquefois les plus grandes sont livrées par mer pour l'attaque des villes proches de celle-ci. Pour *Avaricum*, César ne donne pas les dimensions des tours construites, celles-ci devaient donc avoir des mesures habituelles à ses yeux. S'il s'agissait de petites tours de 10 à 15 m de hauteur, elles dominaient alors largement le sommet du *murus gallicus* de notre hypothèse. Dans ce cas, les machines situées dans les étages, catapultes, scorpions et balistes devaient être redoutables. Le bélier, dont l'utilisation n'est pas mentionnée par César, pouvait pourtant être placé dans l'un des étages des tours et abîmer le rempart. Avant que l'*agger* n'atteigne les

6. Nous remercions Benoît Pescher du Service Archéologique de Bourges Plus qui nous a fourni gracieusement tous les documents utiles pour réaliser les calculs figurant dans ce chapitre.

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24 m de hauteur dans notre exemple, les machines disposées dans les tours étaient déjà actives ; d'ailleurs le passage du VII, 24 va dans ce sens, car César ramène les tours en arrière, elles étaient donc déjà avancées et fonctionnelles.

Si on continue dans cette hypothèse, le texte de César prend un autre relief. La description du *murus gallicus* trouve ici naturellement sa place, car c'est contre ce type de rempart qu'il a construit l'*agger*. Les Romains creusent des galeries (*BG* VII, 22), ils tentent de saper le parement au pied du rempart, mais les Gaulois les en empêchent en leur lançant des projectiles (bois taillés, poix bouillante, pierres énormes). La nuit, ils creusent des galeries sous l'*agger* et y mettent le feu. Ils tentent également de mettre le feu aux tours, sans y parvenir probablement parce qu'il pleut et que les tours sont sans doute recouvertes de doubles peaux fraîches et de paille trempée dans du vinaigre (Vitruve, *Arch.* X, XIV, 3). Au chapitre 25, César raconte l'anecdote qui révèle pour lui la bravoure et le sens du sacrifice des Gaulois d'*Avaricum*. C'est un Gaulois placé devant une porte, jetant sur l'une des tours des boules de suif qu'on lui passait de main en main. La tour devait se trouver alors assez près de la porte pour qu'il lance ces boules à la main, à moins qu'il ne les tirât au bout d'une flèche. Un trait part d'un scorpion et le Gaulois tombe, immédiatement remplacé par un autre, puis un autre etc. Ce passage implique que l'*agger* ne bloquait pas la porte mais que celle-ci restait opérationnelle pendant le siège. César ne dit pas où le scorpion était placé, mais on peut penser qu'il surplombait déjà la porte, celle-ci étant sur le côté de l'*agger*, ou que la machine était en contrebas et tirait vers le haut. La preuve que les portes ne sont pas bloquées est donnée au VII, 24 où César indique que les Gaulois font une sortie par deux portes, de chaque côté des tours. Le siège d'*Avaricum* prend fin alors que César fait avancer une tour qui permet aux soldats romains de prendre le rempart (*BG* VII, 27). La stratégie de César est alors d'occuper le rempart, encerclant enfin la ville par-dessus en utilisant les planchers revêtus de peaux, construits par les Gaulois au-dessus du *murus gallicus* (*BG* VII, 22). Se voyant encerclés, les Gaulois jettent leurs armes et se précipitent tous vers l'extrémité de la ville, devant l'étroite issue des portes (*BG* VII, 28). C'est probablement vers la porte sud-est qu'ils se dirigent, où ils sont massacrés par les fantassins, déployés entre le camp romain et le haut de la rue Moyenne. 800 parviendront à s'échapper parmi les 40 000 qui se trouvaient dans *Avaricum* si on en croit César, des Bituriges mais aussi des Gaulois venus d'autres cités. Le lendemain de cette défaite, Vercingétorix console ses troupes en leur expliquant que le triomphe de César est dû à sa supériorité technique (*BG* VII, 29 : « *artificio et scientia oppugnationis* »).

EN GUISE DE CONCLUSION...

Ne pourra-t-on jamais conclure sur le siège d'*Avaricum* ? le sous-sol de Bourges ne livre jusqu'à présent qu'au compte-gouttes des indications sur le sort de la capitale des *Bituriges Cubi* au milieu du I^er^ siècle avant J.-C. Ainsi, la connaissance que nous avons aujourd'hui de ce site semble surtout dépendante des données récentes acquises sur les *oppida* du Berry, placés probablement dans l'orbite d'*Avaricum*. Ces comparaisons, même si elles restent fragiles, permettent d'entrevoir certains aspects de la capitale des Bituriges et d'avancer quelques hypothèses. Quant au texte de César, on peut le relire indéfiniment, il subsiste toujours de nombreuses zones d'ombres et des paradoxes que l'on ne parvient pas à éclaircir. Les deux types de sources se télescopent sans cesse : d'un côté les données archéologiques, tangibles et matérielles, de l'autre une histoire racontée, qui ne dit pas toujours clairement les motivations profondes et personnelles de son narrateur. À *Avaricum*, on peut être assurés aujourd'hui de l'existence de deux éléments remarquables concernant la physionomie des fortifications au milieu du I^er^ siècle avant J.-C. : d'une part le *murus gallicus* décrit par César, renforcé par des tours et des planchers en bois, percé de plusieurs portes ; d'autre part, le grand fossé défensif situé en haut de la rue Moyenne, seul vestige possible d'un talus massif. La position de cette grande structure a dû empêcher la construction de l'*agger* de César sur le côté sud-est, là où il a été placé traditionnellement. Les travaux de siège se sont donc portés à un autre endroit, nécessairement sur l'un des grands côtés du promontoire. Plusieurs hypothèses sont permises, côté ouest ou est, la hauteur du promontoire et du *murus gallicus* ne rendant pas exagérées les mesures annoncées par César.

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BIBLIOGRAPHIE

Augier, Buchsenschutz, Ralston 2007
AUGIER L., BUCHSENSCHUTZ O., RALSTON I (dir.) - *Un complexe princier de l'âge du Fer, L'habitat du promontoire de Bourges (Cher) (VIe-IVe s avant J.-C.)*, 32e Supplément à la Revue archéologique du centre de la France, Bituriga, Monographie 2007-3, Tours – Bourges, 200 p.

Avery 1993
AVERY, M. - *Hillfort defences of southern England*. BAR, British Series 231, Oxford, British archaeological reports, 3 vol.

Buchsenschutz, Ralston 1986
BUCHSENSCHUTZ O., RALSTON I. - En relisant la Guerre des Gaules, *in* : Duval A., Gomez de Soto J. (dir.), *Actes du VIIIe Colloque sur les âges du Fer en France non méditerranéenne, Angoulême, 18-19-20 mai 1984*, Bordeaux, Éd. de la Fédération Aquitania, Aquitania, Supplément 1, p. 383-387.

Buchsenschutz, Krausz, Ralston sous presse
BUCHSENSCHUTZ O., KRAUSZ S., RALSTON I. - Architecture et chronologie des remparts celtiques du Berry et du Limousin, *Colloque Murus Celticus*, Mont-Beuvray, octobre 2006.

Campbell 2005 a
CAMPBELL D.-B. - *Siege warfare in the Roman world*, Elite 126, Oxford, Osprey Publishing , 64 p.

Campbell 2005 b
CAMPBELL D.-B. - *Ancient siege warfare : Persians, Greeks, Carthaginians and Romans 546-146 BC*, Elite 121, Oxford, Osprey Publishing, 64 p.

Fichtl 2007
FICHTL S. - Le *murus gallicus* de *Vesontio* (Besançon, Doubs) : topographie et architecture , *in* : Barral P., Daubigney A. , Dunning C. (dir.), *L'âge du Fer dans l'arc jurassien et ses marges*, actes du XXIXe colloque de l'AFEAF, Bienne (Suisse), 5-8 mai 2005, vol. 1, Annales littéraires de l'Université de Franche-Comté, 826, Besançon, Presses universitaires de Franche-Comté, p. 161-168.

Gilliver 1999
GILLIVER C. M. - *The Roman art of war*, Stroud, Gloucestershire, Tempus, 192 p.

Krausz 2007 a
KRAUSZ S.- La topographie et les fortifications celtiques de l'*oppidum* biturige de Châteaumeillant-Mediolanum, *Revue archéologique du centre de la France*, sous presse.

Krausz 2007 b
KRAUSZ S. - Les remparts celtiques du centre de la France, *in* : Berrocal Rangel L., Moret P. (éd.), *Paisajes fortificados de la Edad del Hierro : la murallas protohistóricas de la Meseta y la vertiente atlántica en su contexto europeo* : actas del coloquio, Madrid, 2006, Bibliotheca archaeologica hispana 20, Madrid, Real Academia de la Historia et Casa de Velázquez, p. 135-147.

Napoléon III 1865
NAPOLÉON III - *L'histoire de Jules César*, Paris, Plon, 2 vol.

Pescher 2008
PESCHER B. - Les armes, *in* : Krausz S. (dir.), *Les Celtes dans la boucle de la Loire*, catalogue des expositions présentées par les musées de Saint-Amand-Montrond, Bourges et Châteaumeillant (Cher) du 14 avril au 29 septembre 2008, Tours, ARCHEA Éditions, p. 17-18.

Ralston 1992
RALSTON I. - *Les enceintes fortifiées du Limousin : les habitats protohistoriques de la France non-mediterranéenne*, Documents d'archéologie française, 36, Paris, Éd. de la Maison des Sciences de l'Homme, 188 p.

Ralston 2006
RALSTON I. - *Celtic fortifications*, Stroud, Gloucestershire, Tempus, 223 p.

Rice Holmes 1899
RICE HOLMES T. - *Caesar's conquest of Gaul*, London, MacMillan &Sons, 845 p.

Ruffier, Philippe, Joyeux 1996
RUFFIER O., PHILIPPE M., JOYEUX P.- L'îlot Cujas à Bourges : archéologie et histoire d'un espace urbain, *Cahiers d'histoire et d'archéologie du Berry*, 128, p. 2-64.

Troadec 1987
TROADEC J. - *Opération archéologique du haut de la rue Moyenne à Bourges (Cher)*, sauvetage programmé, campagne 1987, Rapport provisoire, Service archéologique municipal, Bourges.

Troadec 1996
TROADEC J. (dir.) - *Bourges*, Documents d'évaluation du patrimoine archéologique des villes de France, 14, Paris, AFAN, 128 p.

Troadec 2006
TROADEC J. - L'*Avaricum* de César – une ville ? *in* : Chol I. (éd.), *La mémoire des lieux. Hommage à Robert Périchon 1928-1999*, ERGA Recherches sur l'Antiquité 8, Saint Etienne, Presses universitaires Blaise Pascal, p.117-133.

Wheeler, Richardson 1957
WHEELER R. E. M., RICHARDSON K. M. - *Hill-forts of Northern France*, Reports of the Research Committee of the Society of Antiquaries of London, 19, Oxford University Press, 230 p.

Wimmel 1974
WIMMEL W. - *Die technische Seite von Caesars Unternehmen gegen Avaricum (BG 7, 13 ff.)*, Mainz : Akademie des Wissenschaften und der Literatur, 51 p.

Yadin 1966
YADIN Y. - *Masada*, London, Weidenfeld & Nicholson, 256 p.

2007: (with Olivier Buchsenschutz) 'Dépôts et fortifications à l'âge du Fer', *in eds* Barral, P., Daubigney, A., Dunning, C., Kaenel, G., and Roulière-Lambert, M.-J. 2007 *L'âge du Fer dans l'arc jurassien et ses marges. Dépôts, lieux sacrés et territorialité à l'âge du Fer,* 745-64. Besançon: Presses universitaires de Franche-Comté. (= Actes XXIX Coll. Internat. de l'Association française pour l'Étude de l'Age du Fer).

L'âge du Fer dans l'arc jurassien et ses marges. Dépôts, lieux sacrés et territorialité à l'âge du Fer. Actes du XXIX^e colloque international de l'AFEAF; Bienne, 5-8 mai 2005, volume 2. Barral Ph., Daubigney A., Dunning C., Kaenel G., Roulière-Lambert M.-J. (éds.), Besançon : Presses universitaires de Franche-Comté, 2007, 757-776 (Annales Littéraires; Série « Environnement, sociétés et archéologie »)

Dépôts et fortifications à l'âge du Fer

Olivier BUCHSENSCHUTZ*, Ian RALSTON**

Résumé

Un certain nombre de sites fortifiés de France, des îles britanniques et d'Europe centrale ont livré des dépôts. Certains exemples remontent jusqu'à l'âge du Bronze. Il s'agit, en général, soit de squelettes ou de parties de squelettes humains, soit de dépôts métalliques; nous laisserons de côté les fragments de sculptures et les monnaies. Les dépôts peuvent être scellés sous le rempart, inclus dans le corps de la fortification, placés à sa proximité immédiate, déposés près des portes, sur le sommet ou sur les pentes de la zone protégée par les remparts. Nous essayerons de voir dans quelle mesure l'introduction de milliers de fiches en fer dans les murus gallicus *du I^er siècle av. J.-C., difficile à expliquer sur le plan architectural, s'inscrit dans une tradition et une démarche symbolique plus large. Nous explorerons un certain nombre d'exemples sans prétendre dresser un bilan complet du sujet.*

Abstract

An outline consideration of hoards and special deposits in, or in close proximity to, the defences of protohistoric hillforts and related sites focuses in particular on skeletal remains and metalwork finds. A variety of practices are noted, and examples are cited from central and western continental Europe and Britain. While some instances are explicable in terms of routine practices, others – perhaps including the inclusion of iron spikes in walls of murus gallicus type – appear more symbolic in intent. A selective gazetteer is appended.

Introduction

Le thème que nous avons choisi d'aborder s'est révélé beaucoup plus riche que prévu. Aussi, nous nous limiterons à quelques exemples, pour montrer qu'il y a bien des dépôts associés aux sites fortifiés et aux fortifications elles-mêmes. Nous avons complètement laissé de côté le problème de la position des enceintes dans le paysage, et de la visibilité de leurs aménagements internes depuis l'extérieur (Hamilton et Manley, 2001). Nous n'avons pas retenu les enceintes associées aux cachettes du Bronze final, ni celles qui abritent une activité métallurgique, comme par exemple le Fort Harrouard à Sorel-Moussel (Eure-et-Loir).

Nous avons examiné essentiellement les dépôts métalliques et les dépôts d'ossements animaux ou humains, pour montrer la variété et la fréquence des pratiques à travers différentes régions du monde celtique. Quand cela était possible, nous avons cherché à examiner leur position par rapport à la fortification et par rapport au plan du gisement. Enfin, nous avons mis en évidence des oppositions régionales qui sont suffisamment contrastées pour qu'elles ne soient pas le fait du hasard.

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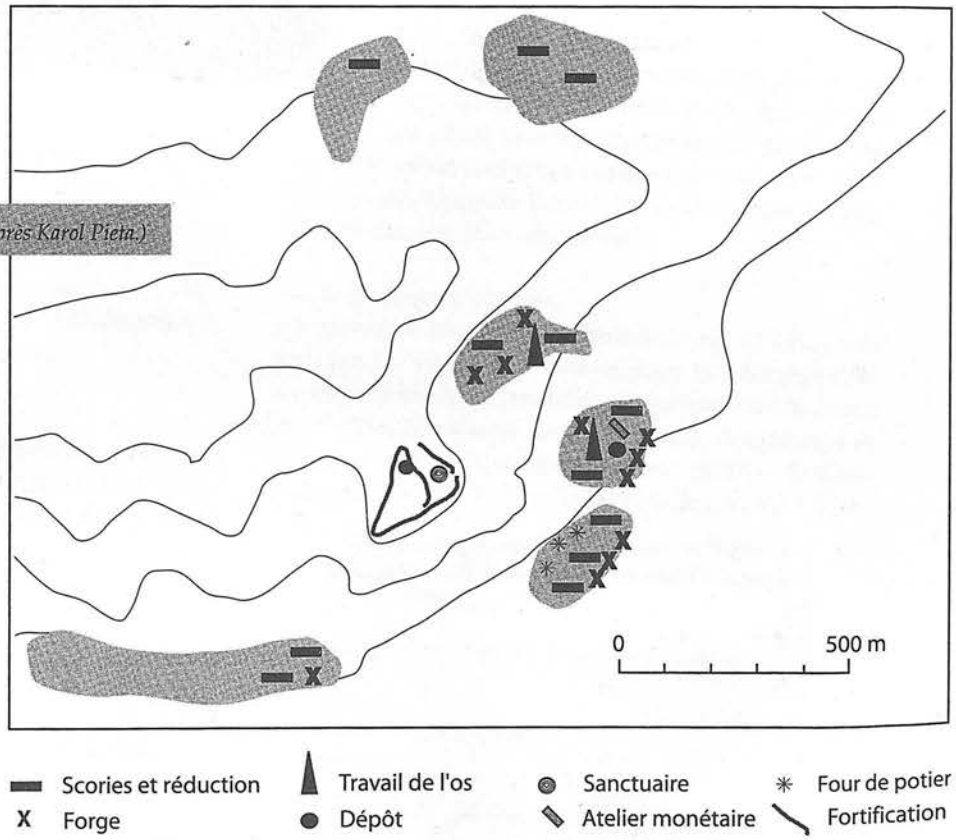
1. Nature des dépôts

1.1. Le métal

C'est la concentration d'objets en métal, et surtout d'objets en fer, qui est la plus frappante sur les sites fortifiés. Il s'agit non seulement de dépôts d'objets achevés, mais aussi d'objets semi-finis et même dans certains cas de traces de fabrication. Celles-ci ont été observées près des fortifications ou des portes, ce qui est une position normale pour ce genre d'activité. On peut citer les cas de Gussage all Saints (Wessex), Maiden Castle (Wessex), Bryn y Castell (N-W Wales), ou encore Heidetränk-Talenge (Hesse).

À Liptovska Mara (SK), le site fortifié a livré un dépôt d'objets métalliques. Tout autour, une série de gisements satellites sont consacrés à l'artisanat, dont on n'a pas découvert de trace à l'intérieur de l'enceinte. Ici les zones d'activités artisanales sont clairement séparées du lieu de dépôt. (Pieta, 2000) (Fig. 1).

Fig. 1 : Liptovska Mara (d'après Karol Pieta.)



À Pohanska, Plavecké Podhadie, (Malacky SK), on connaît aujourd'hui plus de six dépôts à l'intérieur de la fortification (Pieta, com. personnelle). Il s'agit en général de produits finis, mais l'une des cachettes a livré six *currency bars*.

En Grande Bretagne, on connaît de nombreux dépôts de *currency bars* sur les habitats (Fig. 2). Hingley (1990) a déjà remarqué que dans le sud et le centre de l'Angleterre, ces objets étaient associés avec des sites enclos ou fortifiés. Le plus grand dépôt, à Meon Hill (Warwickshire), comptait 394 pièces, soit environ 20 % du nombre total d'objets de ce type connus en Angleterre. À Salmonsbury, qui est également une découverte du XIX[e] siècle, les 147 *currency bars* ont été découvertes dans une carrière de gravier, sur la pente interne de la fortification interne, associées semble-t-il à des ossements humains (Fox, 1940).

1.1.1. Quantité

Les objets en fer qui sont retrouvés sur les sites fortifiés du continent sont presque tous des objets achevés, qu'ils soient complets ou brisés. Leur contexte précis de découverte est le plus souvent inconnu, mais leur nombre est impressionnant: plus de 1400 à Vienne (Isère), plus d'une centaine à l'Altenburg Niedenstein, à Heidetränk-Talenge et au Dünsberg dans la Hesse, à la Steinsburg (Thuringe), à Pohanska (Slovaquie), à Galish Lovacka (Ukraine) (Bidzlijar, 1964). Ces chiffres sont inférieurs aux décomptes des objets métalliques sur les habitats de La Tène C et D, ruraux comme Acy-Romance (Ardennes) ou artisanaux, comme Levroux Les Arènes (Indre), mais la proportion d'objets complets, et particulièrement des outils, est beaucoup plus forte. Il s'agit d'ob-

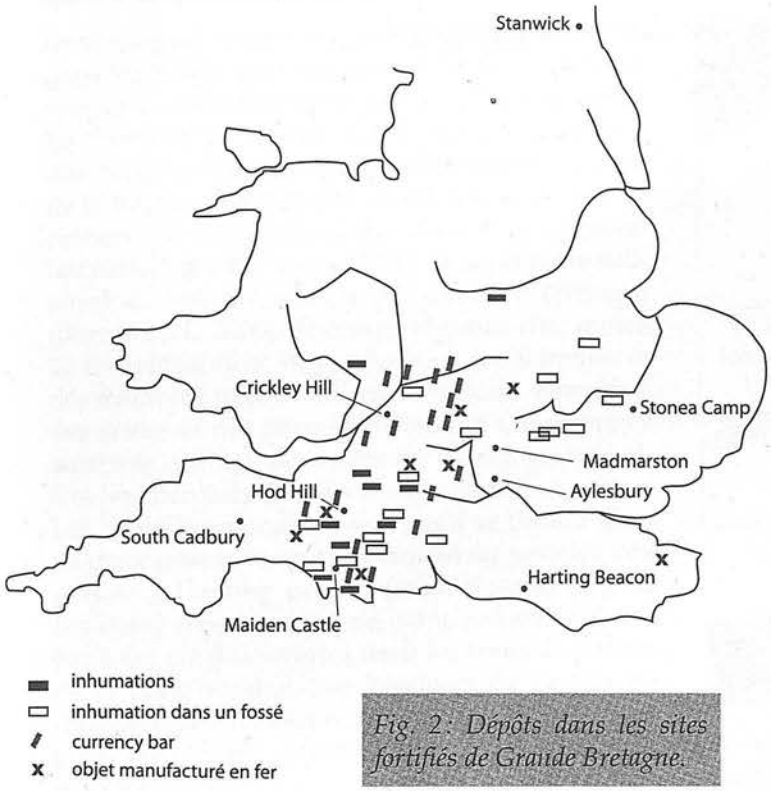


Fig. 2 : Dépôts dans les sites fortifiés de Grande Bretagne.

jets beaucoup plus lourds, on imagine mal qu'ils aient été perdus, même s'ils sont souvent récoltés isolément. Pour faire une comparaison utile entre les sites fortifiés et les habitats, il faudrait analyser non seulement le nombre, mais aussi les poids des objets, en séparant les objets manufacturés des chutes et des fragments indéterminés.

1.1.2. Nature

Les catégories d'objets représentées sur les sites fortifiés de La Tène en Europe centrale sont relativement homogènes. Il s'agit en ordre décroissant d'outils pour le travail du bois, d'outillage agricole, de pièces de harnachement, d'outils pour le travail du métal, d'armes et de mobilier domestique. L'outillage en général occupe de loin la première place. Les armes sont nettement moins représentées que dans les dépôts en milieu naturel, dans les sanctuaires, ou dans les sépultures. Exception faite de certains sites comme la Steinsburg, les parures sont très rares.

Même si cette panoplie d'objets est relativement large, elle se distingue clairement des autres assemblages que nous connaissons à l'époque de La Tène.

1.1.3. Datation

Ces dépôts d'objets sur les sites fortifiés existent déjà au Bronze final, comme par exemple sur le Bleibeskopf (Hesse), avec une répartition caractéristique associant dépôts et objets isolés (Müller-Karpe, 1975). La datation des objets en fer est difficile à établir, dans la mesure où la plupart sont découverts hors contexte. Les classifications typologiques, pour l'outillage par exemple, sont encore très vagues: les auteurs n'ont pas les mêmes opinions sur la date d'apparition d'outils comme la herse ou la faux, et sur la datation des différents types de socs ou marteaux (Spehr, compte rendu de la publication du Dünsberg de Jacobi dans *Germania* 1978). Il faudrait reconstruire une chronotypologie de l'outillage métallique à partir de découvertes en contexte stratifié et daté par d'autres catégories d'objets. Les résultats spectaculaires des prospections de surface ne remplacent pas la fouille systématique qui livre les objets dans leur contexte stratigraphique

1.2. Les ossements

1.2.1. Ossements animaux

Les dépôts d'ossements animaux associés aux fortifications se caractérisent par un choix délibéré de certaines parties du squelette et de certaines espèces. Le nombre d'individus est toujours limité. Ils se distinguent clairement des dépôts culinaires.

1.2.2. Ossements humains

La présence d'ossements humains est attestée sur quelques dizaines de sites et sous des formes très variées: entre le « cimetière de guerre » de la porte est de Maiden Castle dans le Dorset, Angleterre et les squelettes inclus dans le *murus gallicus* de l'Impernal (Viré, 1913) (Fig. 3) les fouilleurs ont identi-



Fig. 3 : Dépôt dans le rempart de l'Impernal, à Luzech (d'après A. Viré).

fié des corps, intacts ou partiellement conservés, dans les fossés, près des portes, sous ou dans les remparts, avec ou sans mobilier (Whimster, 1981). Le cimetière de Maiden Castle compte 52 individus: à Spettisbury (Dorset), la destruction du fossé de la fortification par une voie ferrée a révélé une centaine de corps entremêlés associés à du mobilier métallique (Gresham, 1939). Dans la porte sud-ouest de South Cadbury par exemple (Wessex) (Barrett *et al.*, 2000), des corps disjoints d'au moins 22 individus, dont des enfants et des femmes, et des membres isolés, mais en connexion, associés à des armes et des parures métalliques, interprétés autrefois comme des restes de massacre, rappellent les charniers des sanctuaires picards.
Les restes humains peuvent aussi se limiter à un ou deux crânes, trouvés isolément ou associés aux portes: à Harting Beacon (West Sussex) (Fig. 4), des dents appartenant à un crâne recueilli dans le fossé ont été découvertes dans les trous de poteau de la porte voisine. Sur l'*oppidum* de La Cloche (Bouches-du-Rhône), un crâne découvert près de la porte était encore attaché à sa fixation métallique (Chabot, 2004).

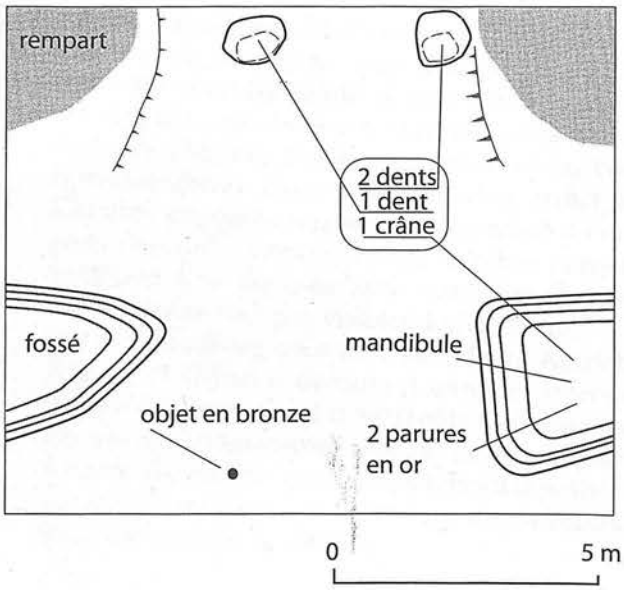


Fig. 4: Harting Beacon, dépôts humains dans la porte (d'après Bedwin.)

1.3. Autres dépôts

Des objets plus anciens que la fortification sont souvent observés dans la masse des remparts, comme le mobilier néolithique dans le rempart du Mont Beuvray ou la céramique de l'âge du Bronze dans le *murus gallicus* de Murcens (Cras, Lot) (Buchsenschutz et Mercadier, 1989): ces objets isolés sont venus avec le matériau de construction. Mais parfois les fouilleurs identifient des dépôts volontaires, comme par exemple à White Horse Hill (Berkshire Downs) où Gary Lock (Miles *et al.*, 2004) a découvert des ensembles de céramique du VII[e] siècle déposés dans un rempart du IV[e] siècle av. J.-C.

2. La position des dépôts

La position des dépôts est très variée et, quand elle peut être observée, significative. Nous donnons ici quelques exemples, sans prétendre qu'ils aient une quelconque valeur statistique.

2.1. La position stratigraphique par rapport aux fortifications

2.1.1. Les dépôts de fondation
Les structures observées sous le rempart peuvent être fossilisées par hasard, ou correspondre à une volonté délibérée. À Hod Hill (Stourpaine, Dorset), une femme est enterrée ficelée en position contractée dans une fosse remplie de calcaire et recouverte d'un tas du même matériau (Fig. 5). Le rempart de la contrescarpe a été construit directement par-dessus cette structure alors bien visible (Richmond, 1968). Sur le secteur H de Maiden Castle (Fig. 6a), un squelette de jeune homme repose dans une fosse creusée dans le substrat, et placée à la jonction entre deux tronçons de rempart appartenant à deux phases successives. À Bredon-on-the-Hill (Leicestershire), les ossements disjoints de deux individus ont été découverts sous un rempart (Whimster, 1981).

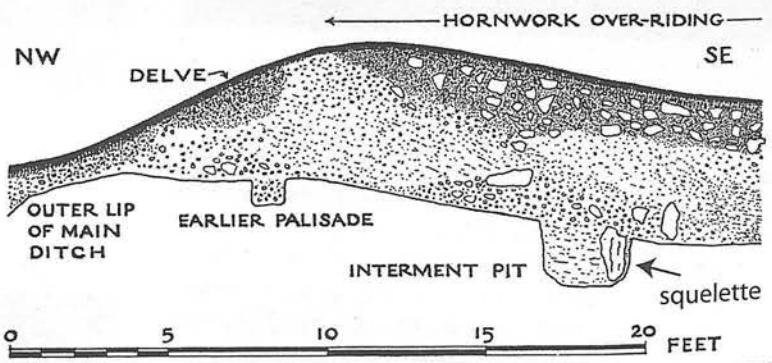


Fig. 5: Rempart de Hod Hill, coupe à l'extérieur du « Steepleton Gate »; le rempart a été construit sur une fosse contenant un squelette alors encore visible (d'après Richmond, 1968, Fig. 10a avec la permission des Trustees du British Museum).



Fig. 6 a: Squelette sous le rempart de Maiden Castle, sépulture de fondation (d'après Wheeler, 1943, Fig. 7 avec la permission du Society of Antiquaries of London).

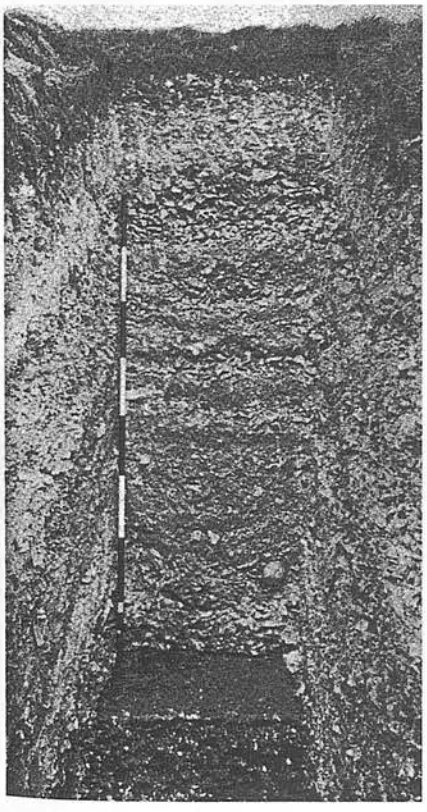


Fig. 6 b: Maiden Castle. Squelette de femme (T18) enterrée les bras et jambes repliés dans le remplissage pendant la construction du rempart au sud de la porte est (d'après Wheeler, 1943, pl. XLVI avec la permission de la Society of Antiquaries of London).

À Eildon Hill North (Scottish Borders), une fosse sous le rempart a livré des restes d'animaux, dont plusieurs dents d'un cheval adulte partiellement brûlées (McCormick dans Owen, 1992). La datation ^{14}C correspond à celle de la construction du rempart.

2.1.2. Les dépôts dans l'architecture de la fortification

On connaît au moins deux cas de dépôt d'un squelette d'adulte replié déposé dans la masse du rempart: une femme à Maiden Castle dans la tranchée CXI (Fig. 6 b), un homme à Sutton Walls (Herefordshire), dans la fortification principale. Ces deux dépôts sont noyés dans la masse du rempart, alors qu'à l'Impernal (Lot), les restes humains semblent être déposés avec beaucoup de soin, même s'ils ne sont pas visibles de l'extérieur.

Sur le Gründberg près de Linz (Haute Autriche) (Fig. 7), O. Urban a découvert dans le parement interne du rempart sud trois dépôts métalliques de dix à vingt kilogrammes chacun: ils étaient placés à l'intérieur du mur en pierres sèches à des distances d'environ 1,5 m. Un quatrième dépôt reposait dans une couche de déblais.

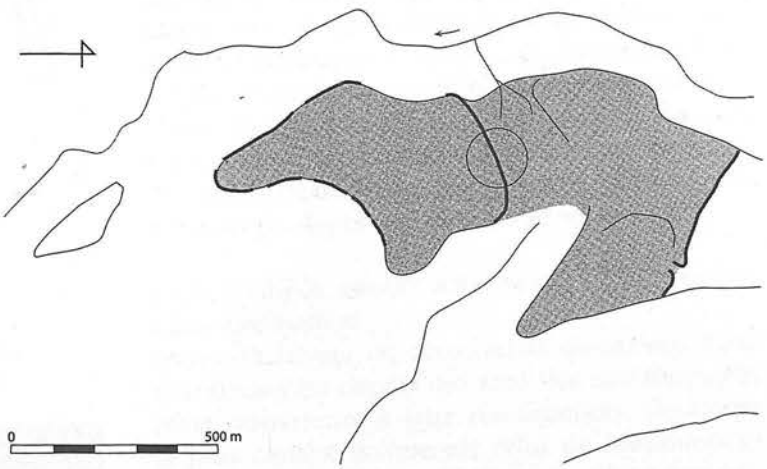


Fig. 7: Dépôts métalliques dans le rempart du Grünberg (d'après O. Urban).

2.1.3. Les dépôts dans les portes

Les quatre trous des poteaux qui encadrent la porte de la première fortification de l'âge du Fer de Crickley Hill (Gloucestershire) (Fig. 8) ont livré des restes osseux: à gauche en entrant des mandibules de verrat, à droite des crânes de chèvre. Les autres trous de poteau n'ont pas livré d'ossements; il s'agit bien d'un dépôt volontaire au moment de la construction, « Presumably some purpose such as the conferring on the gates of the vitality of the animals was here intended » écrit Dixon (1994).

L'exemple célèbre de la porte est de Manching (Bavière), – un enfant enterré sous le passage, et deux crânes humains sans doute exposés sur la porte ou sur un poteau –, fait partie d'une série de dépôts liés aux portes, mais pas nécessairement mis en place au moment de leur construction (Sievers, 2003). Un chien a, par exemple, été enterré dans le passage sud de la porte est de Maiden Castle.

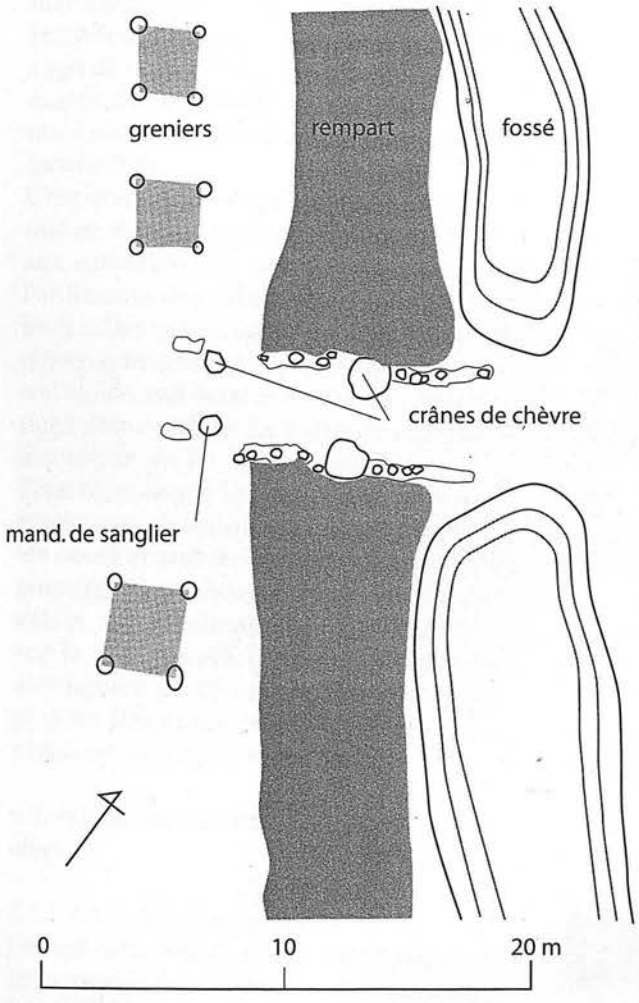


Fig. 8 : Dépôts animaux dans la porte de Crickley Hill (d'après Dixon).

Enfin plusieurs fouilles ont révélé des objets ou des ossements déposés au moment de la destruction ou l'abandon de la porte : il s'agit, soit d'éléments qui étaient exposés sur le bâtiment, soit de traces de l'événement qui a conduit à sa destruction (La Cloche, Harting Beacon, Sutton Walls, Maiden Castle, South Cadbury, Bredon Hill, Stanwick...).

2.1.4. Les dépôts dans les fossés

Les fossés ont livré toutes sortes de mobilier. Parfois il s'agit bien de dépôts volontaires, comme le crâne d'enfant, fendu par une lame, trouvé avec d'autres restes humains dans le fossé sud de Stonea Camp (Cambridgeshire : Malim, 1992), ou de sépultures partielles ou complètes. Nous savons ailleurs que les fossés, sur les sanctuaires ou dans certains habitats enclos, abritent des dépôts spéciaux : par exemple les nouveau-nés dans les fossés de Gussage All Saints (Dorset : Wainwright, 1979). À Wilbury Camp, Letchworth, (Hertfordshire) en revanche, le squelette d'un homme adulte gisait au fond du fossé, tandis que deux autres squelettes étaient insérés dans des fosses coupées à travers le rempart dans le voisinage d'une porte (Applebaum, 1949). Il faudrait, pour vérifier l'extension et la cohérence de ces pratiques dans les fossés des sites fortifiés, explorer ces structures sur une plus grande longueur qu'on ne le fait d'habitude. Certaines découvertes sont déjà prometteuses : par exemple à Harting Beacon, deux objets en or de type « *hair ring* » accompagnaient le crâne décrit plus haut ; à Stanwick, dans le Yorkshire, le fond humide du fossé à proximité de la porte B a livré un crâne et une épée dans son fourreau. Dans l'enceinte « The Ditches » à North Cerney dans le Gloucestershire (Trow, 1988), le fouilleur a trouvé une cachette de dix *currency bars* au fond du fossé près de son extrémité, protégées par une couverture de dalles de calcaire. À Aylesbury, Buckinghamshire, une fortification de l'âge du Fer a été reconnue en pleine ville : dans le voisinage d'un secteur qui a livré des squelettes d'humains et d'animaux, limitrophe d'une fosse remplie de fragments d'ossements mélangés, un crâne gisait dans le fond du fossé (Farley, 1986, et comm. pers.). Les datations ^{14}C suggèrent une date assez précoce dans l'âge du Fer pour les dépôts situés à l'intérieur du site.

2.1.5. Les dépôts associés aux remparts mais postérieurs à leur construction

Avant d'analyser les découvertes de surface, nous examinons les dépôts qui sont liés aux remparts, mais postérieurs à leur construction. L'exemple le plus caractéristique est celui de Madmarston (Oxfordshire) (Fowler, 1960), qui a livré des *currency bars* et des objets en fer, regroupés dans une fosse creusée à la base de la rampe interne du rempart. On trouve dans la même position à Nadbury (Warwickshire) (McArthur, 1990) des *currency bars* associées à des ossements animaux. À plusieurs reprises, comme à Danebury et South Cadbury, les *currency bars* ont été retrouvées à proximité immédiate de la fortification. D'autres objets en fer ont été retrouvés dans les couches supérieures des fortifications, comme à Burnswark Hill (Jobey, 1978). En Europe centrale, certains dépôts se trouvent sur les remparts ou à proximité, mais il s'agit en réalité de sites où les objets sont largement répartis sur la surface interne de la fortification. Enfin, la publication de ce colloque apportera sans doute, des précisions sur les squelettes découverts à Besançon, alignés en bordure de la rivière, devant le *murus gallicus*.

2.1.6. Les dépôts en surface

Un groupe de sites de l'est de l'Angleterre a livré des nombreux objets métalliques, surtout des objets

manufacturés comme Bigbury (Kent), ou Hunsbury (Northants) (Manning, 1972). Il s'agit de découvertes anciennes, la position exacte des découvertes n'est pas connue, mais elle n'est jamais liée directement à la fortification.

C'est une situation qui est à peu près générale en Europe centrale. Cela tient parfois aux conditions de découverte, à cause de l'utilisation des détecteurs à métaux. Mais les fouilles ont confirmé que la plupart des objets se trouvaient répartis sur les pentes; soit isolés, soit sous la forme de concentrations assez lâches. La carte de répartition des objets de La Tène ancienne et de La Tène récente sur la Steinsburg (Thuringe) révèle une accumulation au pied des pentes ouest et sud de la fortification. À l'Altenburg Niedenstein, la « *Massenfund* » s'étale sur plusieurs dizaines de mètres sur la pente ouest (Fig. 9). Les fouilleurs distinguent un niveau profond qui a livré plus de 200 objets très fragmentés, et un niveau superficiel d'objets intacts.

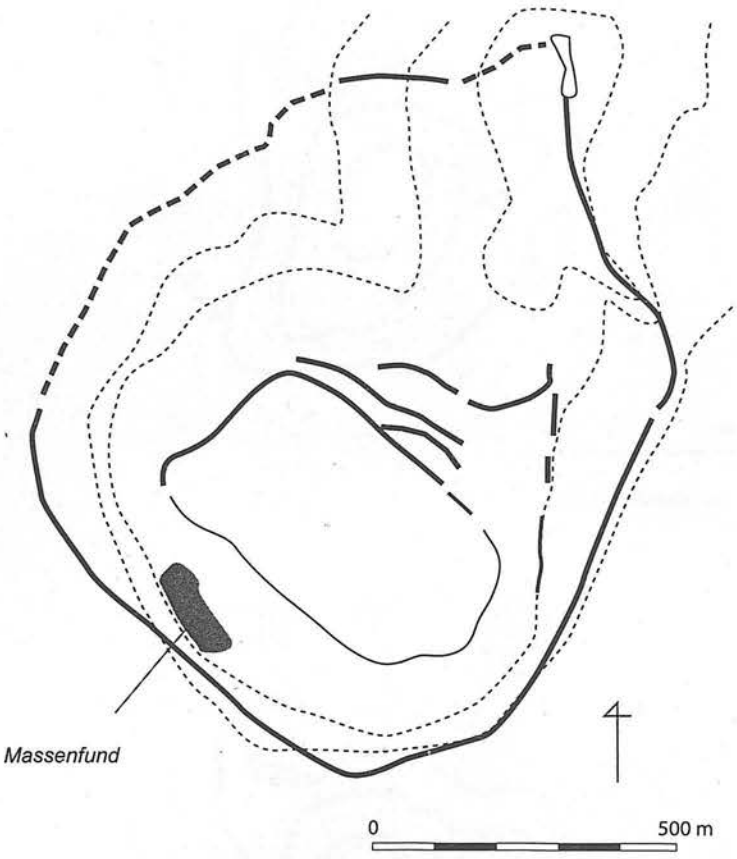


Fig. 9 : Dépôt métallique étalé sur l'Altenburg Niedenstein (d'après U. Söder.)

2.2. Nature et position des dépôts sur les sites

2.2.1. *Cachettes et dépositions*

Devant cette réalité, il faut distinguer entre deux catégories de dépôts: les concentrations d'objets déposés en une seule fois (« *hoards* » en anglais), et les dépôts plus lâches et probablement étalés dans le temps, (« *special deposits* »). Les deux semblent coexister sur les mêmes sites, mais il est difficile dans l'état actuel des publications et dans les circonstances peu favorables de la plupart des découvertes de poursuivre plus loin l'analyse.

Les répartitions dont nous disposons pour le Dünsberg (Hesse) (Jacobi) (Fig. 10) permettent de différencier la zone la plus favorable à l'habitat, qui a livré des objets dispersés à toutes les périodes, du sommet ou des pentes sud qui ont révélé des dépôts de La Tène ancienne.

2.2.2. *Les pentes*

Il faut bien constater qu'un certain nombre de sites fortifiés de Hesse, de Slovaquie et d'Autriche, livrent, dispersés sur les pentes à l'abri des fortifications, une quantité d'objets manufacturés largement supérieure à celle qu'on connaît par exemple sur les habitats ouverts. Des cachettes, comme celle qui regroupait huit faux et une pierre à aiguiser à Heidetränk (Hesse) (Exposition, 2003) ont été, sur plusieurs sites, observées au milieu de cette nappe d'objets. Rappelons que les traces de production, et même les produits semi-finis, sont très rares sur ce groupe de sites. Il faut attendre des fouilles et des prospections contrôlées pour progresser dans cette analyse.

2.2.3. *Les sommets*

Quoiqu'il en soit, l'association globale de ces riches dépôts avec les sites fortifiés nous paraît évidente. L'enceinte est le lieu dans lequel on accumule des objets manufacturés, neufs ou usagés, sous la forme de dépôts plus ou moins concentrés, dans le temps, sans doute, comme dans l'espace. Quelquefois, comme à Pohanska ou à Liptovska Mara (Pieta, 2003), les cachettes les plus riches sont regroupées au sommet du site. Dans ce dernier site, le dépôt d'objets achevés près du sommet du site fortifié s'oppose aux zones artisanales non encloses qui sont réparties aux alentours.

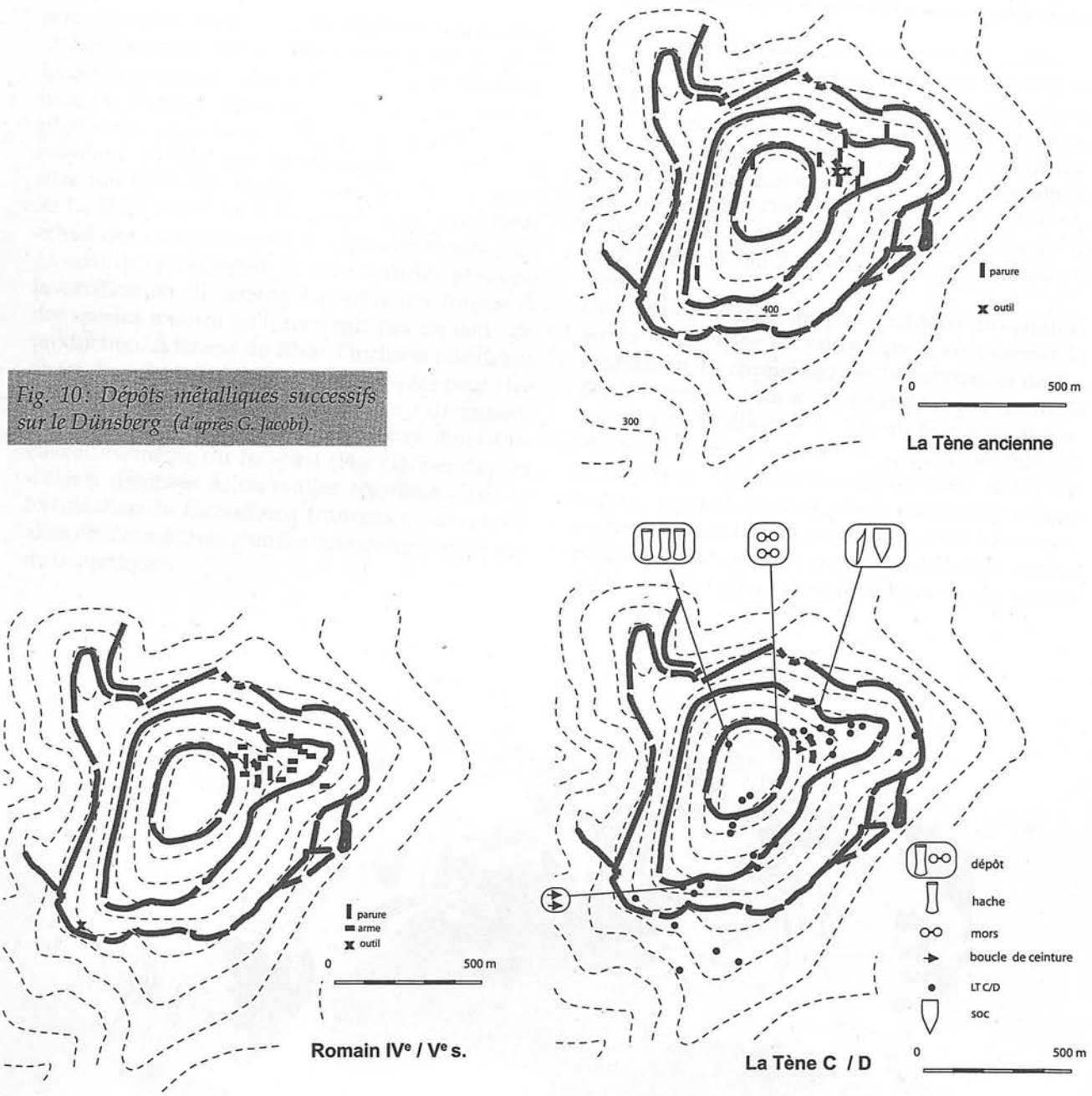


Fig. 10: Dépôts métalliques successifs sur le Dünsberg (d'après G. Jacobi).

3. Discussion

Le tour d'horizon que nous avons fait est bien loin d'être exhaustif. On peut toutefois déjà constater que les corrélations entre les dépôts et les fortifications sont trop nombreuses pour être dues au seul hasard. Il s'agit, tantôt d'objets déposés en une seule fois (*hoards*), tantôt d'objets déposés progressivement, mais toujours de façon volontaire (*special deposits*). Les dépôts superficiels sont les plus nombreux, mais aussi les plus faciles à observer, surtout avec les détecteurs de métaux. Les fouilles ont cependant révélé des cas de dépôts antérieurs à la construction de la fortification, mais visiblement liés à sa construction, ainsi que des dépôts inclus dans les remparts. De nombreuses portes ont révélé des dépôts liés à leur utilisation; il peut s'agir aussi parfois de restes de trophées, mais cela est bien sûr difficile à prouver. Pour les autres secteurs de l'enceinte, les occasions de découverte restent évidemment très rares. La plupart du temps, les datations restent sujettes à caution, dans la mesure où ni le contexte, ni la typologie des objets concernés ne permettent une grande précision.

Les conditions de découverte ne sont pas les mêmes suivant les pays, mais cela n'explique pas de très fortes différences régionales. Dans les îles britanniques, toutes les positions stratigraphiques

sont attestées. Dans le centre-sud de l'Angleterre, les *currency bars* sont les objets métalliques les plus fréquents, souvent directement liés à la fortification. En Europe centrale, les découvertes sont la plupart du temps hors stratigraphie. En Allemagne moyenne, en Tchéquie, en Slovaquie, de nombreux sites ont livré des objets manufacturés datables de La Tène ancienne à La Tène finale. Dans l'état actuel des connaissances, il s'agit de dépôts progressifs qui privilégient la zone fortifiée plus que la fortification elle-même. La rareté des lingots et des scories montre qu'il ne s'agit pas de lieux de production. À l'ouest du Rhin, l'inclusion de fiches en fer dans les *murus gallicus* au contraire peut être considérée comme la volonté d'inclure de grosses quantités de fer sous forme de fiches dans l'architecture-même du rempart (Fig. 11). Les dépôts d'objets disposés à intervalles réguliers dans la fortification du Gründberg (Autriche), pourraient alors être considérés comme la transition entre ces deux pratiques.

Les dépôts de squelettes, humains ou animaux, comme de sculptures, ne semblent pas spécifiques des sites fortifiés : ils rappellent ce qui a été observé dans les sanctuaires ou dans certains habitats ouverts. Nous relevons cependant là aussi de fortes variations régionales, par exemple les sculptures en réemploi dans les remparts du midi de la France, ou les squelettes dans les portes, beaucoup plus fréquents en Angleterre du sud que sur le continent.

Une analyse beaucoup plus poussée des contextes de découverte est nécessaire pour préciser la répartition, la chronologie et la succession de ces dépôts, comme cela a été démontré par exemple pour South Cadbury (Fig. 12), où plusieurs événements de différentes natures se sont succédé, ou bien Sutton Walls, où la stratigraphie révèle au contraire qu'il s'agit du dépôt de plusieurs hommes jeunes morts de façon violente (Fig. 13 a). Mais nous pouvons déjà constater que ni les batailles, ni l'activité artisanale, ni même la présence d'un habitat

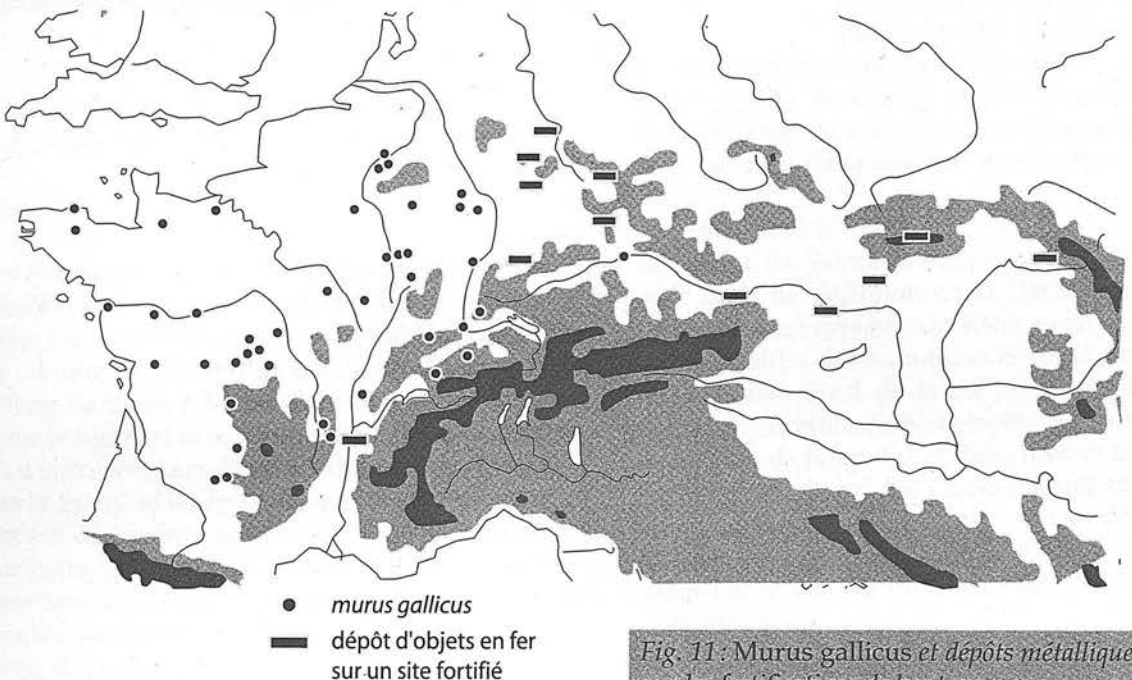


Fig. 11 : Murus gallicus et dépôts métalliques sur les fortifications de hauteur.

1. Charbons, ferrures, quelques squelettes armes parures	Vestiges en place de destruction de la porte
2. Squelettes partiels, parures	Ruissellement des restes d'un bûcher situé plus haut
3. Fragments de crânes brûlés	Pièces issues de « trophées » exposés sur la porte
4. Amas de clés et fibules dispersées	Objets abandonnés par les fuyards
5. Parties de squelettes, parures, armes sacrifiées	Dépôts volontaires relevant d'un rituel
6. Céramique et fibules plus récentes	Comblement naturel
7. Objets variés en petite quantité	Réaménagement de la porte et de la voie

Fig. 12 : Identification des « massacre levels » dans la porte sud-ouest de South Cadbury, (d'après Woodward et Hill, 2000).

permanent, ne constituent généralement une explication suffisante pour justifier ces concentrations exceptionnelles d'objets. Il s'agit de manifestations de pratiques cultuelles plutôt que d'activités économiques normales, (production, consommation, distribution). C'est pour cette raison sans doute qu'elles varient suivant les régions et les périodes. La poursuite des recherches révélera certainement d'autres pratiques...

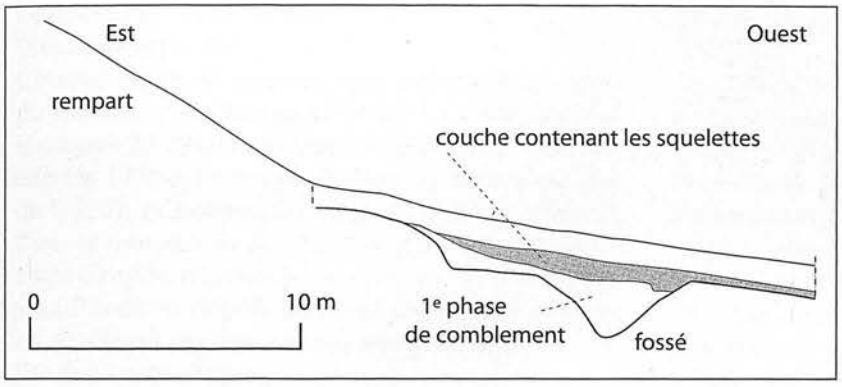


Fig. 13 a : Sutton Walls. la coupe donne la position des squelettes qui sont photographiés sur la figure 13 b.

SÉLECTION DE DÉPÔTS DANS DES SITES FORTIFIÉS

FRANCE

Les Pennes Mirabeau (Bouches-du-Rhône), *oppidum* de La Cloche (Chabot, 2004)
Cette fortification occupe une hauteur de la chaîne calcaire de La Nerthe, contrôlant l'axe qui relie l'étang de Berre à Marseille. Une voie d'accès traverse le rempart et se prolonge à l'intérieur de l'habitat entre les murs de pierre des maisons. Des crânes humains et les ferrures qui servaient à les fixer ont été découverts au pied de la porte d'entrée et sur cette voie. Des fragments de statues de personnages accroupis inscrivent ce gisement dans la famille des habitats fortifiés de Provence qui ont livré, dans des portiques ou des sanctuaires, des crânes ou des masques humains.

Levroux (Indre) (Buchsenschutz *et al.*, 1975)
Dans le cœur du *murus gallicus* qui entoure une fortification de 20 ha sur La Colline des Tours, un dépôt constitué d'une monnaie et d'un bracelet en bronze sur lequel étaient enfilées sept perles de verre a été découvert dans l'argile, entre les grilles de poutres horizontales. Il s'agit certainement d'un dépôt volontaire, le corps de ce rempart n'ayant par ailleurs livré que très peu de mobilier.

Luzech, l'Impernal (Lot) (Viré, 1913 et 1936)
Un dépôt constitué d'un crâne et d'un tronc a été abondamment reproduit dans plusieurs manuels d'archéologie. L'orientation de la figure donne l'impression que ces ossements étaient visibles sur la face externe du rempart, alors que d'après la description ci-dessous, le parement masque le corps. C'est l'orientation du dessin qui est en réalité ambiguë.

Viré écrit en effet en 1913, p. 700, qu'un crâne d'enfant (il n'avait pas encore développé ses dents) était « soigneusement déposé sur une pierre plate dans l'intérieur du mur, derrière le parement externe ; la face était tournée franchement vers l'extérieur. À deux mètres de là, tout un squelette d'enfant de sept ans environ était allongé dans le remplissage du mur, également à peu près en contact avec le parement externe. » Plus loin un squelette d'adulte allongé gisait sous une pierre plate. « C'est sur la face supérieure de cette pierre qu'était placée la tête, absolument intacte, et entourée d'une sorte de caisson de pierres plates posées de champ (*sic*). L'atlas était encore en connexion avec le crâne, tandis que l'axis était réuni au reste de la colonne vertébrale. »

Vienne (Isère) (Chapotat, 1970)
La colline de Sainte-Blandine, la colline du Pipet et le cône de déjection de la Gère, dessinent les contours d'un *oppidum* de 40 ha environ. La trouvaille se situe dans un talus bordant un chemin, sur la pente nord de la colline, immédiatement derrière l'enceinte du bas-empire. Sur une dizaine de mètres de longueur et deux mètres de hauteur ont été recueillies 1 400 pièces de bronze, de fer et de céramique dans 4 m³ de terre. Des découvertes avaient déjà été faites antérieurement dans cette zone. On ignore les limites de cette concentration de mobilier.

ALLEMAGNE

Altenburg Niedenstein (Schwalm-Eder Kr., Hesse, D) (Söder, 2004)
Cet habitat fortifié occupe, au sud de Kassel sur près de 70 ha, les sommets de deux collines de basalte et leurs pentes. Les fouilles récentes ont permis de dater l'occupation de La Tène moyenne, et de fouiller soigneusement une *Massenfund* sur la pente sud-est grâce à deux tranchées totalisant 90 m². À la base de l'humus ont été recueillis

plus de 200 fragments d'objets, parmi lesquels des armes et des outils, datés de La Tène moyenne... En surface les objets sont plus souvent intacts, il s'agit de pièces de char, de parures, d'outils pour la forge, l'agriculture et le travail du cuir, de mobilier domestique, attribuables à La Tène finale.

Bleibeskopf (Bad Homburg, Kr. Hochtaunus D) (Müller-Karpe, 1975)
Cette enceinte de sommet, qui couvre 6 ha, a livré du mobilier des Champs d'Urnes. La répartition de quelques 35 objets en bronze découverts dans les années 1970 est connue: il s'agit de quatre dépôts de 6, 2, 11, et 2 objets, 2 à l'intérieur de l'enceinte et 2 sur le rempart, et de 13 objets isolés en surface. Il s'agit d'outils, d'armes et de parures. La déposition simultanée en dépôts ou isolés en surface d'objets relativement précieux existe avant le plein âge du Fer dans cette région.

Dünsberg (Kr. Wetzlar, Hesse D) (Jacobi, 1977)
Le sommet de la haute colline du Dünsberg a été fortifié dès La Tène ancienne, ses pentes à La Tène finale, l'occupation couvre en tout 90 ha. Des vestiges subsistent depuis l'âge du Bronze jusqu'à l'époque mérovingienne, mais c'est l'époque La Tène qui a laissé le plus de traces. Des exploitations de minerai de fer sont connues au pied du site.
Si la collection complète compte une cinquantaine d'objets en fer, seulement quatre petits dépôts sont connus: le premier contient trois haches, le deuxième un soc et un coutre, le troisième deux mors, le quatrième trois mors. Les fouilles de Ritterling ont donné des armes, des outils, des parures, des objets domestiques, des outils pour la forge, le travail du bois et l'agriculture, des pièces de harnachement, des armes. Il est intéressant de comparer les répartitions des objets aux différentes périodes: la zone la plus propice à l'habitat regroupe toujours de nombreux objets isolés, qui sont essentiellement des armes à l'époque romaine; les petits dépôts sont plutôt sur le sommet ou sur la pente sud. Les interprétations guerrières de la déformation des armes par Jacobi, contestées par Spehr qui suggère leur destruction « *in orgiastischer Rage* » ne sont plus acceptables aujourd'hui. À côté de petits dépôts de type *hoard*, les objets dispersés sont trop nombreux et de trop bonne qualité pour avoir été perdus dans l'habitat ou au cours d'un assaut.

Egloffstein-Schweinthal (Kr Forchheim, D.) (Abels, 1988)
Des objets isolés ainsi qu'un dépôt ont été découverts au pied de la fortification du Heidelberg, datée de La Tène ancienne: un pendentif en bronze brut de fonte, trois haches, deux lances, une clavette et une charnière de char. Dans le dépôt situé sur la pente ouest de la fortification ont été recueillis des objets domestiques, des outils pour travailler le bois et pour la forge, et des armes, qui appartiennent à La Tène en général.

Heidetränk-Talenge (Oberursel, Kr. Obertaunus, Hesse D) (Müller-Karpe et Müller-Karpe, 1977; Schlott et Spennemann, 1984)
Cet *oppidum* de 130 ha à La Tène finale enserre dans deux enceintes, deux sommets, le Goldgrube occupé à partir du III[e] siècle, et l'Altenhöfe à partir du V[e] siècle. Il a été abandonné au milieu du I[er] siècle av. J.-C. Il y aurait peut-être un quartier d'artisans entre cet ensemble de fortifications et le *Heidengraben* qui court dans la plaine du nord au sud. Les objets découverts par les prospecteurs ne sont malheureusement pas localisés. Des fouilles récentes ont révélé des traces de sépultures et une aire de crémation devant la porte nord. Huit faux et une pierre à aiguiser proviendraient d'un même dépôt. Parmi plusieurs centaines d'objets métalliques, on relève des outils agricoles, domestiques, de forge, des pièces de harnachement, des objets décorés et des représentations plastiques d'animaux, des monnaies... Les conditions de découvertes ne permettent de connaître ni la quantité, ni la localisation des objets. Même pour un oppidum densément habité, ils semblent particulièrement nombreux.

Neuenbürg (Wurtemberg, Pforzheim, N de la Schwarzwald D) (Jensen, 1974, 1981)
L'habitat de La Tène, V[e]-IV[e] siècle du Schlossberg est situé dans une boucle de l'Enz; il n'y a pas de trace de fortification artificielle, mais le site est naturellement protégé. Des affleurements de fer et de nombreuses mines existent à proximité. Les fouilleurs de l'entre-deux guerres ne décrivent pas les contextes de découverte, mais ils auraient trouvé des foyers et du clayonnage. Le mobilier métallique est exceptionnellement abondant: « *Es handelt sich überwiegend um handgefertige und scheibengedrehte Tonware. Daneben überrascht die verhältnissmässige Grosse Zahl der Fibeln, Ringe und Eisengeräte* »: enclume, clé, couteau, ciseau à douille, marteau, soc, faux, etc.

Steinsburg (Kleiner Gleichberg, Kr. Meiningen D) (Peschel, 1975; Spehr, 1980)
La colline basaltique fortifiée de la Steinsburg présente trois lignes de fortifications étagées depuis son sommet jusqu'au bas des pentes. La plus large, qui délimite une surface de 66 ha, est datée de La Tène finale, la plus ancienne au sommet a été construite dès le Hallstatt D. De très nombreux objets métalliques, en bronze ou en fer, ont été récoltés sur ce gisement: des parures, des outils

agricoles, des haches, des lopins. On a relevé des battitures qui suggèrent la présence de forges. La répartition des découvertes, esquissée par Peschel en 1962, se développe surtout sur les pentes en arrière du rempart externe, pour les deux périodes principales.

SUISSE

Engehalbinsel, Tiefenau, (Berne, CH) (Müller, 1990)
Un dépôt comprenant un millier d'objets a été découvert en 1849 dans la partie la plus ancienne de l'*oppidum* de Engehalbinsel. Il comprend, à côté d'une grande quantité d'armes, des outils, des parures, des éléments de harnachement, des lingots, des monnaies. Comme il a été fouillé en plusieurs campagnes, et que les objets ont été dispersés dans plusieurs collections, on ne connaît pas exactement le contexte. F. Müller a démontré que les épées, souvent pliées et volontairement altérées, dataient de La Tène C1, soit de la fin du III[e] siècle, et que les fibules couvraient un champ chronologique plus large et plus récent. Il rapproche ce dépôt de ceux de La Tène (Neuchâtel) et de Gournay-sur-Aronde (Oise). À deux cents mètres au nord-ouest a été construit un rempart dont les poutres étaient liées par des fiches en fer.

AUTRICHE

Braunsberg, (Hainburg-an-der-Donau, Niederösterreich, Ö) (Urban, 1995)
Le Braunsberg occupe une position clé sur une colline isolée au bord du Danube, près de la *Porta Hungarica*. La fortification datée de La Tène C1, du type Hollingbury, protège 23 ha. Des maisons ont été observées sur des terrasses à l'intérieur du site. À proximité a été découvert en 1996 un dépôt qui comprend des armes, des bandages de roue, un couteau. Un trésor monétaire avait déjà été récolté sur le site en 1737.

Gründberg, (Linz, Oberösterreich Ö) (Ruprechtsberger et Urban, 1977)
Le Gründberg est construit sur un éperon barré par deux lignes de fortification et couvre environ 60 ha. Il s'agit de remparts en terre, bois et pierres, une porte rentrante s'ouvre dans le barrage nord. Trois dépôts ont été découverts en 1997 dans la fouille du barrage sud, dans le parement interne en pierre d'un rempart à poutrage. Ils étaient placés à l'intérieur du mur en pierres sèches à des distances d'environ 1,5 m. Un quatrième dépôt a été récolté dans les déblais. Ces dépôts réunissent chacun dix à vingt kilogrammes d'objets en fer, des outils, des objets à fonction domestique, des armes, des pièces de harnachement, des lopins. Il est daté des II[e] et I[e] siècle av. J.-C.

SLOVAQUIE

Liptovskà Mara, (Liptowska Sielnica, Bez. Liptovsky Mikùlas, Nord Slovaquie SK) (Pieta, 2000, 2002)
Le sommet de la colline de Liptovskà Mara, protégé par deux remparts sur une surface de deux ha, abrite un sanctuaire et un habitat de la culture de Puchov à partir du II[e] siècle av. J.-C. Un dépôt a été découvert en 1992 à soixante mètres de l'espace cultuel, à l'intérieur de la fortification interne. Il comprend une trentaine d'objets agricoles, des outils pour le travail du bois, des objets domestiques. Six petites agglomérations ouvertes réunissant des activités artisanales ont été repérées tout autour du site fortifié.

Pohanska, (Plavecké Podhadie, Malacky, SK) (Pieta, 2003)
Le gisement occupe une colline de 49 ha, son acropole réunit deux sommets, et une autre ligne de fortifications se dresse en bas de pente. Trois dépôts ont été mis au jour entre 1968 et 1971. Le premier a livré des outils, une clé, une clavette de char, un fourreau; le second, des haches, des anses de récipient, une enclume; le troisième comprenait six *currency bars*. Plusieurs autres dépôts ont été trouvés par des clandestins, sur l'acropole et ailleurs. Cents objets d'un dépôt trouvé en 2001 furent mis au jour sous un monticule de terre et de grandes pierres plates sur l'acropole plus de cent objets: des pièces de harnachement, des outils pour l'agriculture et le travail du bois, des objets domestiques.

Dépôt hors de fortifications

Kolin (Bohême CS) (Rybova et Motykova, 1983)
La découverte du dépôt, qui a eu lieu en 1936, se situe en plaine, 50 km en amont du confluent de la Vltava et de l'Elbe, au centre de la ville actuelle. Il contient 68 objets représentant 15 kg de fer. Il s'agit d'objets domestiques, d'outils pour le travail du fer et pour l'agriculture, de pièces de harnachement, d'armes. La publication, qui date cet ensemble de La Tène finale, fait le point sur de nombreux dépôts d'Europe centrale.

GRANDE BRETAGNE

Les notices suivantes fournissent certains détails pertinents sur une sélection d'enceintes britanniques. Pour les restes humains proches ou dans les

fortifications, on peut se reporter à une discussion très utile dans Whimster, 1981.

Bigbury/Bigberry, Kent

« Oppidum » à l'ouest de Canterbury, de la série des *Cantii*, dans la vallée de la rivière Stour du Kent actuel. Surface: environ 10 ha, avec une annexe d'environ 3 ha. Fouillé à plusieurs reprises, par Jessup et Cook dans les années 1930, et par Thompson *et al.* à la fin des années 1970, le site est connu pour avoir fourni, surtout au moment de l'extraction de graviers au XIX[e] siècle, une quantité impressionnante d'objets en fer: outils (y compris des socs d'araires), éléments de harnachement (mors de bride) et de char, un andiron, des entraves et des crémaillères. La plupart semble dater de la fin de l'âge du Fer, mais certains du début de la période romaine; Manning (1972) pense que beaucoup de ces objets étaient à l'origine dans des cachettes.

Bredon Hill, Hereford et Worcester

Bredon Hill, un site d'environ 4,5 ha, se trouve à une altitude d'environ 300 m dans les Cotswolds, les collines à la limite sud du Worcestershire. Fouillée dans les années 1930, l'intérêt de cette enceinte vient des découvertes faites par Hencken (1938) aux alentours de la porte rentrante de la fortification interne, un rempart en glacis qui était probablement le plus récent sur la colline (Hogg, 1975). Cette porte avait été abandonnée après sa dernière remodélisation, suite à des événements violents marqués par la présence d'au moins 64 corps humains incomplets dans le passage de l'entrée (il n'avait que 27 crânes), associés a des armements – pierres de fronde, épée, poignard, couteau, javelots ou fers de lance, marteaux – et d'autres objets du tout début de notre ère au plus tard. En outre, six fragments de crâne étaient associés à une planche brûlée, qui avait peut-être fait partie de la porte. Hencken envisageait un massacre après une lutte entre le groupe autochtone et des envahisseurs belges, plutôt que l'impact de l'armée romaine.

Burnswark, Dumfries and Galloway, Écosse

Burnswark Hill (Hoddom Parish/paroisse) est un massif imposant dans la partie sud de la vallée de la rivière Annan dans le sud de l'Écosse. Une enceinte de contour de forme complexe occupe le sommet, entourée par un seul rempart; la surface atteint 7 ha au maximum. Cette enceinte est bordée au nord-est et sud-ouest par deux camps militaires romains. Bien que souvent citées comme l'exemple de traces archéologiques d'une attaque de l'armée romaine contre l'*oppidum* principal des *Novantae*, les fouilles restreintes de Jobey dans les années 1960 (1978), et la préparation récente d'un relevé détaillé (RCAHMS, 1997) montrent en fait une séquence d'utilisation plus longue et complexe. Les rares datations ^{14}C indiquent que les fortifications de l'âge du Fer ont été érigées à une date précoce et que ces fortifications étaient déjà en ruines au moment de l'intervention romaine. Une épée probablement de la fin de l'âge du Fer, associée à une monnaie romaine, a été trouvée dans la queue du rempart pendant les fouilles de Jobey.

Harting Beacon, West Sussex

Il s'agit d'une enceinte d'environ 10 ha, rangée parmi la série de « grandes enceintes de sommet faiblement défendues » décrites par Cunliffe (2005: 378-382). Datant des premiers siècles de l'âge du Fer, ces *hill-forts* ne livrent souvent que des traces d'occupation éparses. Harting Beacon se trouve à la limite nord des South Downs. Les fouilles de Bedwin (1979; 1983) vers 1980 ont élargi les connaissances du site, dont Keef (1953) a fouillé une porte. De l'extrémité sud du fossé limitrophe de la porte, Keef a extrait un crâne humain (du remplissage supérieur), des ossements d'animaux domestiques (y compris du cheval) et deux anneaux penannulaires (type « *hair-ring* » : Taylor, 1980) en or datant de l'âge du Bronze final ont été découverts dans le chemin d'accès. Il est impossible de savoir si ces anneaux étaient toujours en usage au commencement de l'âge du Fer (d'autres exemples se trouvent sur d'autres enceintes, par exemple Highdown Hill dans le Sussex, et, en alliage cuivreux, à Traprain Law, East Lothian) ou s'ils étaient résiduels au commencement de l'âge du Fer. Au crâne manquaient six dents, dont trois se trouvaient dans les remplissages de deux trous de poteau de la porte, indiquant que l'abandon de la porte et du fossé est contemporain; ceci a nécessité un traitement assez particulier du crâne. Ailleurs, un des trous de poteau de la porte est bloqué par l'inclusion des fragments de meule de type va-et-vient. Le crâne est daté par le ^{14}C de 270 ± 80 avant J.-C. (HAR-2411 non calibré).

Hod Hill, Dorset

Le site imposant de Hod Hill (22 ha; RCHM, 1970) est occupé par une enceinte, composée généralement de deux remparts et fossés plus une contrescarpe, qui présente plusieurs phases d'utilisation et de nombreuses modifications au cours de l'âge du Fer. Après la conquête, un fort romain est établi à l'intérieur de l'enceinte. Le site a été fouillé pour le British Museum dans les années 1950 par Sir Ian Richmond. Les observations analysées ici se trouvaient à l'extérieur de la porte, au nord, du côté est

de l'enceinte, le « Steepleton Gate ». L'inhumation de la femme gisait sans mobilier dans une petite fosse remplie de blocs de craie entassés sur une hauteur d'environ 0,50 m, visibles en surface au moment où ils ont été recouverts par les couches du rempart de la contrescarpe. De plus cette inhumation était placée à l'emplacement de la jonction, plus tardive, entre deux systèmes de défense. Pour Richmond (1968, 16, pls 6 et 7a et fig. 10A) « *Doubtless the general intention was to provide the new entrance with a guardian spirit...* » par cette « *foundation burial* ». Il faut aussi remarquer les traces du squelette d'un jeune homme près de la palissade externe de la fortification précédente (Richmond, 1968). Le caractère de ce dépôt reste cependant incertain.

Hunsbury, Northamptonshire

Cette enceinte de moins de 2 ha se trouve maintenant dans un parc à la limite sud de la ville de Northampton (RCHM, 1985). Le rempart principal a été coupé par Richard Atkinson en 1952 et Jackson (1993-1994) a examiné une zone érodée en 1988, où il a étudié l'architecture du mur et obtenu des datations ^{14}C. La première fortification présente des poteaux verticaux et un mur de pierres extraites du fossé, tandis que la seconde est un glacis intégrant des pierres rubéfiées extraites du mur précédent. Les datations isotopiques et quelques tessons laissent supposer que la première fortification se situe entre le VIII^e^ et le IV^e^ siècle av. J.-C.; le rempart en glacis est à dater probablement dans le dernier quart du millénaire.

Au XIX^e^ siècle, l'intérieur du site a été gravement entamé par des carrières pour l'extraction du minerai de fer. Environ 300 fosses, de 1,5 à 3 m de diamètre et jusqu'à 1,80 m en profondeur, ont été vidées pendant les années 1880; les objets recueillis sont déposés au musée de Northampton. Ils comprennent des tessons de céramique, environ 159 meules, fibules en alliage cuivreux, et des *currency bars*, des outils et armes en fer, y compris des épées avec des fourreaux en bronze ou en fer (Fell, 1936; Jope, 2000). Les quantités d'objets en fer sont impressionnantes (Manning, 1972), et la découverte de deux socs d'araire emboîtés laisse supposer des pratiques volontaires de déposition pour au moins certains des objets. La grande majorité semble dater vers la fin de l'âge du Fer. Rien ne prouve une connexion avec les fortifications dans ce cas, mais Hunsbury appartient au groupe des enceintes qui ont fourni beaucoup de mobilier en fer.

Maiden Castle, Dorset

Fouillé avant la guerre, et puis dans les années 1980 (Wheeler, 1943; Sharples, 1991a, 1991b), cette enceinte (45 ha maximum y compris les fortifications) reste un des sites classiques de l'âge du Fer de la région du Wessex. Déjà occupée pendant le Néolithique, le sommet montre une séquence assez complexe d'occupations et de fortifications successives pendant tout l'âge du Fer, tandis qu'il est bien évident que ni l'extension du gisement, ni l'intensité de son utilisation ne sont constantes. Plusieurs aspects peuvent retenir notre attention. Le célèbre cimetière dans l'entrée de l'est, interprété par Wheeler comme le témoin direct d'une attaque romaine contre le site, est à revoir: si 14 des 52 sépultures montrent des traces de blessures sur les ossements, certaines étaient en parties résorbées, et d'autres sépultures sont assez riches : on peut donc envisager d'autres hypothèses pour expliquer pourquoi ils ont été enterrés à cet endroit (Sharples 1991a; 1991b).

Sharples (1991a), dans son modèle préféré pour la construction des remparts de Maiden Castle, suggère que les fortifications ont été élargies et maintenues de façon quasi-continue sur environ trois siècles. La main d'œuvre aurait été fournie par les habitants du voisinage, contraints par la corvée. Il est possible que certaines des inhumations intimement associées avec les fortifications soient les leurs. Par exemple, la femme (T18; Wheeler, 1943, 347 et pl. XLVI) enterrée pendant la construction du rempart moyen au sud de la porte est, était déposée les bras et jambes pliés dans la masse des remplissages successifs. Un squelette de jeune homme, sans mobilier, trouvé les mains sur le bassin au fond d'une fosse en forme de silo coupée a travers le rempart primitif (Wheeler, 1943, 346, pl. XLIV et 38-9 et fig 7), est considéré comme l'indication d'une sépulture de fondation, car le remplissage supérieur du fossé (coupé à travers le gazon et le remplissage de rempart primitif) est identique à celui du rempart postérieur, et les bords de la fosse, bien que friables, n'ont pas souffert de l'érosion. D'autres restes humains, complets ou partiels, sont aussi associés avec les remparts (p.e. Wheeler 1943, 346, n^os^ 10 et 11) ou un fossé dans l'entrée de l'est (Wheeler 1943, 347-8, *skeletons* T1 et T19; pl XLVA).

Salmonsbury Camp, Gloucestershire

C'est une grande enceinte rectiligne d'environ 22 ha, dans les environs de la rivière Windrush, à l'est des collines du Cotswold. Les deux fortifications, chacune précédée d'un fossé, sont maintenant très réduites dans certains secteurs. Ce camp a été fouillé entre 1931 et 1934, et aussi aux alentours de 1980, mais les résultats n'ont pas été publiés dans le détail avant 1976 (Dunning, 1931, 1976). Une occupation de l'âge du Fer précoce est apparemment scellée sous le rempart; on a aussi trouvé des céramiques de l'âge du Fer moyen (« *Middle Iron Age*

saucepan pots ») et des indications d'une occupation importante (céramiques « Belges ») à la fin de l'âge du Fer (« *oppidum* » dans le sens anglais du terme) et pendant la période romaine, quand des traces de charrue dans un des fossés laissent supposer que les fortifications étaient alors déjà très diminuées. La cachette de « *currency bars* » décrite ci-dessus a été découverte en 1880. Les fouilles plus récentes ont fourni d'autres objets en fer, surtout de la fin de l'âge du Fer, mais seulement deux fragments de « *currency bar* ».

Spetisbury (ou Spettisbury) Rings, Dorset

Ce « hillfort » d'environ 2 ha est dans le voisinage de la rivière Stour, proche de Blandford Forum dans le Dorset. L'enceinte unique, probablement inachevée, surplombe la rivière dont elle est séparée par une ligne de chemin de fer, maintenant abandonnée, construite en 1857 (RCHM, 1970). La fortification comprend un rempart précédé d'un fossé, dans l'angle nord-est de laquelle les ouvriers, travaillant sur la ligne de chemin de fer, ont trouvé 80 à 90 squelettes humains (Gresham, 1939). Ils étaient enterrés dans une fosse (env. 10 m par 4 m, env. 2,5 m de profondeur), accompagnés d'armes et d'autres objets (y compris des « *currency bars* » , un torque en fer et un chaudron: Jope, 2000). Parmi les armes, certains javelots ressemblent aux types romains, et l'interprétation classique voit dans ce dépôt extraordinaire un nettoyage à la suite de la prise du site par l'armée romaine. Mais certaines de ces armes, notamment deux fragments d'épées du type II de Piggott (1950) peuvent être plus anciennes. Quarante autres squelettes ont été découverts aux alentours vers la même date, mais dans des circonstances inconnues.

South Cadbury, Somerset

Cette enceinte complexe d'environ 8 ha, fouillée par Alcock (1972), est publiée par Barrett *et al.* (2000). D'autres recherches qui se poursuivent dans les alentours de la colline ont livré, entre autres, un bouclier en alliage cuivreux de la fin de l'âge du Bronze. South Cadbury est occupée pendant l'âge du Fer, pendant la période romaine, puis réutilisée avec de nouvelles fortifications imposantes pendant l'époque des Migrations aux V^e^ et VI^e^ siècle ap. J.-C. Les limites du site ont fourni quelques exemples de dépôts spéciaux. Deux sépultures sont en liaison étroite avec la dernière fortification pré-romaine; une inhumation d'un nouveau-né proche de la porte sud-ouest est en relation avec un dépôt de pierres de fronde; une sépulture d'un jeune homme ficelé se trouve dans une fosse sous la queue de la même fortification (Barrett *et al.*, 2000; Alcock, 1972). Il y avait aussi une cachette d'objets pour la plupart en fer derrière la fortification interne (rempart 1), qui comprend des outils et un « *currency bar* » (Barrett *et al.*, 2000).

En revanche, les trouvailles les plus intéressantes dans notre perspective sont les dépôts de cadavres humains et d'objets trouvés dans le passage d'entrée de la porte du sud-ouest. L'analyse de ces dépôts par Ann Woodward, J.D. Hill et autres, propose une séquence complexe pour expliquer les éléments d'environ 28 squelettes et divers objets retrouvés à cet emplacement (Barrett *et al.*, 2000). Au moins sept activités différentes peuvent être identifiées quand on étudie les restes trouvés dans les couches de la fin de l'âge du Fer dans la porte sud-ouest (Fig. 12).

Stanwick, North Yorkshire

La plus grande enceinte de l'Angleterre du Nord, Stanwick, a été fouillée et publiée par Wheeler dans les années 1950 (Wheeler, 1954), puis réexaminé par le Royal Commission (Welfare *et al.*, 1990) et fouillé dans les années 1980 par une équipe dirigée par Colin Haselgrove (Haselgrove *et al.*, 1990a, 1990b). L'interprétation classique de cet immense site, qui couvre environ 350 ha, y voit le centre principal de la résistance des Brigantes à l'expansion romaine; la dernière phase des fortifications n'étant pas entièrement achevée au moment de l'arrivé des Romains en 71 après J.-C. Les fouilles de Haselgrove montrent que la séquence de l'utilisation de ce site est plus complexe que Wheeler ne l'imaginait.

Pour notre enquête, l'intérêt principal du site est la fouille de l'entrée ouest de la fortification dite de la phase II. La limite nord du fossé devant cette entrée, humide, a livré, mis à part des objets organiques comme une corbeille et un bol en bois, un fourreau en bois avec éléments décorés en alliage cuivreux et épée en fer, et un crâne humain (Wheeler, 1954). Les éléments de ce fourreau ne sont pas comparables à ceux de l'épée de type Brigantian (Piggott, 1950) faisant partie d'une cachette (composée surtout d'éléments de char) trouvée à l'extérieur de la fortification en 1843. Wheeler suggérait que le fourreau, avec le crâne considéré ci-dessous, faisait partie d'un trophée dressé dans la porte. Le crâne (trouvé avec les quatre vertèbres du cou) porte les traces de trois blessures; le fait qu'un élément de l'os frontal, quoique détaché, reposait à côté de la tête coupée, laisse supposer qu'au moment de la déposition la chair était toujours en place (Wheeler, 1954). Malheureusement, la fouille des années 1980 de l'autre extrémité de ce fossé devant la porte n'a pas livré de découvertes semblables; en revanche Haselgrove (Haselgrove *et al.*, 1990b) a trouvé plusieurs inhumations proches du, ou dans, le rempart.

Stonea Camp, Cambridgeshire

Cette enceinte complexe se trouve dans les tourbières (« *fens* ») du Cambridgeshire, à une altitude comprise entre 2 et 5 m (Malim, 1992). Elle est placée à la limite d'un îlot de graviers, entouré de chenaux, et ses fossés englobent environ 10 ha. C'est un site exceptionnel par la complexité de ses fortifications pour cette zone de l'Angleterre de l'Est. Située à la limite de trois territoires tribaux, elle ne semble pas avoir été beaucoup occupée. En revanche, une coupe à travers le fossé sud a révélé près du fond le crâne d'un enfant de 4 ans, fendu par deux coups d'épée, associé aux ossements d'un adulte et d'un autre enfant; une datation ^{14}C place ce crâne aux trois derniers siècles avant notre ère ou au premier siècle après J.-C. (95 % de confiance, calibrée). Un autre squelette, trouvé dans une couche supérieure du fossé externe ouest, date du premier avant ou des deux premiers siècles après J.-C. (95 % de confiance; Malim, 1994). Stonea Camp est souvent proposé comme le lieu d'un combat entre les Romains et les *Iceni* en 47.

Sutton Walls, Hereford and Worcester

Cette enceinte d'environ 11 ha se trouve à environ 6 km de la ville de Hereford et ne possède qu'un seul rempart. Les recherches les plus poussées sont celles de Kenyon (1953). L'occupation semble commencer assez tôt pendant l'âge du Fer, mais le site n'était pas défendu à cette époque. Le premier rempart avait un revêtement externe en pierres sèches avec des poteaux verticaux; une fosse à la base des remplissages inférieurs contenait un squelette, peut-être lié à la fondation du rempart (Kenyon, 1953). Le rempart a été rehaussé et converti en glaçis au début de notre ère, puis les fortifications ont été renouvelées quelques décennies plus tard, vers 75 ap. J.-C. Deux couches irrégulières de squelettes ont été fouillées dans le fossé à fond plat de cette dernière phase, une au fond (Fig. 13 b), l'autre un peu plus haut. Les positions des squelettes laissent penser indubitablement que les corps étaient jetés dans le fossé sans précaution; les corps de la couche supérieure ont été déplacés par des chiens ou des loups. L'étude anatomique (par I. Cornwall dans Kenyon, 1953) montre que les individus étaient pour la plupart de jeunes hommes, avec de rares hommes de plus d'environ quarante ans et un enfant d'environ douze ans. Il y avait beaucoup d'indications de blessures, et plusieurs sont entièrement ou partiellement décapités. Ils étaient dépourvus de mobilier. L'hypothèse préférée envisage le résultat d'un massacre au moment de l'arrivée des Romains, mais rien ne le prouve; une bataille un peu plus ancienne ne semble pas à exclure.

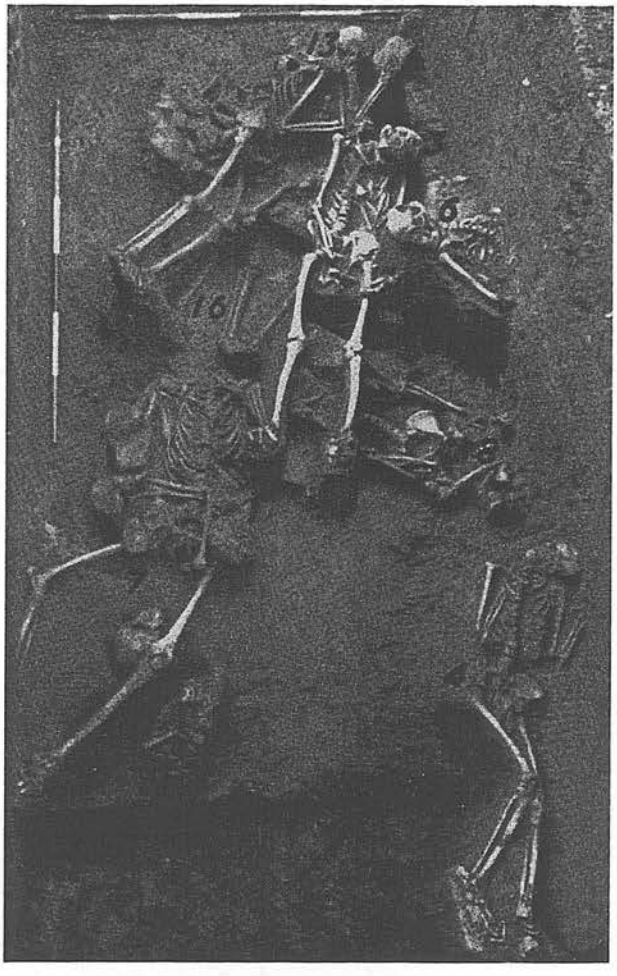


Fig. 13 b: Sutton Walls. Squelettes, sans mobilier, au fond du fossé tardif en avant de la porte ouest. Le n°4 est un enfant d'environ 12 ans; la position des crânes est remarquable (d'après Kenyon, 1953, pl. VI avec la permission du Royal Archaeological Institute).

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Bibliographie

Abels, 1988 : ABELS (B.-U.). – Ein frühlatènezeitlicher Depotfund vom Heildelberg bei Schweinthal. *Das Archäologische Jahr in Bayern*, 1988, p. 83-87.

Alcock, 1972 : ALCOCK (L.). – *« By South Cadbury in that Camelot... » Excavations at Cadbury Castle, 1966-70*. London, Thames and Hudson, 1972, 224 p.

Applebaum, 1949 : APPLEBAUM (E.S.). – Excavations at Wilbury Hill, an Iron-Age Hill-Fort near Letchworth, Hertfordshire 1933. *Archaeological Journal*, 106, 1949, p. 12-45.

Baatz, 1958 : BAATZ (D.). – Neue Funde aus dem oppidum über dem Heidetränk-Tal nördlich von Frankfurt-am-Main. *Germania*, 56, 1958, p. 453-460.

Barrett *et al.*, 2000 : BARRETT (J.C.), FREEMAN (P.W.M.), WOODWARD (A.). – *Cadbury Castle, Somerset: the later prehistoric and early historic archaeology*. Londres, 2000, 389 p. (English Heritage Archaeological Report, 20).

Bedwin, 1979 : BEDWIN (O.). – Excavations at Harting Beacon, West Sussex, Second season 1977. *Sussex Archaeological Collections*, 117, 1979, p. 22-33.

Bedwin, 1983 : BEDWIN (O.). – Miss P.A.M. Keef's excavations at Harting Beacon and nearby sites 1948-52. *Sussex Archaeological Collections*, 121, 1983, p. 199-202.

Bidzilja, 1964 : BIDZILJA (V.I.). – Poselennja Galish-Lovachka. *Arcxeologija*, XVII, 1964, p. 92-143.

Bidzilja, 1971 : BIDZILJA (V.I.). – *Histoire culturelle de l'Ukraine carpathique autour du changement d'ère*. Kiev, Académie des sciences de la république d'Ukraine, 1971.

Buchsenschutz *et al.*, 1975 : BUCHSENSCHUTZ (O.), RALSTON (I.B.M.) avec la collab. de GRATIER (M.). – Découverte d'un *murus gallicus* à Levroux (Indre). *Gallia*, 33, 1, 1975, p. 27-48.

Buchsenschutz et Mercadier, 1989 : BUCHSENSCHUTZ (O.) et MERCADIER (G.). – Recherches sur l'*oppidum* de Murcens (Lot). *Aquitania*, 7, p. 25-51.

Chabot, 2004 : CHABOT (L.). – *L'oppidum de La Cloche, Les Pennes-Mirabeau, Bouches-du-Rhône*. Montagnac, Éditions M. Mergoil, 2004, 347 p.

Chapotat, 1970 : CHAPOTAT (G.). – *Vienne gauloise, le matériel de La Tène III trouvé sur la colline de Sainte-Blandine*. Lyon, Publications du Centre d'Études Romaines et Gallo-Romaines de la Faculté des Lettres et Sciences Humaines de Lyon, 2 vols., 186 p. et 56 p.

Cunliffe, 2005 : CUNLIFFE (B. W.). – *Iron Age communities of the British Isles*. London, Routledge. 4e éd., 741 p.

Dunning, 1931 : DUNNING (G. C.). – Salmonsbury camp, Gloucestershire. *Antiquity*, 5, 1931, p. 489-491.

Dunning, 1976 : DUNNING (G. C.). – Salmonsbury, Bourton-on-the-Water, Gloucestershire. *In* : HARDING (D.W.) éd. – *Hillforts; later prehistoric earthworks in Britain and Ireland*. London, Academic Press, 1976, p. 76-118.

Dixon, 1994 : DIXON (P.). dir. – *Crickley Hill: the Hillfort defences*. Nottingham, Crickley Hill Trust. & University of Nottingham. 259 p.

Exposition, 2003 : *Forgerons et ferrailleurs: fer et savoir faire à l'époque celtique*, livret accompagnant l'exposition. Glux-en-Glenne, Bibracte, 29 p.

Farley, 1986 : FARLEY (M.). – Aylesbury. *Current Archaeology*, 101, 1986, p. 187-189.

Fell, 1936 : FELL (C.). – The Hunsbury hillfort, Northants: a new survey of the material. *Archaeological Journal*, 93, 1936, p. 57-100.

Fowler, 1960 : FOWLER (P. J.). – Excavations at Madmarston Camp, Swalcliffe 1957-8. *Oxoniensia*, 25, 1960, p. 3-48.

Fox, 1940 : FOX (C. F.). – The distribution of currency bars. *Antiquity*, 14, 1940, p. 427-433.

Gresham, 1939 : GRESHAM (C. A.). – Spettisbury Rings, Dorset. *Archaeological Journal*, 96, 1939, p. 114-131.

Hamilton et Manley, 2001 : HAMILTON (S.) et MANLEY (J.). – Hillforts, monumentality and place: a chronological and topographic review of first millennium BC hillforts of south-east England. *European Journal of Archaeology*, 4.1, 2001, p. 7-42.

Haselgrove *et al.*, 1990a: HASELGROVE (C.C.), TURNBULL (P.), FITTS (R.L.). – Stanwick, North Yorkshire, Part 1: recent research and previous archaeological investigations. *Archaeological Journal*, 147, 1990, p. 1-15.

Haselgrove *et al.*, 1990b: HASELGROVE (C. C.), LOWTHER (P.C.), TURNBULL (P.). – Stanwick, North Yorkshire, Part 3: excavations on earthworks sites 1981-86. *Archaeological Journal*, 147, 1990, p. 37-90.

Hencken, 1938 : HENCKEN (T. C.). – The excavation of an Iron Age camp on Bredon Hill, Gloucestershire. *Archaeological Journal*, 95, 1938, p. 1-111.

Hingley, 1990 : HINGLEY (R.). – Iron age "currency bars" : the archaeological and social context. *Archaeological Journal*, 147, 1990, p. 91-117.

Hingley, 1997 : HINGLEY (R.). – Iron, ironworking and regeneration: a study of the symbolic meaning of metalworking in Iron Age Britain. *In*: GWILT (A.), HASELGROVE (C.) éds. – *Reconstructing Iron Age Societies*. Oxford, 1997, p. 9-18. (Oxbow Monograph, 71).

Hogg, 1975 : HOGG (A.H.A.). – *A guide to the hill-forts of Britain*. London, Hart-Davis, MacGibbon & Co., 1975, 305 p.

Jacobi, 1977 : JACOBI (G.). – *Die Metallfunde von Dünsberg*. Wiesbaden, 1977, 82 p. (Materialien zur Vor- und Frühgeschichte von Hessen, 2).

Jackson, 1993-1994 : JACKSON (D). – Excavation of the hillfort defences at Hunsbury, Northampton, in 1952 and 1988. *Northamptonshire Archaeology*, 25, 1993/4, p. 5-20.

Jensen, 1974 : JENSEN (I.). – *Der Schlossberg von Neuenbürg, eine Siedlung der Frühlatènezeit im Nordschwarzwald*. Thèse de l'Université de Marburg/Lahn. 1974.

Jensen, 1981 : JENSEN (I.). – Neuenbürg. *In:* BITTEL (K.), KIMMIG (W.) dir. – *Die Kelten in Baden-Würtemberg*. Stuttgart, Theiss, 1981, p. 437-441.

Jobey, 1978 : JOBEY (G.). – Burnswark Hill, Dumfriesshire. *Transactions Dumfries Galloway Natural History Antiquarian Society*, 53, 1977-8, p. 57-104.

Jope, 2000 : JOPE (E. M.). – *Early Celtic Art in the British Isles*. Oxford, Clarendon Press, 2 t., 2000, 395 p.

Keef, 1953 : KEEF (P.A.M.). – Two gold penannular ornaments from Harting Beacon, Sussex. *Antiquaries Journal*, 33, 1953, p. 204-206.

Kenyon, 1953 : KENYON (K). – Excavations at Sutton Walls, Herefordshire 1948-51. *Archaeological Journal*, 110, 1953, p. 1-87.

Malim, 1992 : MALIM (T.). – *Stonea Camp, Wimbleton: an Iron Age fort in the Fens*. Cambridge, 1992. (Cambridgeshire Archaeology Report, 71).

Malim, 1994 : MALIM (T.). – Wimblington, Stonea Camp. *Proceedings Cambridge Antiquarian Society*, 83, 1994, p. 171.

Manning, 1972 : MANNING (W. H). – Ironwork hoards in Iron Age and Roman Britain. *Britannia* 3, 1972, p. 224-250.

McArthur, 1990 : McARTHUR (C.). – Excavations at Nadbury Camp, Warwickshire, SP 390482. *Transactions Birmingham and Warwickshire Archaeoogical Society*, 95, 1987-8, 1990, p. 1-16.

Miles *et al.*, 2004 : MILES (D.), PALMER (S.), LOCK (G.), GOSDEN (C.), CROMARTY (A.-M.). – *Uffington White Horse and its Landscape: Investigations at White Horse Hill Uffington, 1989-95, and Tower Hill Ashbury, 1993-4*. Oxford, Oxford Archaeology, 2004, 340 p. (Thames Valley Landscapes Monograph, 18).

Müller, 1990 : MÜLLER (F.). – *Der Massenfund von der Tiefenau bei Bern*. Bâle, 1990.

Müller-Beck, 1964 : MULLER-BECK (H.-J.). – Die Erforschung der Engehalbinsel in Bern bis zum Jahre 1965. *Jahrbuch des bernischen historischen Museum*, 43/44, 1963/64, p. 375-400.

Müller-Karpe, 1975 : MULLER-KARPE (A.). – Neue Bronzefunde der späten Urnenfelderzeit vom Bleibeskopf im Taunus. *Fundberichte aus Hessen*, 14, 1974, 1975, p. 203-214.

Müller-Karpe et Müller-Karpe, 1977 : MULLER-KARPE (A.), MULLER-KARPE (M.). – Neue latènezeitliche Funde aus dem Heidetränk-Oppidum im Taunus. *Germania*, 55, 1977, p. 33-63.

Owen, 1992 : OWEN (O. A.). - Eildon Hill North. *In:* RIDEOUT (J. S.), OWEN (O. A.), HALPIN (E.) éd. - *Hillforts of southern Scotland.* Edinburgh, p. 21-71. (Archaeological Operations and Conservation Monograph, 1).

Paulik, 1976: PAULIK (J.). - *Keltske Hradisko Pohanska u Plaveckom Podhradi.* Bratislava, Archaeological Institut of the National Museum, 1976.

Peschel, 1975 : PESCHEL (K.). - La Steinsburg près de Römhild: un centre de peuplement de la Thutinge à l'âge du Fer. *In:* DUVAL (P.-M.), KRUTA (V.) éd. - *L'habitat et la nécropole à l'âge du fer en Europe occidentale et centrale. Actes du Ier colloque archéologique de la IVe section des l'EPHE (Paris 1972).* Paris, Champion, 1975, p. 107-115.

Carte de répartition 1962, document multigraphié.

Pieta, 2000 : PIETA (K.). - Ein Depot latènezeitlicher Eisengegenstände aus Liptovska Mara. *In: Metallgewinnung und -Verarbeitung in der Antike (Schwertpunkt Eisen).* Nitra, 2000, p. 135-160.

Pieta, 2002 : PIETA (K.). - Wirtschaftliche Strukturen der spätlatènezeitlichen Siedlungen in der Slowakei. *In*: DOBIAT (C.), SIEVERS (S.), STÖLLNER (T.) éd. - *Dürrnberg und Manching: Wirtschaftsarchäologie im ostkeltischen Raum: Akten des internationalen Kolloquiums in Hallein/Bad Dürrnberg vom 7. bis 11. Oktober 1998.* Bonn, R. Habelt, 2002, p. 63-76. (Kolloquien zur Vor- und Frühgeschichte, 7).

Pieta, 2003 : PIETA (K.). - Un dépôt de l'*oppidum* de Pohanskà. *In*: Exposition : *Forgerons et ferrailleurs: fer et savoir faire à l'époque celtique,* livret accompagnant l'exposition. Glux-en-Glenne, Bibracte, 2003, p. 12 et 19.

Piggott, 1950 : PIGGOTT (S.). - Swords and scabbards of the British Early Iron Age. *Proceedings of the Prehistoric Society,* 16, 1950, p. 1-28.

RCAHMS, 1997 : Royal Commission on the Ancient and Historical Monuments of Scotland. - *Eastern Dumfriesshire: an archaeological landscape.* Edinburgh, Her Majesty's Stationery Office. 308 p.

RCHM, 1970 : Royal Commission on Historical Monuments England. *An inventory of the historical monuments in the County of Dorset, tome 3 Central Dorset part 2.* London, RCHME. 385 p.

RCHM, 1985 : Royal Commission on Historical Monuments England. *An inventory of the historical monuments in the County of Northampton, tome V Archaeological sites and churches in Northampton.* London, Her Majesty's Stationery Office. 80 p.

Richmond, 1968 : RICHMOND (I. A.). - *Hod Hill 2: excavations carried out between 1951 and 1958.* London, British Museum Trustees, 1968, 157 p.

Ruprechtsberger et Urban, 1997 : RUPRECHTSBERGER (E.M.) et URBAN (O.). - Keltische Eisendepotfunde vom Gründberg. *Arch. Österreichs,* 8/2, 1997, p. 35-37.

Rybova et Motykova 1983 : RYBOVA (A.) et MOTYKOVA (K.). - Der Eisendepotfund der Latènezeit von Kolin, *Pamatcky archeologicke.* LXXIV, 1983, p. 96-174.

Schlott *et al.*, 1984 : SCHLOTT (C.) et SPENNEMANN (D. R.). - Ein spätlatènezeitlicher Brandbestattungsplatz vor der Nordosttor der Verbrennungsplatz der Heidetränk-Oppidum im Taunus. *Germania,* 62, 1984, p. 446-448.

Sievers, 2003 : SIEVERS (S.). - *Manching - die Keltenstadt.* Stuttgart, Theiss. (Führer zu archäologischen Denkmälern in Bayern, Oberbayern 3).

Sharples, 1991a: SHARPLES (N. M.). - *Maiden Castle: excavations and field survey 1985-6.* London, 1991, 284 p. (English Heritage Archaeological Report, 19).

Sharples, 1991b: SHARPLES (N. M.). - *The English Heritage book of Maiden Castle.* London, English Heritage/Batsford, 1991, 143 p.

Söder, 2004 : SÖDER (U.). - *Die eisenzeitliche Besiedlung der Altenburg bei Niedenstein. Schwalm-Eder-Kreis.* Rahden Westphalen, Verlag Marie Leidorf, 2004, 192 p. (Marburger studien zur vor- und Frühgeschichte, 21).

Spehr, 1978 : SPEHR (R.). - Compte rendu de G. Jacobi, 1977. Die Metallfunde von Dünsberg. *Germania,* 56, 1978, p. 613-21.

Spehr, 1980 : SPEHR (R.). - *Archäologische Topographie der Steinsburg bei Römhild.* Dresden, 1980. (Kleine Schriften des Landesmuseums für Vorgeschichte, 1).

Taylor, 1980 : TAYLOR (J.J.). – *Bronze Age goldwork of the British Isles.* Cambridge, Cambridge University Press, 1980, 199 p.

Trow, 1988 : TROW (S.D.). – Excavations at Ditches hillfort, North Cerney, Gloucestershire, 1982-3. *Trans Bristol Gloucestershire Archaeol Soc,* 106, 1988, p. 19-85.

Urban, 1995 : URBAN (O. H.). – *Keltische Höhensiedlungen am mittleren Donau vom Linzer Becken bis zum Porta Hungarica: 2. Der Braunsberg.* 1995, 543 p. (Linzer Archäologische Forschungen, 23).

Urban et Ruprechtberger, 2003 : URBAN (O.) et RUPRECHTBERGER (E.). – *In:* Exposition 2003 : *Forgerons et ferrailleurs: fer et savoir faire à l'époque celtique,* livret accompagnant l'exposition. Glux-en-Glenne, Bibracte. p. 16-18.

van Endert, 1987 : VAN ENDERT (D.). – *Das Osttor des oppidums von Manching.* 1987, 118 p. (Die Ausgrabungen in Manching, 10).

Viré, 1913 : VIRÉ (A.). – Les fouilles protohistoriques de Luzech (Lot), du Puy d'Issolud (Lot), et d'Uzerche (Corrèze), *Bull. S. P. F.*, 10, 1913, p. 687-713.

Viré, 1936 : VIRÉ (A.). – Les *oppida* du Quercy et le siège d'*Uxellodunum. Bull. de la Soc. des Études du Lot,* LVII, p. 104-127, 412-427, 552-570.

Wainwright, 1979 : WAINWRIGHT (G. J.) dir. – *Gussage All Saints: an Iron Age settlement in Dorset.* 1979, 202 p. (Department of the Environment Archaeological Report, 10).

Welfare *et al.*, 1990 : WELFARE (H.), TOPPING (P.), BLOOD (K.), RAMM (H.). – Stanwick, North Yorkshire, Part 2: a summary description of the earthworks. *Archaeological Journal,* 147, 1990, p. 16-36.

Wheeler, 1943: WHEELER (R.E.M.). – *Maiden Castle.* London, 1943, 399 p. (Research Reports of the Society of Antiquaries, 12).

Wheeler, 1954 : WHEELER (R.E.M.). – *Stanwick.* London, 1954, 53 p. (Research Reports of the Society of Antiquaries, 17).

Whimster, 1981 : WHIMSTER (R.). – *Burial practices in Iron Age Britain.* Oxford, Archaeopress, 1981, 2 vol. (British Archaeological Reports, 90).

1995: 'Fortifications and defence', *in ed.* Green, Miranda, *The Celtic World*, 59-81. London: Routledge.

CHAPTER FIVE

FORTIFICATIONS AND DEFENCE

Ian Ralston

Amongst the most conspicuous remains datable to later prehistoric times in many of the varied landscapes of temperate Europe are the enclosures which define hill- and promontory-forts. Generally set on elevated or other locations conferring natural defensive advantages, their complete or partial circuits envelop areas varying from less than one hectare to, in extreme cases, in excess of 1,000 ha. Compared to the internal structures within such sites, often now difficult to discern at ground level without excavation, the walls and ramparts which surround them are frequently readily appreciable, even where they are now cloaked in woodland, as is more commonly the case in continental Europe than in the British Isles (Audouze and Büchsenschütz 1992).

The cropmark aerial photographic record, however, provides intimations of works in the arable lowlands which may have been of similar strength initially, but which have since been entirely eradicated as above-ground, three-dimensional monuments. One of the most fully excavated examples in such a location in the United Kingdom occupied a slight knoll on the coastal plain at Broxmouth near Dunbar, East Lothian (Hill 1982). On the Continent, the most thoroughly examined of the massive late iron age enclosures, at Manching in Bavaria, Germany, equally sits (untypically for such sites) in a lowland setting, close to a tributary of the Danube (Maier 1986, with earlier literature). Thus, whilst man-made works normally enhance a naturally defensive location, this is not invariably the case; the topographic settings of some sites often classed with hill-forts may confer little or no altitudinal advantage. There is thus, particularly in the absence of excavation evidence, considerable scope for haziness at the interface between the classification, in English usage, of 'fort' (with its implications of defensive considerations) and 'enclosure', where the enveloping works are not interpreted in this way (Avery 1976).

Some of these constructions represent the most visible surviving testimony of large-scale civil engineering effort on the part of iron age communities. Conventionally, their enclosing features may be considered in terms of requirements for defence; but their characteristics, including the variety in their scales, detailed topographic settings (especially the emplacement of the earthworks relative to the configuration of the hill on which they sit) and architectural forms, suggest that this need falls far short of providing a wholly adequate *raison d'être* for all of them

(Harding 1979). Although the sequencing of the construction of southern British hill-fort defences in terms of a perceived response to invasion from continental Europe played an important role in the fieldwork programmes of major students of such sites like Hawkes (1931) and Wheeler (1943; Wheeler and Richardson 1957), this paradigm of invasion and response has generally fallen from favour.

Other factors, regional or more local in impact, can certainly be argued to have been of significance, on continental Europe as in the British Isles. These include the demonstration of prestige or status on the part of their builders, or more particularly the decision-makers who controlled their activities, and perhaps the need to give physical definition to the limits of jurisdictions, social, ritual, economic or political. More prosaic functions would include the separation of domestic livestock from living and other quarters (Cunliffe 1991).

The enclosure of sites, and by extension the idea of fortification, developed in Europe from the Neolithic period (Mercer 1989). During that timespan, enclosing works already displayed considerable variation in their apparent strengths: from simple palisades or stockades to massively enclosed sites. Neolithic archaeologists have interpreted the purposes of enclosed sites as fulfilling a range of functions, of which defence is but one.

By the Iron Age, enclosed sites, equally of variable apparent strength, were already a recurrent feature of many areas of the Continent, and were constructed by groups who, in so far as archaeological evidence permits their definition, were Celtic speakers, as well as others which were not. The writer's guesstimate is that in excess of 20,000 such sites survive unevenly distributed across non-Mediterranean Europe south of Scandinavia, excluding the 40,000 or so raths and related works in Ireland (see Raftery, Chapter 33).

Accruing evidence suggests that, in some areas, the construction, maintenance, upgrading and use of fortified sites was near-continuous; in others such activities appear to have been much more episodic (Cunliffe 1991; Audouze and Büchsenschütz 1992; Biel 1987). Instances of settlement preceding the act of enclosure, as well as the contrary sequence, are both demonstrable archaeologically although in many cases the evidence is not clear-cut. In some regions, enclosed upland settlements are complemented by unenclosed sites (the *Höhensiedlungen* of German terminology) in similar topographic locations. Nor is there any straightforward correlation between fortification types and what can be discerned about styles of warfare, lending credence to current doubts that military requirements were always uppermost in the constructors' perceptions. Here a fundamental note of caution needs to be inserted, for almost all detailed evidence is based on rampart cuttings which represent the slightest of incisions relative to the overall length of enceintes, and the presumption that the remainder of the fortification was built in equivalent style is no more than that.

In general, although some fortifications may have had lean-to structures backed against their inner margins, they served to enclose free-standing buildings. In other cases, the internal areas show few traces of occupation and in these the enclosed areas are considered to have served a variety of purposes including a range of agricultural uses (such as the corralling of livestock), settings for ritual or display, and as temporary refuges.

It should be acknowledged that, given the passage of centuries of erosion and deposition, there is no straightforward way from the surface examination of earthworks in many instances readily to distinguish between a deliberate desire for fortification on the part of the original builders and enclosure primarily for other purposes. The topographic setting of lines of enclosure may, however, offer some assistance to speculation. Thus the now-diminutive and unexcavated banks which define the site of White Meldon in Tweeddale District, Scotland, are surmised to have been defensive not from their surviving stature but from their hilltop location on a prominent summit (Royal Commission on the Ancient and Historical Monuments of Scotland 1967): a 'high eminence' site, in Avery's terminology (1976: 8). In other cases, such as Scratchbury (Wiltshire), the establishment of the defences well downslope, rendering much of the interior of the site visible from the adjacent lowland, may indicate a largely non-military purpose (Bowden and McOmish, 1987, 1989) (Figure 5.1). In many areas, including those dominated in more recent times by Celtic speakers, the building of fortifications in broadly similar architectural traditions continued well into the first millennium AD. Radiocarbon dates demonstrate this unequivocally for Scotland, for example (Alcock 1987). Earlier sites were also reoccupied and their enclosures remodelled in the Early Historic period, as at South Cadbury in Somerset (Alcock 1972, 1982). The fortifications of Celtic Europe are thus best regarded as a subset of a vast series, which is more extensive both in space and in time.

The materials used in the construction of fortifications are dominated by those standardly employed in temperate European protohistory: timber, stone and earth (Büchsenschütz 1984; Audouze and Büchsenschütz 1992). Reliance on wood, particularly in cases where structural elements were exposed to weathering, may be assumed to have produced fortifications generally of lesser durability; in some instances, these seem to have been serviceable for a few decades at most. The focus here on the architecture of fortifications mirrors the primary attention that has been devoted to this aspect of them in the archaeological literature.

The fortifications fall into three basic categories: palisades; walls, intended to have a near-vertical external face; and ramparts, in essence linear mounds fronted by an artificial slope or glacis. Fence, wall and dump, as Hawkes (1971) would have it.

Walls include those of simple dry-stone construction, employing either surface-gathered stone or quarried and, in some instances, roughly shaped blocks: on occasion, these may be imported to the site, as for the eastern gate at Maiden Castle, Dorset (Wheeler 1943). A variant form, marked by the presence of additional facings within the thickness of the core, is sometimes termed the *murus duplex*, the descriptor taken from Caesar's account of his subjugation of Gaul (*De Bello Gallico* II.29): at Worlebury in Somerset walls built in this style reach 11 m in width (Figure 5.2). Avery has proposed the descriptor 'shell construction' for this type of wall (1976: 14). Other examples, however, demonstrate substantial use of earth or even domestic detritus in their cores, and considerable components of structural timberwork, as will be discussed further below.

The most sophisticated achievement in terms of dry-stone architecture is that represented by the hollow-wall construction employed in brochs, best considered as a variant on the complex Atlantic round-houses of north-western Scotland

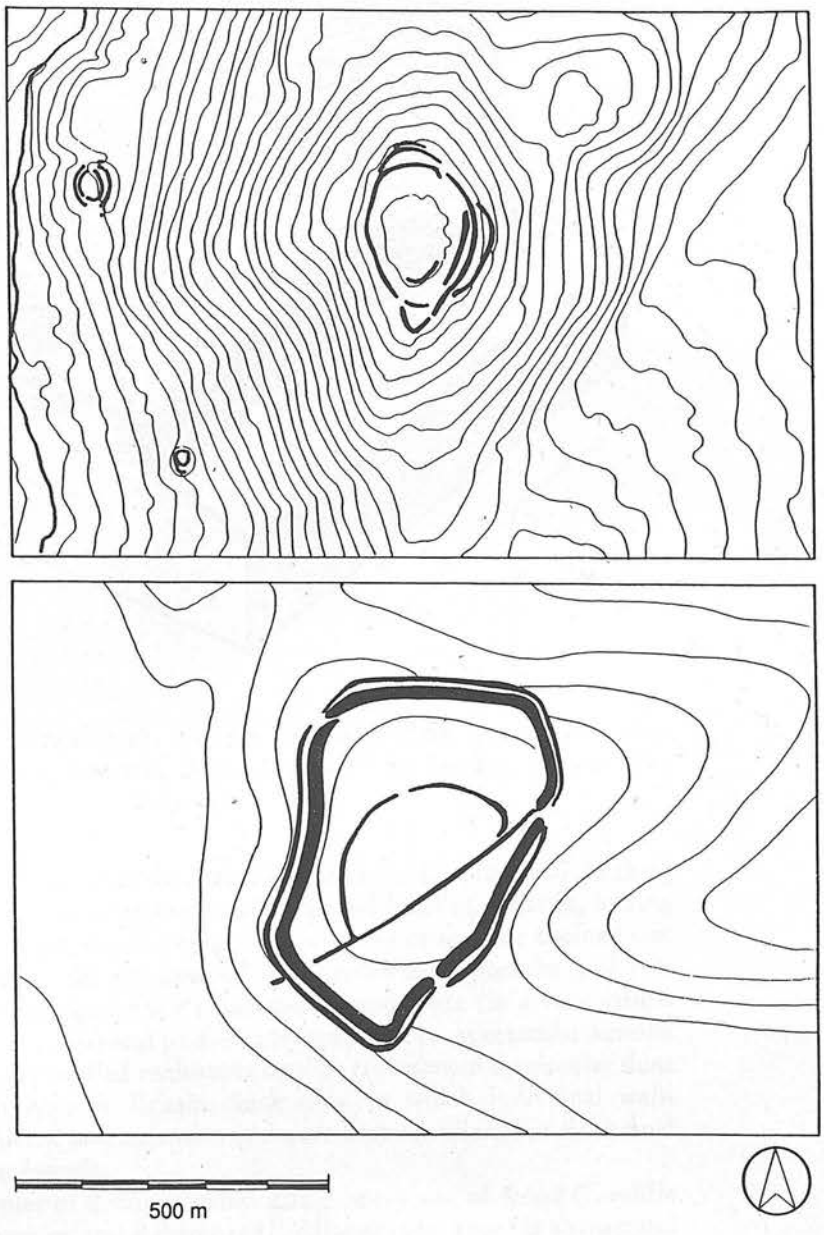


Figure 5.1 Comparative plans of rampart lines in relation to topography on White Meldon, Tweeddale District, Borders Region, Scotland and Scratchbury, Wiltshire, England. (Former redrawn from the Royal Commission on the Ancient and Historical Monuments of Scotland 1967 and Ordnance Survey NT 24 SW; the latter from Bowden and McOmish 1989: fig. 1. Drawn by Gordon Thomas.)

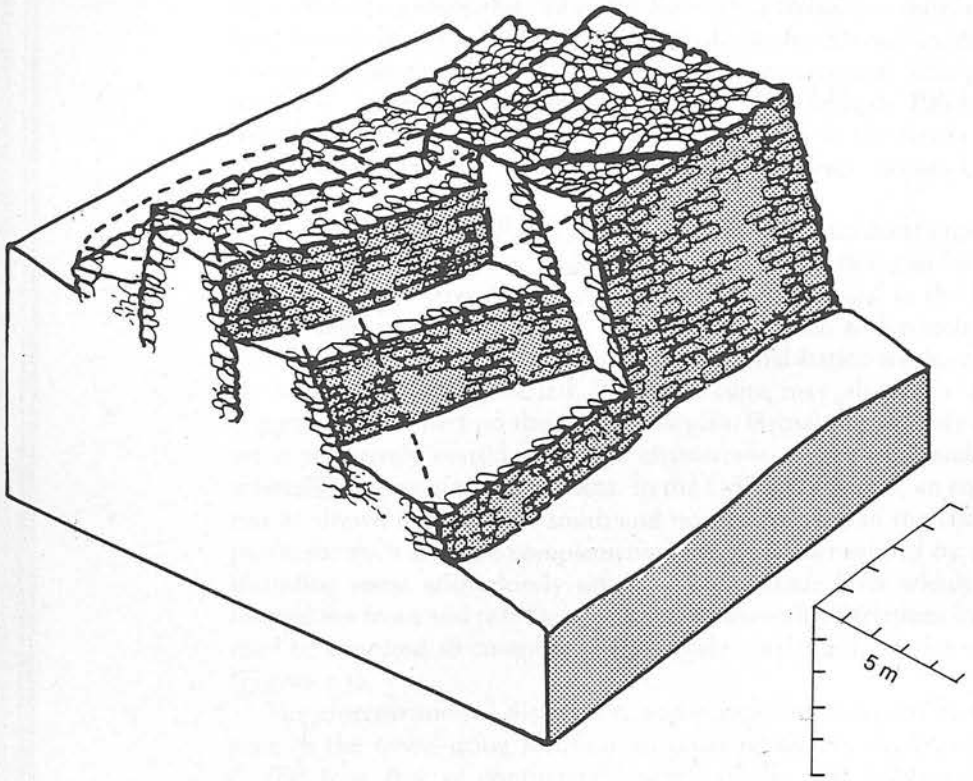


Figure 5.2 Block diagram illustrating the multiple built faces of the *murus duplex* construction, based on Worlebury, Somerset, England. (Drawn by Gordon Thomas after Hogg, 1975.)

constructed during the second half of the first millennium BC (Armit 1990). In these elaborate circular and near-circular towers, superimposed lintelled galleries, linking internal and external wall-faces, enabled heights in excess of 10 m to be attained (see MacKie, Chapter 34). In these, the monumental walls served to support the roof over the domestic living space, to signal their inhabitants' importance (in a very visible way in largely treeless landscapes) and to dissuade attack. A less spectacular version of such wholly roofed, heavy-walled enclosures may be represented by circular duns and related structures in Atlantic Britain. Such sites, in which individual walls arguably served both domestic and defensive ends, are best considered as elaborated versions of individual homesteads.

Many excavated examples of defences demonstrate heavy use of wood (Cunliffe 1991 for Britain; Büchsenschütz and Ralston 1981; Ralston 1981, 1992) as a structural component. Whilst characteristic of many fortifications in Celtic-speaking areas, this trait is in fact represented more widely both in space and in time in Europe. The earliest examples are again neolithic: as at Hambledon Hill, in south-western England (Mercer 1980) and Moulins-sur-Céphons in Berry, central France, the latter

representing a precocious use of the Kastenbau technique, most commonly recorded further east. Iron age instances of the employment of wood in multi-material fortifications are recorded from Dacian areas of east-central Europe (Glodariu 1983) to Iberia, where rare examples have been identified (de Palol 1964). One of the fortification lines at the Castelo de Monte Novo in the Evora region of Portugal displays evidence of vitrified stone (Burgess, pers. comm.), discussed further below.

Within the later Hallstatt and La Tène areas, numerous constructional variants employing timbers are recorded. A primary distinction can be proposed between examples which have earth-fast vertical timbers exposed in the front face, either as components of continuous wall-faces or interspersed with panels of dry-stone work, and those which have only, in effect, an internal lattice-work of horizontal timbers anchoring the core materials. The first suite may also have a second earth-fast alignment of timbers on their inner margins. Grossly to simplify matters, the former set is tentatively considered more characteristic of central, and the latter of more westerly regions of the Continent. In the United Kingdom, an equivalent distinction can be drawn between the south and north, although in the last-mentioned area in particular such sites are complemented by those surrounded by earth-fast palisades, including some with closely set pairs of stockade lines which may initially have formed the front and rear faces of narrow box-walls. Variations in architectural detail may be expected to complicate the picture particularly in the vicinity of gateways (Figure 5.3).

The aforementioned distinction, and exceptions to it, can be illustrated by reference to the wood-using fortification types present in the later (primarily La Tène C2/D) Iron Age of continental Europe (Collis and Ralston 1976; Audouze and Büchsenschütz 1992). In south Germany, the dominant series (Kelheim type) of this period is a simplified form of the vertical-post-and-stone-panelwork arrangement, in which the external timbers are no longer anchored by cross-members to an inner row of posts set into the ground, but are believed to have been tied back simply into the wall-core. Isolated examples of this type occur as far west as the site of Castillon in Normandy, France.

In the west, the principal series takes its name from a description (*De Bello Gallico* VII.23) provided by Julius Caesar of the defences he encountered at the siege of Avaricum (Bourges, in Berry) in 52 BC. This, the *murus gallicus* type, is characterized by an internal framework of transversal and longitudinal beams, fronted by a near-vertical external skin of stonework through which the ends of the transversal beams projected. The timber lattice was infilled with a variety of core materials. The inner margin of such walls can consist either of a vertical face, or of a sloping ramp. The technique is thus that of *la terre armée*, used by French military engineers as recently as the 1950s in Indochina, and still employed in civil engineering projects. A major innovation, comprised in the archaeological definition of this type although not recorded by Caesar, is the incorporation of long, quadrangular-sectioned iron spikes, augered into at least some of the intersections between timbers. This conspicuous consumption of iron, given that the spikes seem to confer little advantage in terms of structural stability, is an important element in the demonstration of the significant upturn in production which corresponds to the so-called 'civilisation des oppida'

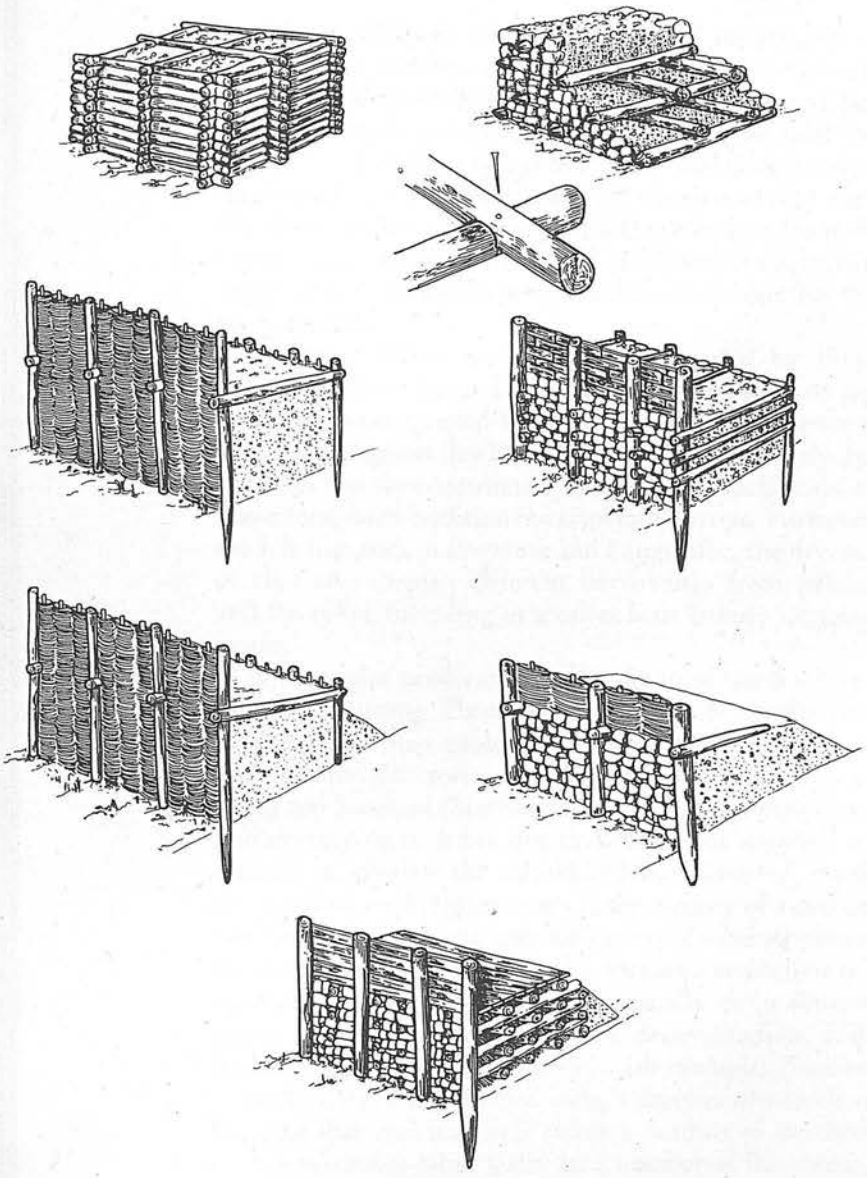


Figure 5.3 Set of isometric drawings of variant usages of wood in iron age defences. *Left-hand column:* Kastenbau type; box rampart with earthfast vertical timbers in front and rear faces; Hod Hill variant, with small internal ramp and inner wall-face verticals no longer earthfast. *Right-hand column:* Ehrang timber-laced type; inset: variant (of Ehrang type) called the *murus gallicus* of Avaricum type, with long iron spikes inserted, probably in augered holes, at the intersections of the timberwork; Altkönig-Priest type; Kelheim type, lacking an internal wall-face, but with an internal earthen ramp; the elaborate wall on Cathedral Hill, Basle, Switzerland (*at bottom*) combines elements of various traditions. (After Audouze and Büchsenschütz 1992: fig. 49; Büchsenschütz and Ralston 1981. Drawn by Gordon Thomas.)

(see Collis, Chapter 10). The majority of *muri gallici* occur in non-Mediterranean France, with outliers occurring in Belgium (at Rouveroy and Lompret, province of Hainaut: Cahen-Delhaye 1982; Cahen-Delhaye and Jadin 1990) and in Germany, where the most easterly example known is the final fortification, replacing earlier defences of Kelheim type, at Manching (van Endert 1987). The elaborate fortification discovered on the promontory fort which occupied the Cathedral Hill, adjacent to the Rhine at Basle, Switzerland, melds elements from these two traditions (Fürger-Gunti 1980) and provides a good indication of the increasing variation which can be expected as a result of large-scale excavations of (rather than narrow cuttings through) such remains.

Professor Dehn, more recently supported by Frey (1984), has hypothesized that elements of the architecture of *muri gallici* forts derive from Italian and other southern models, noted by Celts during their presence as settlers or mercenaries in such areas. Against this has to be set the quantitatively preponderant evidence, which indicates that the construction of versions of such stone, earth and wood fortifications was a long-lived tradition in temperate Europe. However, on the southern fringes of the hill-fort area, in Provence and Languedoc, the dry-stone-built forts characteristic of that area display different borrowings from Mediterranean traditions (Dedet and Py 1985), including in areas at least latterly occupied by groups bearing Celtic names.

A particular problem is set by some of the fortifications which show evidence of intense burning. These may usefully be subdivided into two series, on the basis of differences in their geological make-up. Vitrified forts are characteristic of igneous and metamorphic zones, and appear particularly numerous in France (Ralston 1981, 1992) and Scotland (MacKie 1976); calcined examples occur in limestone and related sedimentary areas. A key question which has attracted attention since the eighteenth century is whether the resolidified but distorted masses of stonework (implying the application of temperatures in the vicinity of 1,000 degrees Celsius) visible in the vitrified walls represent the outcome of deliberate constructional intent on the part of their builders or not. If the former perspective is upheld, the technology is certainly not narrowly delimited spatially or in time; a wide date range for such works is suggested by radiocarbon determinations, and an even wider one by the thermoluminescence dating of Scottish examples (Sanderson *et al.* 1988).

In the case of the vitrified forts, a number of strands of evidence may be adduced to argue that vitrification is rather a product of the destruction, intentional or not, by fire of timber-laced walls. In a number of instances, only a small proportion of the enceinte displays the characteristic evidence. Further, excavation at Dun Lagaidh, Ross and Cromarty District, Scotland (MacKie, 1969), demonstrated vitrifaction overlying the slots of timbers which have simply rotted *in situ*. Experimental evidence shows that it is possible to replicate the characteristics of the vitrified walls by igniting timber-laced replicas (Ralston 1986) (Figure 5.4). In some instances, the deliberate destruction of fortifications by fire either in the aftermath of conflict or in other circumstances would have provided, in the walls glowing red-hot against the night sky, a spectacular advertisement of power or intimation of the site's abandonment.

Whilst the vitrification of fortifications seems thus adequately explicated, there are

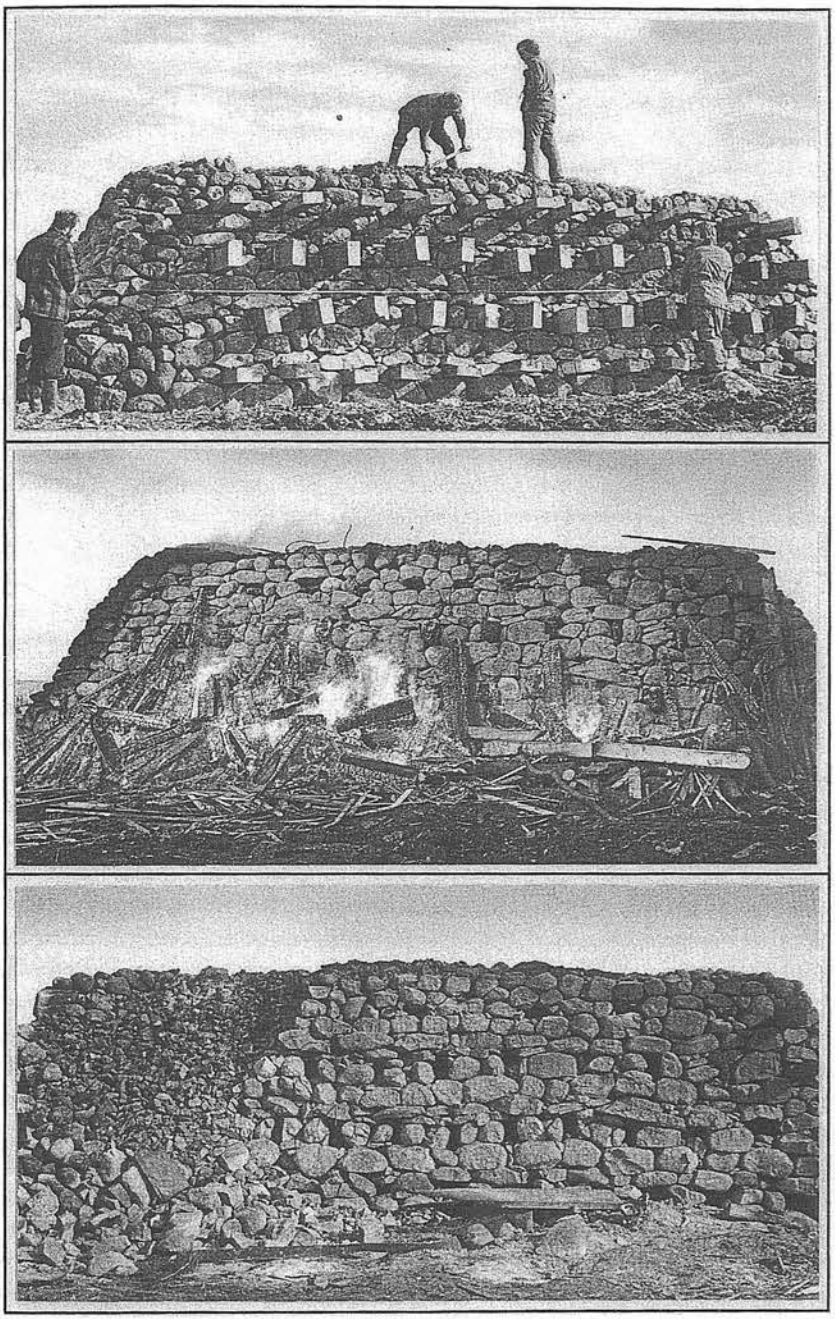


Figure 5.4 The vitrified wall experiment at Aberdeen, Scotland. The wall on successive days in April 1980. (Copyright: Jim Livingston, Geography Department, Aberdeen University.)

increasing signs that monocausal explanation will be insufficient in the case of the defences that have been described as calcined. At least three causes can be advanced, one being essentially the same process as that just described. In other examples, the calcined cores of fortifications may simply be a product of the materials employed, and natural changes to them, as Nicolardot (1974) has proposed for examples near Dijon, Burgundy, France. The argument that, in some instances, the solidification of the wall-core materials represented by calcination may have been deliberately intended has been given renewed impetus by observations and analyses during excavations at the Cité d'Affrique in Lorraine, France, where the charcoal-free calcined mass, consisting of limestone and clay locally heated to 1,200 degrees Celsius, is underpinned by a heavily burnt network of timbers. It is argued to have been formed intentionally as the foundation for a vertically faced wall which surmounted it (Duval *et al.* 1991).

Dump ramparts, contrastingly, necessitate much less by way of formal internal structure, and constructional materials may have been varied, although not with complete indifference to the engineering consequences of settling and slumping. The range of skilled labour required to construct them would also have been much reduced. Individually, some of the most massive and imposing of such earthworks are to be found in France, where ramparts of the Fécamp series (see Büchsenschütz, Chapter 29), initially identified north-east of the Seine by Sir Mortimer Wheeler (Wheeler and Richardson 1957), on occasion comfortably exceed 10 m in altitude. There are a few comparable sites in southern Britain (Cunliffe 1991). Many of the most substantial of such enclosures seem relatively close in date to the local appearance of the Roman army, and may be argued to relate to missile, especially artillery-launched, warfare; but the techniques of constructing glacis banks are demonstrably far older in some areas (Cunliffe 1991).

At many sites, the present-day surface configuration of fortifications is, however, an inadequate guide to the constructional methods originally employed. In numbers of instances, this may simply be due to subsequent collapse and slumping. However, present-day profiles may result from remodelling during the Iron Age which saw dump ramparts erected over the delapidated remnants of antecedent walls, both in Britain and in continental Europe (Ralston 1981; 1992 for instances in France).

In other areas, it can be argued that the desire for protection from sling-warfare in particular was achieved by multiplying the number of individually less grandiose fortification lines in close proximity; such multivallate works reach their apogee in southern British sites like Maiden Castle (Dorset) (Figure 5.5). This argument, that multivallation provides defence in depth, has never been wholly satisfactory, for example because the outer ditches, shielded from defenders within the fort by the intervening banks, effectively provide dead ground in military terms. In the case of the Chesters fort in East Lothian, Scotland, a small multivallate fort is overlooked by a higher ridge in close proximity (Megaw and Simpson 1979, fig. 7.76). In such instances, the rationale behind the construction of these close-set barriers may well lie outside the purely military domain.

Fortifications were frequently fronted by ditches, which penetrated either only superficial deposits or were dug down into the living rock. These, and other less formal quarry-scoops, often (although not universally) formed a principal source

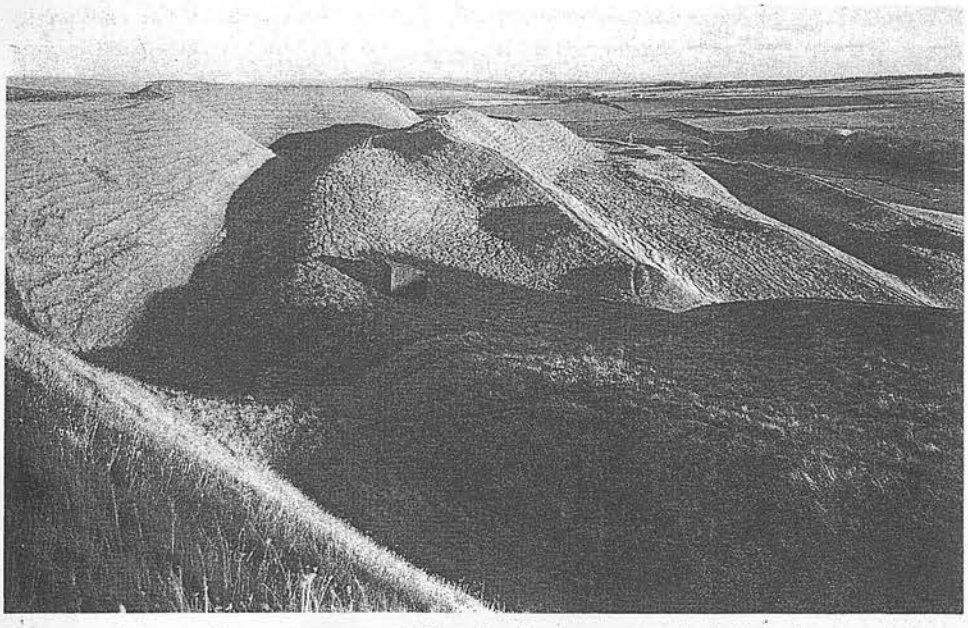


Figure 5.5 The southern ramparts at Maiden Castle, Dorset, England, lit by low sun in 1935. (Copyright: Society of Antiquaries, London.)

of material employed in fortification-building, as is most elegantly demonstrated at unfinished sites (Figure 5.6) (Feachem 1971) like Ladle Hill, Hampshire, with its evidence for gang work. In some instances, a counterscarp bank is visible beyond the external lip of the ditch. On excavation, some hill-fort ditches display evidence of recutting; in others they seem to have been permitted rapidly to infill.

Ancillary features include gateworks of varying degrees of elaboration, and – although rarely evidenced within temperate Europe – bastions and towers on the walls. The former range from simple entrance-gaps, barred by gates fixed on a minimal number of earth-fast posts recoverable archaeologically, through the elaborate timber gate-house structures reconstructed on the basis of the post-hole arrangements present in the inturned entrances (*Zangentore*) of continental oppida (see Collis, Chapter 10), as at Gate A of Závist, Czechoslovakia (Motyková *et al.* 1990) and the east gate of Manching, Bavaria (van Endert 1987: ill.14). The biggest gateway of this type is that at the Porte du Rebout, Mont Beuvray, Burgundy. Flanked by inturned works in *murus gallicus* style, the longer inturn of this offset gateway was 46 m long; and the entrance passage was *c.*20 m wide. It lacks an elaborate gate-structure, which, coupled with its great width, again suggests a configuration meant to impress rather than to be defensible.

Less grandiose versions of elaborate entrances appear early, around the transition to the First Iron Age, in the Lausitz culture province to the north of the Celtic world, as at Biskupin in Poland, and in the British Isles, as at Crickley Hill, Gloucestershire, and Dinorben in Clwyd. In certain southern British forts in particular, the defensive appearance of gateways is enhanced by accompanying hornworks of considerable



Figure 5.6 Aerial photo of Durn Hill, near Portsoy, Banff and Buchan District, Scotland, showing marking-out lines and short sectors of bank as constructed. (Copyright: Aberdeen Archaeological Surveys.)

complexity, designed to confer advantage to the defenders, as at Danebury, Hampshire, and again at Maiden Castle. Cells or chambers, set on the margins of entrance passages, are another feature of a restricted number of sites and are assumed to have housed guards (Cunliffe 1991; Forde-Johnston 1976).

Additional external protection is offered at a few sites by the emplacement of offset rows of vertical stones (or, on rare occasions, timbers) outside the defences in arrangements termed *chevaux-de-frise* (Harbison 1971). Seemingly designed to break up frontal assaults on defences, the locations of some examples in fact square ill with a primarily military purpose, manifestly at Dun Aengus on the Aran Islands (Co. Galway, Eire; Raftery 1991), but also at Spanish Celtiberian examples, as at Chamartín de la Sierra, in the province of Avila (Cabré 1950), where a *chevaux-de-frise* occurs in the interior in the vicinity of one of the gates.

The presence of towers or bastions attached to the enceinte has normally been taken to be indicative of Mediterranean influence, if not the presence of a southern architect. The most celebrated instance is provided by the serried bastions attached to the clay-brick wall – itself an unusual constructional material this far north – erected on a stone footing and forming one phase of the defensive sequence at the late Hallstatt Heuneburg in Baden-Württemburg, Germany (Bittel *et al.* 1981). The replacement of this innovative defensive work was marked by a return to a more traditional wall incorporating horizontal timberwork. Towers surmounting ramparts remain difficult to discern archaeologically, although timber-built examples occur at Altburg-bei-Bundenbach near Trier and on the late La Tène wall of Mont Vully, near La Tène, Switzerland (Kaenel and Curdy 1988), and have been surmised from tumbled material at Mont Boubier, in Wallonia, Belgium (Papeleux *et al.* 1988, fig. 43) (Figure 5.7). Further instances are recorded in the Lausitz province. In general, archaeological evidence for the arrangements on the wall-heads does not survive; parapets and breastworks are likely, but few walls preserve the necessary evidence to allow generalization. In the United Kingdom, arguably late examples of stone-built parapets are evidenced at Tre'r Ceiri (Caernarvonshire, Wales) (Hogg 1975) and the Mither Tap o'Bennachie (Gordon District, Grampian Region, Scotland). At Crickley Hill, Gloucestershire, stone paving on the top of the period 3 defences may provide a rare secure indication of their original height (Dixon 1976); and Wheeler (1943) identified a palisade line, presumably for a breastwork, near the summit of one of Maiden Castle's dump ramparts.

Generally speaking, the lines of fortification conform to the topography of the terrain on which they are set. Thus, in contour forts, the enceinte usually occupies a narrow altitudinal band around the hill, only departing from this in cases where not to have done so would leave dead ground, not capable of surveillance from the enceinte, in its immediate vicinity, because of the changing convexity of the external topography for instance. Such military common sense is not, however, universal. In extreme cases, a contrary arrangement prevails, in which the form of the enclosure appears to have been dictated at least partially by the materials employed. Examples include some of the seemingly gateless, oblong forts of eastern Scotland north of the Forth–Clyde isthmus, such as Finavon, Angus and Tap o'Noth, Gordon District (Figure 5.8). The subsequent vitrification of these is a good indication that these constructions originally contained straightish lengths of timber in quantity.



Figure 5.7 Photo of reconstruction model of timber-built defences at Mont Boubier, Wallonia, Belgium, showing tower. In the foreground is the stone capping on the internal ramp. (Copyright: Professor Pierre Bonenfant, Université Libre de Bruxelles.)

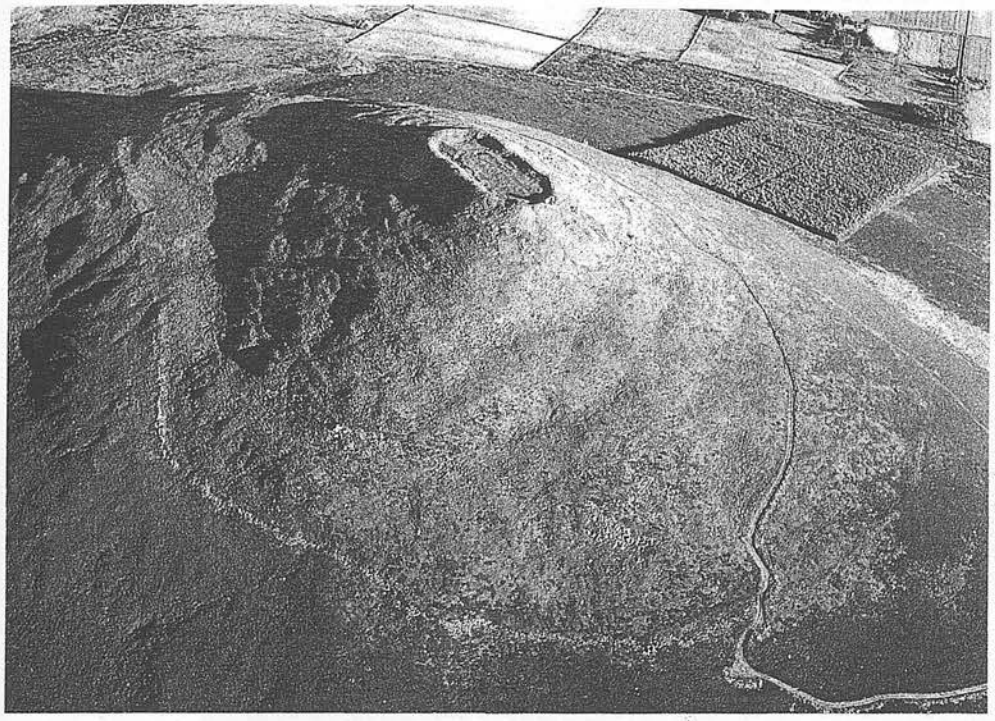


Figure 5.8 Aerial photo of Tap o'Noth, Gordon District, Grampian Region, Scotland, showing the gateless, oblong and heavily vitrified fort on the summit, and the external stone bank, with platforms on the intervening slopes. (Copyright: Aberdeen Archaeological Surveys.)

In the other main series, promontory forts, which occur in both inland and coastal locations, the defences are normally at their most substantial on the side of easiest approach. They may be slighter, or indeed absent, elsewhere: indeed the writer is surprised by how few coastal promontory forts in exposed locations show signs of enclosure at their seaward margins. The young, the elderly, the frail must have been tethered to prevent them being blown off! Other topographic settings are also employed, although less frequently: some ridges are barred by walls at both accessible ends; river meanders and peninsulas jutting into lakes are employed; and in some instances arcs of walling back onto cliffs (Forde-Johnston 1976; Audouze and Büchsenschütz 1992).

One subset of sites, attributable broadly to the last two centuries BC (La Tène IIb and III or C2 and D1–2), includes numerous examples which depart from the locational generalizations sketched above. In these, defensive lines career across slopes (most spectacularly at Velem Sankt Vid in western Hungary), on occasion to enclose the heads of watercourses (as at Mont Beuvray, Burgundy, France), and in other examples to cross low-lying tracts between neighbouring enclosed summits (as at

Heidetränk near Frankfurt-am-Main in the Taunus, Germany; Maier 1985). There are clear intimations in such practices (and others, including the frequency of gates) that defensive requirements were not of paramount significance.

Another indication of this non-military dimension is provided from the northern extremity of the range. The Shetland blockhouses, in themselves elaborate constructions, none the less fail to isolate the promontories on which they are set, as at Ness of Burgi. Here, even allowing for erosion over the intervening millennia, the blockhouse is out of all proportion to the area thus enclosed (Figure 5.9). It is perhaps not altogether fanciful to see such features as platforms for display, by individuals, bombastic or otherwise, or of trophies.

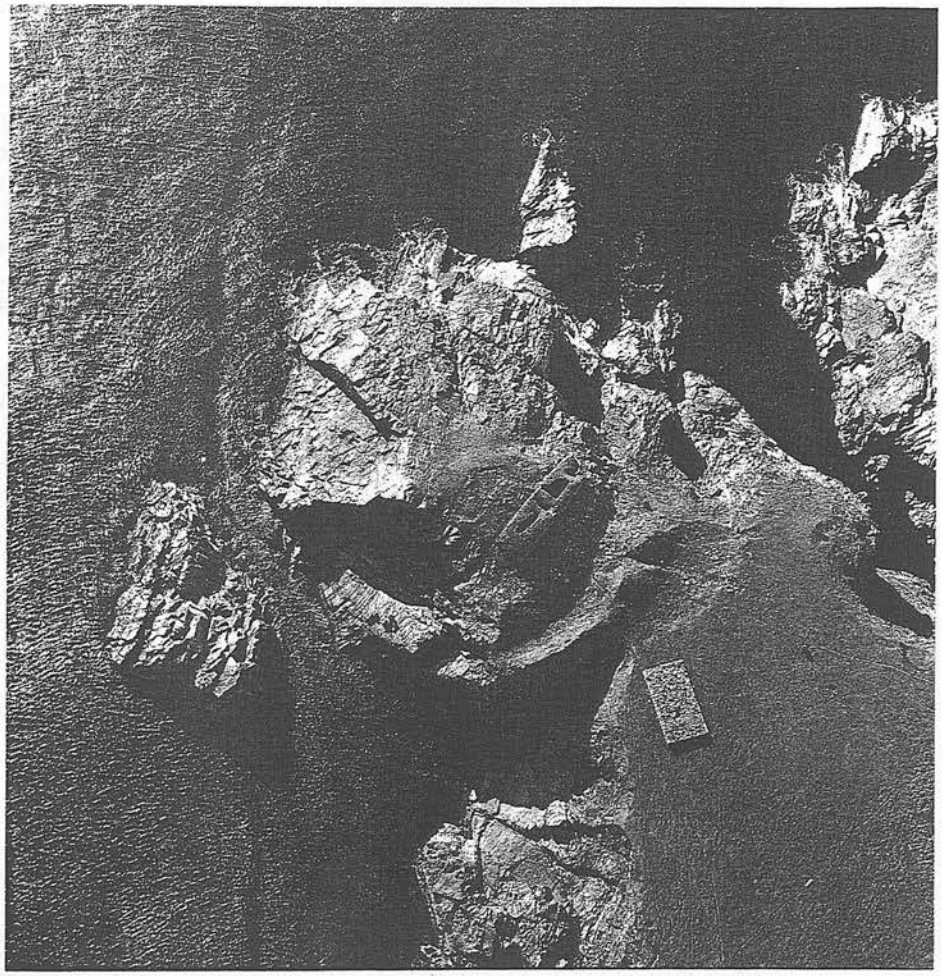


Figure 5.9 Aerial photo of Ness of Burgi promontory fort and blockhouse (showing cells), Shetland Islands, Scotland. The rectangular area of stonework is modern. (Copyright: RCAHMS.)

There can be little doubt that the most extensive of the hill-fort defences were highly consumptive of resources. For example, the principal wall at Mont Beuvray, Burgundy, encloses 135 ha and is some 5.5 km long. If, like the excavated portion, it were entirely built in *murus gallicus* style, up to 100 tonnes of iron spikes and the product of the clear-felling of 40–60 ha of mature oak woodland would have been required to build it. The external wall-face, at a minimal height of 4.5 m, would have needed approximately 7,500 cubic metres of facing stone (some of which was imported to the site). The core of the wall may have required over 100,000 cubic metres of fill materials. The organizational requirements underpinning such an undertaking are manifest. None the less, there is no simple correlation between the existence of technically elaborate fortifications of this kind and the topmost sites in apparent settlement hierarchies; in Berry, France (broadly corresponding to the *civitas* of the Bituriges cubi in the first century BC), for example, *muri gallici* occur on small as well as more extensive sites. Many smaller fortifications were of course much less resource- and labour-demanding: Hogg's calculations (1975) for some north British examples suggest the task could have been achieved by small communities of the size that seemingly inhabited them (perhaps fifty strong) in a few months.

Celtic fortifications may be considered to have faced military threats of two kinds: that offered by other, relatively local, communities and, more particularly latterly, against the assaults mounted by the armies of late Republican and Imperial Rome. In the former case, amongst the weaponry employed, swords, spears and javelins (see Ritchie and Ritchie, Chapter 4) seem to predominate as assault weapons over much less plentiful evidence for archery and the use of the sling in the archaeological record of the La Tène period. Caution has to be exercised, however, since weaponry that has been recovered most frequently comes from burial or ritual contexts. Fire was clearly also used (although the wholesale vitrification of some forts is very unlikely to have been achieved in the heat of battle). Classical written sources – which have unsurprisingly little to say about Celtic assault tactics – record simple, if effective, methods, like the massed throwing of stones all around the perimeter, as in the attack on Bibrax of the Remi, again described by Caesar (*De Bello Gallico* II.6; Rivet 1971). Gates were clearly weak points (Avery 1986), although indubitable evidence of their destruction during conflict is relatively rare. There are no indications that iron age warfare was at all mechanized.

The advent of Roman armies, as well as pitting Celtic troops against organizationally superior forces, seems to have represented a new departure in terms of the technologies and styles of warfare in temperate Europe. Artillery pieces, such as the ballista, were employed. Written sources make reference to the use of other techniques, such as sapping and battering-rams, although it is not precluded that these latter may have been in use earlier. The panoply of siege warfare, including investing works, as most celebratedly around Mandubian Alesia in Côte d'Or, France, equally seems to have been a product of Roman intervention (Le Gall 1985). Interestingly, whilst Caesar makes direct reference to the capacity of the *murus gallicus* – a wall built in a variant of a long-established style – to resist assault by the battering-ram and by fire in the passage referred to previously, it was the newer style of massive bank, fronted by its broad, canal-like ditch, at Noviodunum of the Suessiones (most likely to have been the fort at Pommiers, Aisne, France) which actually frustrated his assault (*De Bello Gallico* II.12).

In this treatment, the author has attempted to cast doubt on the universality with which iron age fortifications can straightforwardly be interpreted as defensive, in the narrowly military sense, in intent. Lacking firepower, of course, direct protection could in any case be extended only to people and goods within their compass, and not to facilities and resources in their vicinities. This is not to dispute that they may have had considerable 'deterrent value' in societies where the possibility of armed conflict (to judge, for example, from the availability of weaponry) was ever-present, an argument cogently advanced by Sharples (1991). Equally, in the labour- and resource-demands in terms of both construction and, importantly, maintenance they represent, elaborate walls and massive ramparts were clearly symbols of latent power.

That power was established on bases other than simply the control of armed force seems clear for many Celtic-speaking societies. The wish to demonstrate status, the need to monitor access to markets, to industries, to food, or to luxuries, or the desire to control participation in ritual activities, are amongst many factors which may equally have contributed to the decision to erect such earthworks, as well as influencing the form they took. In this regard, the kilometres-long defences of certain continental oppida, frequently built in elaborate variants of a traditional (and, arguably, militarily outmoded) style, and set anew – in some cases at some distance from the preceding settlement – in formerly favoured topographic positions, like hill-tops, seem to highlight the 'contradictions' contained in many such earthworks.

This is not to deny that the defence of forts on occasion played a substantial role in conflict. This is most clear in the case of documented wars with Rome, but even in such campaigns there are plentiful indications that holding defensible sites was far from a general strategy. In northern Italy, for example, Peyre (1979, 1985) has demonstrated that, whilst the collapse of resistance in some groups followed the taking of their principal settlements (as is the case with the Insubres in 222 BC), the Boii a generation later contrastingly did not defend Felsina and surrounding fortifications, but instead dispersed into the countryside, thereby prolonging the conflict. In the Gallic War, significant fighting certainly took place at forts (Rivet 1971). None the less, Deyber's (1987) analysis of the conduct of the war demonstrates the substantial extent to which resistance was based on the landscape: the characteristics of terrain, the opportunities provided by forest, and the application of scorched earth policies. It may be concluded that, in these admittedly special circumstances, the existence of forts did not necessarily entail their defence. The Early Irish literature, composed in a later and arguably different Celtic world, and which is of such importance in discussions of the 'heroic' nature of warfare, seemingly makes no mention of the role of fortifications therein (Avery 1976). Contrastingly, the besieging and taking of forts is a recurrent subject in the Annals (Alcock 1981).

In conclusion, the construction of fortifications in the Celtic world is one token of the internal stresses that made the resort to arms a distinct possibility. That they were the arena of armed conflict in some cases is certain; but it would be excessive both to envisage any straightforward correlation between hillfort-building and particularly troubled times and to consider that the existence of what contemporary archaeologists term fortifications necessarily implied a defensive strategy founded on them.

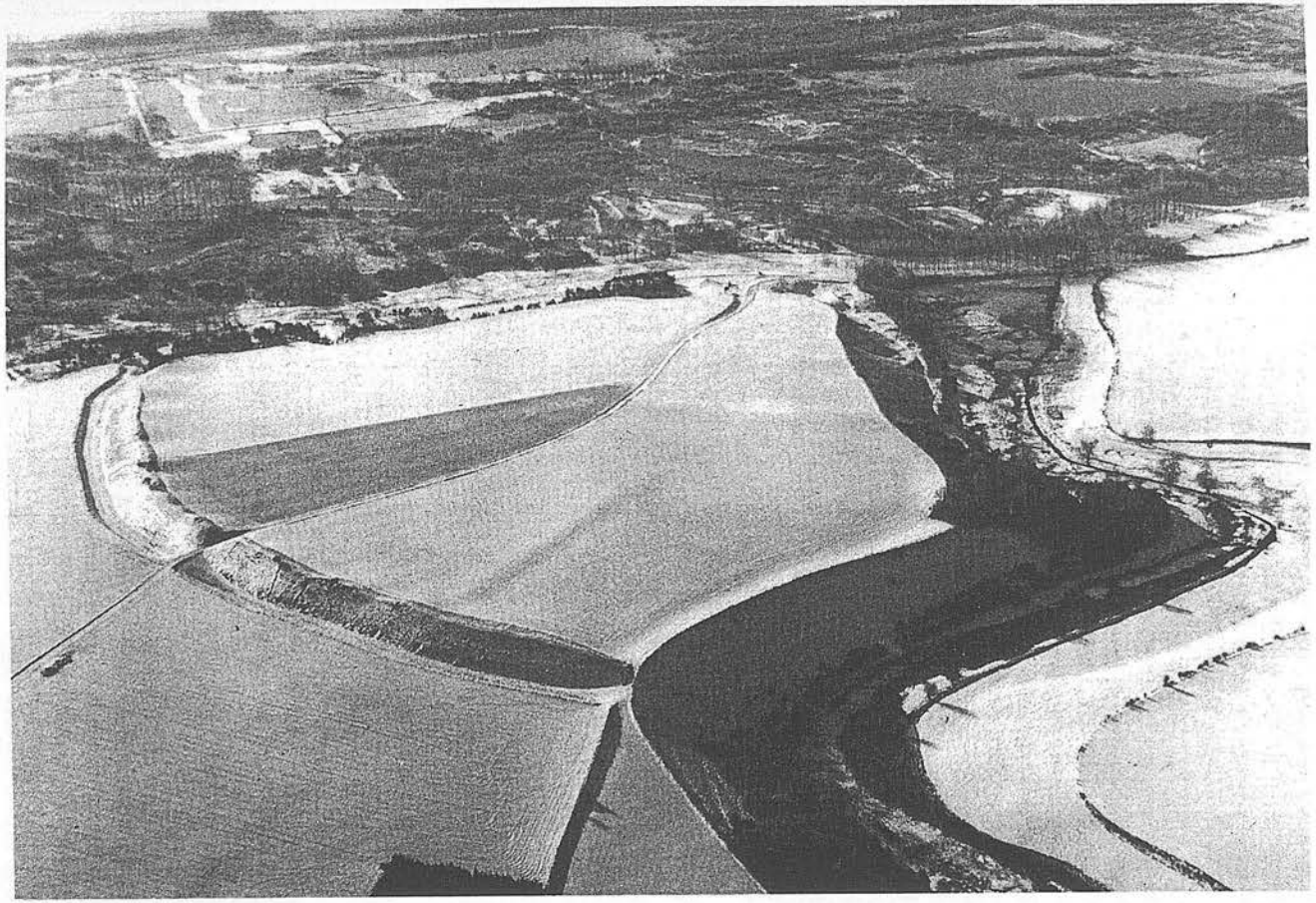


Figure 5.10 Aerial photo of La Chaussée Tirancourt, Somme, France, highlighting defences. (Copyright: Roger Agache.)

Recent work at one of the major forts on the Somme valley, France, has added a novel dimension to consideration of these sites. The Camp de César at La Chaussée Tirancourt, from superficial evidence, belongs to Wheeler's series of major forts defended with Fécamp-specification defences (Wheeler and Richardson 1957) (Figure 5.10). Recent excavations demonstrate that this is not entirely so (the dump rampart is in this case fronted by a stone-faced wall tied back to an earlier and smaller dump which it surmounted), and that the chronological span indicated by comprehensive excavations in the elaborate gateway occupies the period between about 40 and 20 BC. On presently available evidence, then, the fort is entirely post-conquest. Whilst this is, in itself, by no means exceptional, the character of the finds from the gateway assuredly are. These are strongly dominated by non-local material, including imported pottery and coins from Provence. The excavators (Brunaux and Marchand 1990) are confident that the material represents troops in the service of Rome, probably auxiliaries. Whilst it is recorded that Roman forces were elsewhere quartered in native forts, La Chaussée Tirancourt appears to have been constructed *ex nihilo* by soldiers, perhaps recruited amongst the Volcae Arecomici. If the construction and use of the other Fécamp-style forts along the Somme valley mirrors that of La Chaussée Tirancourt, these forts, as Brunaux and Marchand propose, may represent an early Roman *Limes*. Their work is, in any case, a salutary reminder of how excavation evidence can radically alter the standard perception of the defensive and other significance of seemingly 'classic' iron age hill-forts.

Somewhat over half a century thereafter, in Dorset, the capitulation of the fort on Hod Hill, marked by some accurate fire-power directed at what may have been the chieftain's house, was followed by the insertion of a Roman fort of more conventional appearance into one corner within the slighted hill-fort defences (Richmond 1968). Rather later, the tumbled defences of an abandoned hill-fort were used for Roman missile practice, as evidence from Burnswark, Annandale and Eskdale District, Scotland indicates (Jobey 1978). Thus, even for their best-documented period, the relationships between hill-forts and external aggression demonstrate considerable variation.

REFERENCES

Alcock, L. (1972) *By South Cadbury is that Camelot . . . The excavation of Cadbury Castle 1966–70*, London: Thames & Hudson.

—— (1981) 'Early historic fortifications in Scotland', in G. Guilbert (ed.) *Hill-fort Studies*, 150–80.

—— (1982) 'Cadbury-Camelot: a fifteen-year perspective', *Proceedings of the British Academy* 68: 355–88.

—— (1987) 'Pictish studies: present and future', in A. Small (ed.) *The Picts: a new look at old problems*, Dundee: University of Dundee, 80–92.

Armit, I. (1990) 'Broch building in northern Scotland: the context of innovation', *World Archaeology* 21: 435–45.

Audouze, F. and Büchsenschütz, O.E. (1992) *Towns, Villages and Countryside of Celtic Europe*, London: Batsford.

Avery, M. (1976) 'Hillforts of the British Isles: a student's introduction', in D.W. Harding (ed.) *Hillforts*, 1-58.

—— (1986) '"Stoning and firing" at hillfort entrances in southern Britain', *World Archaeology* 18: 216–30.

Biel, J. (1987) *Vorgeschichtliche Höhensiedlungen in Südwürttemburg-Hohenzollern*, Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemburg 24, Stuttgart: Konrad Theiss Verlag.

Bittel, K., Kimmig, W. and Schiek, S. (eds) (1981) *Die Kelten in Baden-Württemburg*, Stuttgart: Konrad Theiss Verlag.

Bowden, M. and McOmish, D. (1987) 'The required barrier', *Scottish Archaeological Review* 4: 76–84.

—— (1989) 'Little boxes: more about hillforts', *Scottish Archaeological Review* 6: 12–16.

Brunaux, J.-L. and Marchand, C. (1990) 'Le "Camp César" à la Chaussée-Tirancourt (Somme)', in G. Leman-Delerive (ed.) *Les Celtes en France du Nord*, 90–5.

Büchsenschütz, O.E. (1984) *Structures d'habitats et fortifications de l'âge du fer en France septentrionale*, Paris: Mémoires de la Société Préhistorique Française 18.

Büchsenschütz, O.E. and Ralston, I.B.M. (1981) 'Les fortifications des âges des métaux', *Archéologia* (Dijon) 154: 124–36.

Cabré, J. (1950) *El castro y la necrópolis del Hierro Céltico de Chamartín de la Sierra (Avila)*, Madrid: Acta Arqueologia Hispanica 5.

Cahen-Delhaye, A. (1982) 'Découverte d'un murus gallicus à Rouveroy', *Archaeologia Belgica* 247: 55–9.

—— (1984) 'Fouilles récentes dans les fortifications de l'âge du fer en Belgique', in A. Cahen-Delhaye *et al.* (eds) *Les Celtes en Belgique et dans le nord de la France: les fortifications de l'âge du fer*, Actes 6ème Coll Assoc franç Et. Ages Fer. Lille, Revue du Nord special no., 151–65.

Cahen-Delhaye, A. and Jadin, I. (1990) 'La place forte de Lompret (sud de Hainaut belge)', in G. Leman-Delerive (ed.) *Les Celtes en France du Nord*, 51–5.

Collis, J.R. and Ralston, I.B.M. (1976) 'Late La Tène defences', *Germania* 54: 135–46.

Cunliffe, B.W. (1991) *Iron Age Communities in Britain* (3rd edn) London and New York: Routledge.

Dedet, B. and Py, M. (eds) (1985) *Les Enceintes protohistoriques de Gaule méridionale*, Caveirac: Cahier Assoc Recherche Archéol en Languedoc Oriental 14.

Deyber, A. (1987) 'La guérilla gauloise pendant la Guerre des Gaules (58–50 avant J.-C.)', *Etudes Celtiques* 24: 145–83.

Dixon, P.W. (1976) 'Crickley Hill, 1969–72', in D.W. Harding (ed.) *Hillforts*, 161–75.

Duval, P. *et al.* (1991) 'L'âge du fer en Lorraine. Les remparts calcinés de la Cité d'Affrique', *Archéologia* (Dijon) 274: 52–9.

van Endert, D. (1987) *Das Osttor in Manching*, Die Ausgrabungen in Manching 10, Wiesbaden: Franz Steiner Verlag, for Römisch-Germanische Kommission des Deutschen Archäologischen Instituts.

Feachem, R.W. (1971) 'Unfinished hill-forts', in D. Hill and M. Jesson (eds) *The Iron Age and Its Hill-Forts*, 19–39.

Forde-Johnston, J. (1976) *Hillforts of the Iron Age in England and Wales: a survey of the surface evidence*, Liverpool: Liverpool University Press.

Frey, O.-H. (1984) 'Die Bedeutung der Gallia Cisalpina für die Entstehung der Oppida-Kultur', in O.-H. Frey and H. Roth (eds) *Studien zu Siedlungsfragen der Latènezeit*, Marburg: Veröffentlichung des Vorgeschichtlichen Seminars Marburg 3: 1–23.

Fürger-Gunti, A. (1980) 'Der *Murus gallicus* von Basel', *Annuaire de la Société Suisse de Préhistoire et d'Archéologie* 63: 131–84.

Glodariu, I. (1983) *Arhitectura Dacilor, civila si militara*, Cluj-Napoca: Editura Dacia.

Graham, A. (1953) 'Archaeological gleanings from Dark Age records', *Proceedings of the Society of Antiquaries of Scotland* 85: 64–91.

Guilbert, G. (ed.) (1981) *Hill-fort Studies: essays for A.H.A. Hogg*, Leicester: Leicester University Press.

Harbison, P. (1971) 'Wooden and stone *chevaux-de-frise* in central and western Europe', *Proceedings of the Prehistoric Society* 37: 195–225.

Harding, D.W. (ed.) (1976) *Hillforts: later prehistoric earthworks in Britain and Ireland*, London: Academic Press.

—— (1979) *Celts in Conflict: hillfort studies 1927–77*, Edinburgh: Department of Archaeology, University of Edinburgh, Occasional Papers 3.

Hawkes, C.F.C. (1931) 'Hillforts', *Antiquity* 5: 60–97.

—— (1971) 'Fence, wall, dump, from Troy to Hod', in D. Hill and M. Jesson (eds) *The Iron Age and Its Hill-Forts*, 5–18.

Hill, D. and Jesson, M. (eds) (1971) *The Iron Age and Its Hill-Forts*, Southampton: University of Southampton Monograph Series 1.

Hill, P.H. (1982) 'Broxmouth Hillfort excavations 1977–1978: an interim report (2nd edition)', in D.W. Harding (ed.) *Later Prehistoric Settlement in South-east Scotland*, 141–94, Edinburgh: Department of Archaeology, University of Edinburgh Occasional Papers 8.

Hogg, A.H.A. (1975) *A Guide to the Hill-Forts of Britain*, London: Hart-Davis MacGibbon.

Jobey, G. (1978) 'Burnswark Hill', *Transactions of the Dumfries and Galloway Natural History and Antiquarian Society* 53: 57–104.

Kaenel, A. and Curdy, P. (1988) *L'Oppidum du Mont Vully*, Fribourg: Guides Archéologiques de la Suisse 22.

Le Gall, J. (1985) *Alésia*, Paris: Ministère de la Culture, Guides Archéologiques de la France.

Leman-Delerive, G. (ed.) (1990) *Les Celtes en France du nord et en Belgique VIe–Ier siècle avant J.-C.*, Valenciennes: Crédit Communal.

MacKie, E.W. (1969) 'Timber-laced and vitrified walls in iron age forts: causes of vitrifaction', *Glasgow Archaeological Journal* 1: 69–71.

—— (1976) 'The vitrified forts of Scotland', in D.W. Harding (ed.) *Hillforts*, 205–35.

Maier, F. (1985) *Das Heidetränk-Oppidum*, Führer zur Hessischen Vor- und Frühgeschichte 4, Stuttgart: Konrad Theiss Verlag.

—— (1986) 'Vorbericht über die Ausgrabung 1985 in dem spätkeltischen Oppidum von Manching', *Germania*, 64: 1–43.

Megaw, J.V.S. and Simpson, D.D.A. (eds) (1979) *Introduction to British Prehistory*, Leicester: Leicester University Press.

Mercer, R.J. (1980) *Hambledon Hill – a neolithic landscape*, Edinburgh: Edinburgh University Press.

—— (1989) 'The earliest defences in western Europe: Part I, Warfare in the Neolithic', *Fortress* 2: 16-22.

Motyková, K., Drda, P. and Rybová, A. (1990) 'Oppidum Závist – Prostor Brány v Predsunutém Sijovém Opevneni', *Památky Archeologické* 81: 308–433.

Nicolardot, J.-P. (1974) 'Structures d'habitats de hauteur à caractères défensifs dans le Centre-Est de la France', *Antiquités Nationales* 6: 32–45.

de Palol, P. (1964) 'La muralla céltica del poblado "El Soto de Medinilla"', Zaragoza: VIII Congreso Nacional de Arquelogia, Sevilla-Malaga, 1963, 275–6.

Papeleux, J. and de Boe, G. (eds) (1988) *Forteresses celtiques en Wallonie*, Archaeologicum Belgii Speculum 14, Brussels: Service des Fouilles.

Peyre, C. (1979) *La Cisalpine gauloise du IIIe au Ier siècle avant J.-C.*, Paris: Presses de l'Ecole Normale Supérieure.

—— (1985) 'Felsina et l'organisation du territoire des Boïens selon l'historiographie antique', in D. Vitali (ed.) *Celti ed Etruschi nell'Italia centro-settentrionale dal V secolo a.C. alla romanizzazione*, Fonti e Studi 10, Bologna: Bologna University Press, 101–10.

Raftery, B. (1991) 'Dun Aengus, Inishmore, Aran, County Galway, Ireland', in S. Moscati *et al.* (eds) *The Celts*, Exhibition catalogue, Palazzo Grassi, Venice. Milan: Bompiani, 613.

Ralston, I.B.M. (1981) 'The use of timber in hill-fort defences in France', in G. Guilbert (ed.) *Hill-Fort Studies*, 78–103.

—— (1986) 'The Yorkshire Television vitrified wall experiment at East Tullos, City of Aberdeen District', *Proceedings of the Society of Antiquaries of Scotland*, 116: 17–40.

—— (1992) *Les Enceintes fortifiées du Limousin: les habitats protohistoriques de la France non-méditerranéenne*, Documents d'Archéologie française 36, Paris: Maison des Sciences de l'Homme.

Richmond, I.A. (1968) *Hod Hill II*, London: British Museum.

Rivet, A.L.F. (1971) 'Hillforts in action', in D. Hill and M. Jesson (eds) *The Iron Age and Its Hill-Forts*, 189–202.

Royal Commission on the Ancient and Historical Monuments of Scotland (1967) *Peeblesshire*, 2 vols, Edinburgh: HMSO.

Sanderson, D.C.W., Placido, F. and Tate, J.O. (1988) 'Scottish vitrified forts: TL results from six study sites', *Nuclear Tracts Radiation Measurements* 14: 307–16.

Sharples, N. (1991) 'Warfare in the Iron Age of Wessex', *Scottish Archaeological Review* 8: 79–89.

Wheeler, R.E.M. (1943) *Maiden Castle*, London: Research Reports of the Society of Antiquaries of London 12.

Wheeler, R.E.M. and Richardson, K.M. (1957) *Hill-forts of Northern France*, London: Research Reports of the Society of Antiquaries of London 19.

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TIRÉ A PART



LE LÉOPARD D'OR

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Réflexions sur l'économie de la Gaule d'après César et les données archéologiques

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L'apparition de la monnaie dans les sociétés sans écriture marque une étape importante dans le passage de la protohistoire à l'histoire. Cette catégorie d'objets, sur lesquels se distinguent parfois quelques lettres, montre encore un lien entre les sociétés celtiques et les civilisations méditerranéennes et nous pose la question de la genèse et de la fonction des premiers systèmes monétaires de l'Europe tempérée. La tentation est grande de remplacer alors le modèle d'une économie primitive par celui d'une économie de marché. M. Finley, dans son analyse de l'économie des sociétés méditerranéennes, nous invite à la prudence en montrant les limites étroites dans lesquelles se développent l'artisanat et le commerce antiques (Finley, 1985).

La question de la fonction de la monnaie chez les Gaulois ne peut pas être totalement séparée de celle de la datation des principales étapes de leur évolution. Faute de contexte archéologique pour les premières monnaies (importées ou copiées par les monnayeurs celtes), leur datation reste en effet imprécise. On peut seulement noter que les types dérivés de ceux du monde grec donnent un *terminus post quem* ; que la valeur individuelle de ces pièces semble très haute ; que ces monnaies sont pratiquement inconnues sur les habitats bien étudiés ; enfin, que, suivant les auteurs qui ont traité cette question, leur production a été épisodique. Leurs fonctions étaient étrangères au secteur économique, tel qu'il est reconnu généralement par les historiens. On cite, par exemple, l'emploi de mercenaires, une série de fonctions dans le domaine socio-politique, un certain rôle dans le domaine juridique, en remplacement de certaines pratiques sanglantes (Grierson, 1978 ; Allen, 1976). Même pour des phases plus récentes du monnayage celtique, il est impossible de citer des exemples qui suggèrent que ces fonctions ont toujours gardé une certaine importance. C'est le cas pour la distribution des statères belges dans les années de la guerre des Gaules (Cunliffe, 1981 ; Scheers, 1972 ; Haselgrove, 1984).

Des dates et des fonctions très variées sont attribuées aux premiers monnayages celtiques. Plusieurs éléments indiquent que, après un certain laps de temps, l'existence des monnaies a vraisemblablement provoqué un usage secondaire dans le domaine économique. Ces éléments sont : l'apparition des monnaies en bas métal, circulant peut-être à une valeur conventionnelle ; l'apparition des monnaies en or et en argent sur les habitats ; les indications que l'utilisation, sinon la fabrication, des monnaies se généralise sur une zone plus étendue de la France non-méditerranéenne. Mais rien ne permet de penser qu'un système monétaire a remplacé complètement d'autres formes de contrats pour le stockage des produits naturels ou pour les productions artisanales liées à un système socio-économique, dans la tradition d'une *embedded economy* (Hodder, 1979).

Le Dr. Colbert de Beaulieu a montré de façon péremptoire que le monnayage celtique suivait rigoureusement les lois d'évolution qui ont été établies pour les numéraires historiques. Comme c'est le cas fréquemment dans le monde classique, la valeur des monnaies décroît avec le temps. Il a pu, de cette façon, sérier les monnayages et proposer des datations en fixant les bornes de cette évolution sur des points de repère historiques, essentiellement la conquête de la Narbonnaise et les différentes phases de la guerre des Gaules. Pour compléter cette vision générale, il faudrait sans doute tenir compte également des variations de ressources, selon les régions et les périodes, en métaux précieux.

Le développement de ce système peut rappeler le passage de la phase, que Hicks a appelée *command-customary* (1), à une phase où une partie au moins des circuits économiques est mercantilisée (Hicks, 1969).

Depuis quelques années, le développement des fouilles sur des gisements de La Tène moyenne, finale et tardive, apporte des éléments nouveaux. Les datations se font plus précises et le développement de l'artisanat et des échanges se manifeste clairement avant la phase des *oppida*, au moins dans l'Ouest du monde celtique. Des habitats ouverts, comme Aulnat (Puy-de-Dôme), Breisach dans la Forêt Noire ou encore Levroux-les-Arènes (Indre), qui ont été occupés dès la fin du IIe siècle, livrent des traces nombreuses de travail du métal et d'importation d'amphores vinaires italiques.

Cet article voudrait présenter brièvement les acquis de l'archéologie dans le domaine de l'évolution économique au IIe et au Ier siècles avant J.-C. Il propose également une lecture de César qui, juxtaposée avec les données du terrain, peut parfois se démarquer des interprétations des historiens. Il demande enfin aux numismates d'oublier un temps les dates et les sites réputés « historiques » pour se pencher plus attentivement sur des gisements plus modestes, mais peut-être plus significatifs de l'évolution générale. Examinons d'abord la source qui est accessible à tous les chercheurs des différentes spécialités, le texte de César.

Evidemment, extraire le texte de César sur la guerre des Gaules du corpus des sources classiques nous contraint à négliger de nombreux renseignements sur l'organisation de l'économie celtique recueillis par d'autres auteurs. Mais nous avons deux raisons principales pour nous en tenir à César. D'une part son texte, en dépit des difficultés qui pèsent sur sa lecture (Rambaud, 1966), nous offre une série d'observations sur les phénomènes économiques qui peut représenter une étape bien située chronologiquement dans un développement général qui a été vraisemblablement complexe et, comme tout changement économique, cyclique, à travers les territoires celtiques du Nord-Ouest. Comme on va le voir, de nombreux renseignements sur l'économie chez César semblent refléter, sinon ses propres observations, du moins l'actualité du moment. Aussi nous semble-t-il possible d'écarter les objections sur la contemporanéité des observations de César et de celles de Posidonios, qui se manifestent dans d'autres domaines (Tierney, 1960 ; Nash, 1976). D'autre part, les remarques suivantes sur César font partie d'une étude plus large, dont nous avons déjà présenté les premiers résultats au colloque d'Angoulême (Buchsenschutz et Ralston, 1986).

Pour l'analyse, nous avons utilisé le lexique mis au point par l'équipe du LASLA de Liège (LASLA, 1967). Ce type de lecture nous incite à analyser chaque occurrence de mot plutôt qu'à privilégier tel ou tel passage sélectionné au hasard de la lecture. Il permet, à notre avis, de mieux saisir le sens profond du texte, au-delà parfois du message que l'auteur essaie, avec quelque habileté, de faire passer. Examiner simultanément toutes les occurrences d'un mot permet de mieux en saisir le sens, en confrontant les différents contextes. Schématiquement, deux cas extrêmes se présentent : le mot appartient à une expression toute faite, un « cliché » que César répète, totalement ou partiellement, tout au long de l'ouvrage. Il est intéressant alors d'étudier son contexte et, éventuellement, son évolution dans le déroulement des évènements. A l'opposé, un mot peut n'apparaître qu'une fois ou deux, dans une phrase incidente qui sert à expliquer un fait. Ce type d'occurrence nous semble particulièrement intéressant, car il échappe généralement à l'image orientée que César veut donner de la Gaule à son lecteur. Nous avons donné déjà quelques exemples, à notre avis significatifs, de la fécondité de ce genre d'analyse (Colloque d'Angoulême, 1986). Rappelons simplement ici comment le caractère « militaire » du texte est affirmé par la simple fréquence des substantifs qui se rapportent au combat : *hostis* est le mot le plus souvent employé. Le sens des mots *vicus* et *aedificium* peut être précisé s'ils sont replacés dans l'expression à laquelle ils appartiennent le plus souvent : « nous avons brûlé champs, fourrages, bâtiments isolés et villages... ».

Les données qui peuvent ressortir à l'économie ne tiennent pas une place importante dans le texte, ce qui n'est pas étonnant vu son caractère et son objectif. De plus, nous suivons tout à fait l'analyse de Finley (Finley, 1985, p. 204), lorsqu'il écrit : « there were neither commercial wars nor commercial imperialism, great as the profits of empire may have been. » Les lecteurs de César à Rome n'attendaient pas une justification « économique » de la conquête, alors que nos réflexes d'hommes du vingtième siècle nous conduisent à chercher une justification de ce genre. Nous pouvons diviser les observations de César en deux grandes séries : les grands thèmes généraux et les incidents ou évènements particuliers. Dans certains cas, ces derniers peuvent conduire à des remarques plus générales, par exemple, sur les fonctions des marchands.

César répète tout au long de son livre un thème dont les éléments de base sont les suivants : le commerce avec la Méditerranée introduit automatiquement les raffinements de la civilisation et amollit le courage des peuples barbares. Les peuples les moins civilisés sont précisément ceux qui ont gardé la pureté et le courage ancestraux en évitant les contact avec l'extérieur. Il existe une corrélation étroite entre la pénétration du commerce et la proximité de la Province : plus on s'en éloigne, moins le commerce est intense, moins les peuples rencontrés sont civilisés. Ce thème est introduit dès le paragraphe 1 du premier livre : « Les plus braves de ces trois peuples sont les Belges, parce qu'ils sont les plus éloignés de la Province romaine et des raffinements de sa civilisation, parce que les marchands y vont très rarement et, par conséquent, n'y introduisent pas ce qui est propre à amollir les cœurs... » (traduction L. Constans).

Ce schéma est repris plusieurs fois, toujours à propos de peuples du nord-est de la Gaule ou de la Germanie : les Nerviens (2,15), les Suèves (4,2), les Ubiens (4,3). C'est dans ce contexte qu'apparaît deux fois le terme *vinum* (4,2 et 2,15). Ç'est en effet la marchandise de luxe par excellence dont les effets lénifiants sont soulignés dans ce contexte.

Néanmoins, les trouvailles d'amphores sur certains sites du sud de cette région nous permettent de suggérer que la prohibition n'était pas totale (Fitzpatrick, 1985) (fig. 1). Mais il semble, dans l'état actuel des recherches, qu'il faille établir des distinctions, à partir du nombre d'amphores, pour différencier les zones où le vin reste une importation de luxe de celles où il est répandu assez largement. En dehors de la zone belge, les amphores du type « Dressel 1a » sont assez nombreuses pour qu'on puisse parler d'importation massive. Nous pouvons, avec A. Tchernia, proposer un système d'échanges né dans la période *command-customary* qui est devenue mercantile au cours du temps, au fur et à mesure que la fréquence des échanges augmente et que ce processus s'affirme. Dans ce commerce, la vente des esclaves semble avoir joué un rôle déterminant (Tchernia, 1983).

Examinons maintenant les commerçants dans le texte de César. Ils sont désignés par le terme de *mercator* dans les six premiers livres, où ils apparaissent à 11 reprises (fig. 2). Ils sont cités dans le schéma évoqué ci-dessus : ils renseignent les Romains ou les Gaulois sur un territoire qu'ils ont parcouru ou sur les nouvelles qu'ils ont apprises. Enfin, ils font l'objet de la protection de César. Dans le livre 7, le terme de *mercator* est remplacé par l'expression *« cives romani qui negotiandi causa ibi constituerunt »*. Comme cette expression apparaît toujours dans un contexte de violence, où ces marchands sont pillés ou tués par les Gaulois, il nous semble évident que César veut insister sur la gravité du crime et qu'il tente de se justifier en insistant sur la protection des intérêts de ses compatriotes.

Cependant, nous pouvons noter que, dans le texte de César, les circonstances où l'expression *negotiandi causa* est employée sont bien limitées. Les trois occurrences (7,3 ; 7,42 ; 7,55) se situent dans des *oppida* et le contexte des évènements laisse supposer que l'une sinon la seule fonction de ces marchands était de subvenir aux besoins de l'armée romaine. Renfrew (Renfrew, 1975 ; fig. 10) propose une classification des différents types d'organisation du commerce : il est possible d'envisager les citoyens romains, comme Gaius Fifius Cita, dans un système comme les modes 8 (*« emissary trading »*) ou 9 (*« colonial enclave »*) de Renfrew. Ce n'est peut-être pas un hasard si ce genre de liaison commerciale est localisé dans des endroits précis comme les *oppida* : c'est là que le commerce peut être soumis à certaines règles, plus ou moins bien formalisées, que l'appareil politique peut plus ou moins contrôler. Pendant la guerre, ce pouvoir est représenté soit par les *civitates*, soit par l'armée romaine (Renfrew, 1975 ; Ralston, à paraître). Dans ce domaine aussi, la Gaule semble être, au moment de la conquête, en pleine mutation. Cette impression ressort aussi des données archéologiques.

Nous avons montré que plusieurs termes, comme le mot *urbs* par exemple, n'apparaissent que dans le livre 7 ou prennent un sens particulier dans cette partie des « Commentaires » : César veut un triomphe et organise son rapport dans ce sens. Mais en ce qui concerne les marchands romains, nous pouvons être certains qu'ils sont présents dès cette période. Dans les livres précédents, leur rôle d'éclaireur apparaît nettement : ils renseignent Gaulois et Romains, et César se réfère souvent à eux pour justifier une campagne dans un pays éloigné ou, au contraire, pour renoncer à poursuivre l'ennemi. Les commerçants ont partout précédé les armées, en Bretagne comme en Germanie.

Le terme employé pour désigner les marchands dans les livres 1 à 6 est *mercator*. Nous pouvons les rapprocher des personnages que Renfrew appelle *middlemen*, ou commerçants du mode 7. Ils couraient des risques relativement grands, puisque leurs activités dépassaient largement la zone contrôlée par l'armée.

Quelle était la nationalité de ces commerçants au début de la guerre ou antérieurement ? César ne nous renseigne sur ce point que dans le livre 7, où les *mercatores* deviennent des *cives romani*. Il est inutile de nier que certains d'entre eux étaient probablement romains. Il est également probable que le rôle de Massalia dans ce secteur a pu être exagéré et que ses ressortissants remplissaient d'autres fonctions (Goudineau, 1983, p. 76-86). Mais parmi ces marchands ce sont peut-être trouvés des Gaulois ou encore des gens appartenant à d'autres ethnies. L'essor du commerce avant l'expansion romaine ou après n'était pas limité au citoyens romains (Finley, 1985, p. 158). Prenons un exemple dans la zone périphérique de ce système : le site de Hengistbury Head. Considéré par B. Cunliffe comme un entrepôt *(port of trade)*, il a pu accueillir des « marchands » qui transportaient des produits venus, d'après les données archéologiques, de zones proches ou éloignées de l'hinterland : les produits métalliques du sud-ouest de l'Angleterre, les céramiques du nord-ouest de la France, le vin, peut-être par l'intermédiaire des *middlemen* d'Armorique ou de commerçants d'origine méditerranéenne (Cunliffe, 1978, p. 65-68). Il est clair que les échanges s'organisent à différentes échelles géographiques ; il est loin d'être certain que tous ceux qui y participaient pratiquaient cette activité de façon permanente. Certains d'entre eux ont pu être chargés par les élites d'opérer une redistribution interne ; mais à l'extérieur de leur territoire, ces gens pouvaient être décrits par

un auteur classique comme des « marchands ». Nous ne pouvons donc pas trancher sur ce point, car le terme employé par nos sources ne permet pas de faire la distinction.

Le modèle qu'on peut tirer du texte de César est alors celui d'une croissance du rôle du commerce et des marchands, croissance qui évidemment n'a pas atteint sont extension spatiale maximale. Nous pouvons noter que César ne nous parle pas de la nature de ce commerce, sauf indirectement. Dans certains secteurs, il était organisé et régulier, puisqu'il existait des péages ; mais d'autres épisodes (3,1 ; 6,37) laissent supposer qu'ailleurs les relations étaient moins bien établies et nécessitaient un appui militaire. César ne parle pas directement de la nature de ce commerce, mais il sous-entend qu'il est plus intensif que les échanges consentis par les Suèves. Ceux-ci, en effet, n'acceptent les marchands que pour vendre leur butin de guerre et ils interdisent l'importation du vin et même des chevaux, que les Gaulois achètent pourtant à n'importe quel prix (4,42). César ne parle jamais du commerce dans la Gaule de l'ouest, mais nous ne pouvons pas tirer de conclusion solide de cette lacune, étant donnée la façon dont il traite les activités commerciales.

En dehors des denrées évoquées en 4,2, le texte est muet sur la nature des marchandises échangées. Y. Roman a relevé chez les auteurs latins et, particulièrement, chez Cicéron, une profonde méconnaissance de l'économie gauloise et des possibilités du territoire. Les Romains auraient espéré plus de ressources minières et, en revanche, sous-estimé la production agricole. Plusieurs raisons peuvent être avancées pour expliquer cela : les produits agricoles, pondéreux et périssables, circulent difficilement dans l'Antiquité. Le monde paysan, morcelé en une multitude de petits éco-systèmes, a pu rester longtemps étranger au développement du commerce. Enfin, les auteurs classiques représentaient volontiers les Celtes comme des populations mal fixées au sol, perpétuellement en quête de nouvelles terres à conquérir. Il faudrait cependant distinguer le cliché du Gaulois querelleur, souvent employé par les Latins pour les besoins de leur rhétorique, de la réalité économique (Roman, 1983).

Celle-ci ne les intéresse pas suffisamment pour qu'ils en parlent abondamment dans leurs écrits. César reste aussi vague dans ce domaine que dans celui de la description des champs de bataille sur lesquelles les chercheurs s'acharnent depuis plusieurs générations.

En revanche, il est facile de trouver dans le texte des éléments pour montrer que la pénétration commerciale ne présente pas la belle répartition en auréole autour de la Provence dont César peut nous imposer l'image. Il faut protéger les marchands dans les Alpes (3,1), et nous savons que cette région n'est pacifiée que bien après 52. En Belgique, la situation est très complexe et les marchands n'ont pas hésité à pénétrer dans ces pays barbares : ils se sont insinués entre les peuplades hostiles, les Nerviens par exemple, pour atteindre celles qui étaient plus tolérantes, comme les Suèves. Enfin, ils n'ont pas hésité à franchir la Manche pour établir un commerce actif : César peut en effet réunir des marchands pour les interroger sur la Bretagne. Le fait qu'ils n'ont pas grand-chose à lui dire peut refléter soit leur ignorance, soit leur volonté de ne pas aider César : dans cette seconde hypothèse, on peut supposer qu'ils étaient gaulois. Il est certain, en tout cas, que ces marchands ont informé les Bretons des intentions de César. Nous avons également recherché dans le texte les éléments qui pouvaient préciser les techniques des échanges, les pratiques monétaires ou commerciales. Ils sont peu nombreux. Le verbe *importare* n'apparaît qu'en association avec le mot *mercator*, dans les passages cités plus haut, et *exportare*, utilisé une seule fois, ne s'applique pas au commerce.

Les termes désignant les monnaies sont également très rares. Cependant, le paragraphe 12 du livre 5 nous donne une information très précise sur les échanges en Grande-bretagne : *« Utuntur aut aere aut nummo aureo aut taleis ferreis ad certum pondum examinatis pro nummo »*. Plus loin, il précise que le cuivre est importé. Dans ce contexte, il faut traduire, nous précise Ch. Peyre, *aere* par « monnaie de bronze » : le mot prend en effet souvent ce sens ; de plus, il n'était pas utile ici de répéter *nummo*, qui apparaît dans le membre de phrase suivant. César nous décrit donc un système complexe où semblaient bien coexister monnaies de bronze, monnaies d'or et ces *currency bars* dont l'existence est largement attestée par l'archéologie. Toutefois, il faut relever l'emploi de *aut* : on utilisait soit des monnaies de bronze, soit des monnaies d'or, soit des lingots de fer. César souligne d'ailleurs dans ce passage les particularismes qui distinguent les unes des autres les régions de la Bretagne. Cette phrase décrit donc plusieurs systèmes monétaires, mais nous savons par l'archéologie que, dans certaines régions de l'Angleterre du sud, le bimétallisme existait à l'époque de César (Allen, 1976). Quelle était la valeur des monnaies de bronze aux yeux des Gaulois, leur poids de métal ou une certaine valeur fiduciaire ? Pour Finley (Finley, 1985, p. 196), *« money was essentially coined metal and nothing else, in which in particular there was no fiduciary money (which is different from base metal circulating at conventionnal values) »*. Il est bien difficile de trancher dans le cas des Celtes. Nous ne savons même pas quel rôle exact jouait la monnaie dans les transactions sur les marchés. On peut supposer qu'il existait d'une part un

numéraire pour les échanges internes à chaque *civitas* et, d'autre part, un numéraire pour les échanges à longue distance. Mais même ce dernier, qui était pourtant aligné sur des étalons internationaux comme le denier romain, ne semble pas être sorti de la cité : il indiquait simplement une valeur conventionnelle d'échange qui aidait au transfert des produits, sans que la monnaie elle-même ne voyage au loin (Haselgrove, 1979). Nous constatons en tout cas que les Bretons, pourtant fort éloignés de la Province, n'ont pas attendu l'arrivée des Romains pour se doter des instruments nécessaires pour leurs échanges très actifs avec le continent.

Les mots qui désignent les impôts et les péages (*portorium* – 3,1 et 1,18 – et *vectigal* – 1,18 ; 1,36 ; 3,8 ; 4,3 ; 5,22) sont attestés à plusieurs reprises et jalonnent l'ensemble du texte. Tantôt César intervient pour libérer une peuplade d'un impôt antérieur (1,36), tantôt il impose lui-même une contribution aux vaincus. S.J. de Laet a magistralement démontré l'importance des impôts et des péages dans l'exploitation des provinces par Rome (De Laet, 1949). Mais il ressort clairement du texte que ces pratiques existaient avant l'arrivée des Romains. Un système de péages suppose un pays où les routes commerciales sont bien fixées – en France, il s'agissait surtout des rivières – et très fréquentées. Avec les taxes sur les marchés, les péages constituent en effet le seul moyen pour un Etat primitif de faire payer les marchands. La description des activités de Dumnorix va même plus loin. Ce chef éduen avait obtenu l'affermage des péages et des impôts dans sa cité. Une telle pratique suppose un système politique déjà élaboré, des mouvements de fonds entre l'Etat et le « fermier », puis entre ses agents et les commerçants. Il est vrai qu'il s'agit d'un peuple proche des Romains, placé de plus sur une voie commerciale de première importance. De nombreuses « cités » gauloises à l'époque de César devaient être loin d'avoir atteint un stade d'évolution aussi avancé. Mais on a du mal à croire que toutes ces opérations s'effectuaient en nature ou en monnaies de grande valeur. Le parallèle avec des périodes historiques serait certainement dangereux.

Les progrès des diverses méthodes de datation et l'extension des fouilles d'habitat au cours des vingt dernières années ont permis de mieux cerner l'évolution de la société gauloise. Les cimetières de La Tène ancienne et les rares habitats de la même époque qui ont pu être étudiés révèlent une société essentiellement agricole, enracinée sur ses terroirs, relativement riche et homogène : dans le mobilier des tombes, les différences sont faibles et progressives, les importations rares. Les objets métalliques sont essentiellement des parures ou des armes. La situation a changé quand César arrive en Gaule. Les importations sont nombreuses et largement diffusées et surtout la fabrication des objets en métal atteint son apogée : outils agricoles, outils d'artisans, ustensiles divers, envahissent la vie quotidienne. César note avec étonnement que les ancres des Vénètes sont retenues par des chaînes de fer et non par des cordages comme en Italie. Pendant le siège de l'*oppidum* central des Atuatuques, il relève l'extraordinaire quantité d'armes que les assiégés jettent, pour signifier leur reddition, au pied du rempart (2,3). Pour la première fois, les clous entrent dans la fabrication des maisons. Enfin, des milliers de fiches de fer, noyées dans la masse des *murus gallicus*, sont là pour témoigner de cet engouement pour le métal. Un profond changement, qu'il faut situer dans la période de La Tène moyenne, a affecté la société agricole des IVe et Ve siècles.

Cette production, comme celle des bronzes, d'une partie de la céramique, du verre et de l'os, est le fruit d'artisans spécialisés. Ces artisans, toujours difficiles à isoler à travers les matériaux archéologiques, sont cités ici et là sans dicussion approfondie (Welbourn, 1985). On peut supposer leur existence, surtout pour la fabrication des produits de luxe comme les fibules, à une date plus élevée. La nouveauté réside dans l'essor sans précédent des quantités de matériel découvert et dans le regroupement de ces artisans sur quelques sites. On en retrouve la trace dans ces habitats de plaine qui apparaissent dans la deuxième moitié du IIe siècle à Breisach (Forêt Noire), Aulnat (Puy-de-Dôme), Levroux (Indre). Quantité de vestiges attestent en effet que ces gros villages ne vivent plus seulement de l'agriculture, mais aussi de la production de ces outils et de ces parures. Ce phénomène est perceptible dans toute l'Europe, jusqu'en Pologne à Cracovie (Wozniak, 1982), et il se prolonge sur les *oppida* de France et d'Europe centrale : la Steinsburg en Thuringe, Zavist en Bohême, Manching en Bavière, pour ne citer que les plus célèbres. J.-P. Guillaumet a bien montré que les panoplies d'outils récoltées sur ces gisements ou dans les sépultures correspondent à un travail très spécialisé (Guillaumet, 1983) : on identifie la fonction des instruments en se référant à l'encyclopédie de Diderot. Fabriquer des objets devient un métier permanent.

Il faut noter toutefois que, si les outils indiquent clairement un essor dans la production d'objets standardisés, les traces de structures réservées à telle ou telle production manquent cruellement dans les fouilles : il est toujours impossible de montrer un plan d'un quartier artisanal, équivalent aux quartiers des villes médiévales, dans une agglomération gauloise antérieure à la conquête. Il faut à ce sujet rappeler, comme l'a souligné M. Finley, que dans l'Antiquité, un grand atelier ou un quartier d'artisans correspond essentiellement à la concentration d'un nombreux personnel : l'outillage et les structures fixes sont modestes et ils ne laissent dans le sol que des traces discrètes. Malheureusement, la place de ces artisans

dans la société de La Tène finale reste mal connue. Est-ce qu'ils travaillaient pour eux-mêmes ou bien leur production était-elle contrôlée par les élites au sein d'un système de redistribution traditionnel ? Quel que soit le système dominant, les monnaies pouvaient y jouer plusieurs rôles : payer les clients et les soldats, ou encore les gens responsables des activités de « service » qui semblent s'être beaucoup développées dans les dernières décennies de l'indépendance dans les grands habitats ; enfin, les monnaies ont pu entrer dans le circuit des marchés. Les meules rotatives à grain, qui sont fabriquées à partir du IIe ou de la fin du IIIe siècle, nous donnent un bon exemple de la diffusion à moyenne distance des productions locales. Les archéologues ont pu montrer en effet, en France comme en Allemagne ou en Bohême, qu'une seule carrière fournissait une zone d'environ 400 kilomètres de diamètre. Ces artisans fabriquaient aussi des monnaies, puisque non seulement des pièces, mais aussi des moules à flans monétaires, ont été récoltés sur une quarantaine de sites, plus fréquemment sur des villages ouvert que sur des *oppida* (Tournaire et coll., 1982). La frappe des monnaies pouvait donc se déplacer sur des sites plus modestes que les *oppida*.

Les signes d'un commerce à longue distance intense sont également manifestes sur ces sites. Les indications d'importations massives sont limitées, à quelques exceptions près, aux productions des grands domaines d'Italie, c'est-à-dire essentiellement au vin. En revanche, sur la plupart des sites, les objets fabriqués en Italie même restent rares. Par exemple, la céramique campanienne, bien qu'attestée, est beaucoup moins abondante que les séries qu'elle a inspirées. Nous pouvons nous demander si l'importation d'une quantité assez considérable de vin est représentative d'autres produits qui n'ont pas survécu sur les gisements archéologiques. Les amphores se multiplient à partir du dernier tiers, sinon du milieu du IIe siècle. On retrouve jusque dans des villages modestes et éloignés de la Province, comme Levroux (Indre) ou Les Pichelots (Maine-et-Loire) (Bouyer et Buchsenschutz, 1982 ; Gruet, 1985), encore quelques amphores gréco-italiques, une très forte majorité d'amphores de type Dressel 1a, puis, dans les phases plus récentes, les Dressel 1b accompagnées de types variés. La carte de répartition des amphores de type Dressel 1a, que les spécialistes datent de la première moitié du Ier siècle avant J.-C., couvre toute la Gaule au sud de la Somme, avec de remarquables concentrations dans l'Ouest, la moyenne vallée du Rhin et l'ouest du Bade-Wurtemberg. Plusieurs exemplaires sont signalés sur la côte sud de la Grande-Bretagne. En France du nord, des gisements comme Levroux ont livré, pour 5 000 m^2 fouillés, les restes de 200 unités ; dans le Midi, les prospections suggèrent des quantités beaucoup plus importantes. Nous manquons encore de données quantitatives, mais les études récentes montrent que les amphores se répartissent sur un très grand nombre de sites, souvent modestes (Galliou, 1982, 1984 ; Fitzpatrick, 1985).

Certes, il s'agit peut-être d'un produit particulier, traditionnellement importé à grands frais dans les sociétés de l'Age du Fer de l'Europe moyenne. Mais quand on sait le prix que coûtaient les transports pondéreux dans l'Antiquité, la masse des découvertes semble nettement différencier ce commerce des échanges qui étaient pratiqués par les « princes » du premier Age du Fer. Il ne faudrait toutefois pas imaginer qu'il n'y a eu qu'un seul système à la fois et une seule ligne d'évolution régulière. En sortant un moment de l'échelle de la Gaule, nous pouvons relever qu'en Norique l'organisation du commerce révélée par le site de Magdalensberg semble avoir été très différente. En Angleterre du sud, il est évident que les changements socio-politiques qui accompagnent l'essor du commerce dans le sud-est du pays semblent plus significatifs que ceux qui se sont développés dans le sud et le sud-ouest, en dépit du fait que les signes du commerce, peut-être moins intenses, couvrent une plus longue période dans cette seconde région (Fulford, 1985 ; Cunliffe, 1981 ; Haselgrove in Refrew et Shennan, 1982).

Il nous reste enfin à examiner la problème de la datation. L'archéologie nous révèle une Europe moyenne très développée à partir de la fin du IIe siècle. Les cartes de répartition montrent déjà des inégalités dans cette évolution : là des importations arrivent massivement, ici les sites sont rares et pauvres en mobilier italique. En fonction de la proximité des grandes routes fluviales, des ressources propres de chaque cité et enfin du statut socio-économique de chaque peuplade, les échanges se développent ou stagnent. De même, les signes d'évolution que nous avons relevés chez César ne s'appliquent pas également à toute la Gaule.

Il semble cependant que dans toute la vallée de la Loire, de la Saône, du haut Rhin et du haut Danube, pour ne parler que des régions occidentales, des villages où l'artisanat est répandu se forment dès la fin du IIe siècle. Le mobilier de fabrication locale, notamment les fibules, comme les objets importés, céramique campanienne ou amphores, place leur formation au milieu du IIe siècle. Breisach et Levroux-les-Arènes sont délaissés avant la phase des fibules de Nauheim, dont la production est massive dans ces régions à partir des années 80 (Bouyer et Buchsenschutz, 1983 ; Stork, 1981). La phase de construction des plus grands *oppida*, dont les remparts, il faut l'avouer, ne sont pas encore très bien datés, pas plus que les plus anciens niveaux d'habitat, occupe toute la première moitié du siècle et se poursuit sans doute pendant quelques décades après la fin de la guerre. Les gisements postérieurs au milieu du siècle sont caractérisés

par plusieurs variétés de fibules de bronze et une augmentation massive des céramiques tournées et bien cuites.

La datation de ces habitats repose en effet plus souvent sur des comptages statistiques appuyés sur plusieurs dizaines de milliers d'objets que sur des ensembles clos (Buchsenschutz, 1981a). Ceux-ci reflètent d'ailleurs plutôt un événement, ceux-là une période d'occupation. Mais il est exact que la récolte de monnaies dans des couches aussi lâches pose un problème : même recueilli au fond d'une fosse, il faut considérer qu'un objet appartient à une nappe de détritus qui a été piégée dans cette excavation, mais peut-être après avoir été « polluée » en surface. On ne peut pas considérer de la même façon un dépôt volontaire, comme une sépulture ou une cachette, et le comblement d'une fosse, même quand une analyse très fine a montré qu'il était rapide. De plus, ces fosses se présentent souvent comme des unités qui n'ont pas de relations stratigraphiques entre elles. Aussi une monnaie unique sur un site d'habitat n'a pas, à notre sens, de valeur chronologique très sûre. En revanche, une collection de monnaies récoltées sur un habitat nous semble plus révélatrice de la circulation à une époque donnée qu'un trésor amassé par un seul individu dans des conditions bien particulières. C'est dans cet esprit, à notre avis, qu'il faut examiner les collections numismatiques récoltées sur des villages comme Levroux, Aulnat, Breisach ou Bâle-Usine à gaz.

Cependant, il ne faut pas négliger des monnaies recueillies dans un trou de poteau, dans lequel le bois a pourri en place, ou dans la masse d'un *murus gallicus*, dont la position stratigraphique est sûre. Une monnaie récoltée dans ces conditions peut avoir une valeur chronologique plus efficace que les nombreux exemplaires de la production locale, si elle est attestée dans des ensembles clos sur d'autres gisements ou si elle peut être rattachée, par un détail stylistique, à une série bien datée, une série romaine par exemple.

Les ensembles clos de La Tène finale en France restent encore assez rares. H. Polenz a répertorié et analysé les sépultures d'Europe centrale qui contiennent, à côté d'un riche mobilier de céramique et de métal, des monnaies (Polenz, 1982). Il a tenté d'accorder les données typologiques et numismatiques. Il pense que l'influence du système monétaire de Marseille, puis de celui de Rome, se manifeste dès la seconde moitié du IIe siècle. Il rejoint les datations les plus hautes proposées jusqu'ici pour les habitats. Cette étude, qui, à notre avis, propose une démarche exemplaire de confrontation entre les arguments archéologiques et numismatiques, invite à reconsidérer les datations traditionnelles.

Dans son manuel, comme dans des communications récentes, le Dr. Colbert de Beaulieu a défini avec beaucoup de rigueur les lois de la charactéroscopie, les règles économiques qui régissent l'évolution des monnaies et enfin les multiples observations qui permettent de sérier les séries monétaires celtiques et d'analyser à partir d'elles les échanges entre cités (Colbert, 1973, 1984). En l'absence quasi totale de données archéologiques utilisables, il a « calé » cette évolution par rapport aux dates historiques. Aujourd'hui, nous pensons que les archéologues sont en mesure de présenter des données susceptibles de remettre en question la position chronologique de ce modèle. Nous souhaitons que les numismates regardent d'un œil plus attentif l'ensemble récolté dans les fossés d'Alésia, en adoptant une attitude plus critique sur la valeur de cet ensemble en chronologie absolue. La lecture de César comme les données de fouilles montrent, à notre avis, que le niveau atteint par l'économie gauloise et la complexité de son organisation socio-politique, au moins dans certaines régions, et pas nécessairement dans celles qui sont le plus près de la Province, une cinquantaine d'années avant la conquête, ont pu créer des conditions où la monnaie s'est développée et a joué un rôle plus important qu'au cours des périodes précédentes. Il appartient aux archéologues de vérifier ou de rejeter cette hypothèse en affinant l'étude des contextes archéologiques dans lesquels apparaît ce numéraire ; il appartient aux numismates de considérer les implications d'une chronologie plus haute pour les théories monétaires et pour l'explication du rôle de la monnaie dans les sociétés gauloises. La variété des observations effectuées jusqu'à présent dans les fouilles d'habitats suggère déjà qu'un seul modèle sera insuffisant. Il suffit, pour constater la diversité des exemples connus, de se reporter aux multiples informations réunies et analysées magistralement par le Dr. Colbert de Beaulieu.

Guillaumet, 1982 J.P. Guillaumet, « Le matériel du tumulus de Celles (Cantal) », dans J. Collis et coll., *Le deuxième Age du Fer en Auvergne et en Forez*, Sheffield–Saint-Etienne, 1982, p. 189-211.

Haselgrove, 1979 C. Haselgrove, « The significance of coinage in pre-conquest Britain », dans B. Burnham, H. Johnson, *Invasion and response, British Archaeological Reports*, 75, 1979, p. 197-209.

Haselgrove, 1982 C. Haselgrove, « Wealth, prestige and power : the dynamics of late Iron Age ... centralisation in south-east England », dans C. Renfrew, S. Shennan, *Ranking, resource and exchange*, Cambridge, 1982, p. 79-88.

Haselgrove, 1984 C. Haselgrove, « Warfare and its aftermath as reflected in the precious metal coinage of Belgic Gaul », *Oxford Journal of Archaeology*, 3, 1984, p. 81-105.

Hicks, 1969 Sir John Hicks, *A theory of economic history*, Oxford, 1969.

Hodder, 1979 I. Hodder, « Pre-Roman and Romano-British tribal economies », dans B.C. Burnham, H. Johnson, *Invasion and Response : The Case of Roman Britain*, Oxford, *British Archaeological Reports*, 75, 1979, p. 189-196.

LASLA, 1967 *Documents pour servir à l'enseignement de la langue latine, 2*, (texte du programme de quatrième), Liège, 1967 (Laboratoire d'Analyse Statistique des Langues Anciennes).

Nash, 1976 D. Nash, « Reconstructing Poseidonios, Celtic ethnography : some considerations », *Britannia*, 7, 1976, p. 111-126.

Polenz, 1982 H. Polenz, « Münzen in latènezeitlichen Gräbern Mitteleuropas aus der Zeit zwischen 300 und 50 vor Christus Geburt », *Bayerische Vorgeschichtsblätter*, 47, 1982, p. 27-222.

Rambaud, 1966 M. Rambaud, *L'art de la déformation historique dans les Commentaires de César*, Paris, 1966.

Ralston, inédit I.B.M. Ralston, *The later prehistoric settlement sites of non-Mediterranean France with particuliar references to Limousin*, thèse de l'Université d'Edimbourg, 1983.

Renfrew, 1975 A.C. Renfrew, « Trade as action at a distance : questions of integration and communication », dans J.A. Sabloff, O.C. Lamberg-Karlovsky, *Ancient civilization and trade*, Albuquerque (New Mexico), 1975, p. 3-59.

Roman, 1983 Y. Roman, *De Narbonne à Bordeaux, un axe économique du premier siècle avant J.-C.*, Lyon, 1983, 331 p.

Scheers, 1972 S. Scheers, « Coinage and currency in the Belgic tribes during the Gallic war », *British Numismatic Journal*, 1972, p. 1-6.

Tchernia, 1983 A. Tchernia, « Italian wine in Gaul at the end of the Republic », dans P. Garnsey, K. Hopkins, C.R. Whittacker, *Trade in the ancient economy*, Londres, 1983, p. 87-101.

Tournaire et coll., 1982 J. Tournaire, « Iron Age coin moulds from France », *Proceedings of the Prehistoric Society*, 48, 1982, p. 417-435.

Tierney, 1960 J.J. Tierney, « The Celtic ethnography of Posidonius », *PRIA*, C60, p. 189-275.

Welbourn, 1985 D.A. Welbourn, « Craft specialization and complex societies, a critique », dans T. Champion, J.V.S. Megaw, *Settlement and society*, Leicester, 1985, p. 123-131.

Wozniak, 1982 Z. Wozniak, « Der Einfluß der Kelten auf die Wirtschaft und sozialen Verhältnisse auf polnischen Gebiet », dans J. Herrmann, I. Sellnow, *Der vorrömischen Eisenzeit. Produktivkräfte und Gesellschaftformationen in vorkapitalistischer Zeit*, Berlin, 1982, p. 451-459.

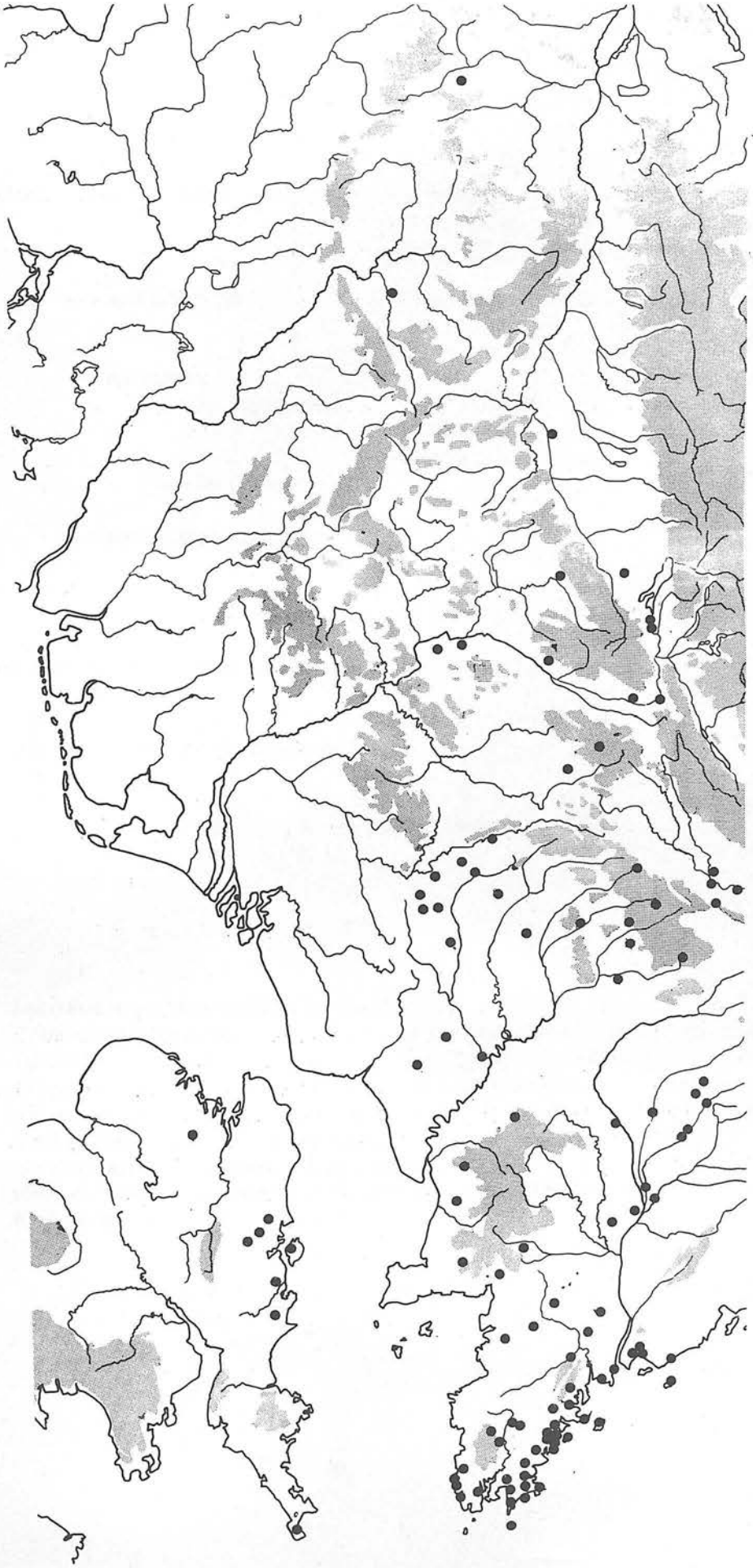


Fig. 1 : Carte de répartition des amphores « Dressel 1a » en Europe moyenne, d'après Fitzpatrick, 1985, et Frey-Röhrig, 1984. Pour l'inventaire des sites, nous renvoyons à ces deux articles.

MERCATOR	—> ne sont pas acceptés par	—> les Belges	1.1	—> qui ne sont donc
		—> les Ubiens	4.3	—> pas amollis par
		—> les Nerviens	2.15	—> la civilisation
	—> sont tolérés par	—> les Suèves	4.2	—> pour échanger le butin de guerre
	—> renseignent			
	—> les Romains sur	—> les Germains	1.39	
		—> la Bretagne	4.20	
		—> la Bretagne	4.21	
	—> les Gaulois		4.5	
	—> sont protégés par César		3.1	
			6.37	

CIVIS ROMANUS	« NEGOTIANDI CAUSA... »			INTERFICERE		
X	X		X	X	X	7.3
X	X	allusion aux événements de 7.3				7.17
X	X				X	7.38
X	X				X	7.42
			X	X	EX OPPIDO EDUCUNT	7.42
			X	X	X	7.55

Fig. 2 : Les commerçants dans la Guerre des Gaules :
César désigne les commerçants romains par le terme *mercator* dans les six premiers livres. Tantôt ils renseignent César, ou parfois les Gaulois : sur les peuples et les événements éloignés, tantôt ils sont évoqués dans une expression destinée à caractériser les peuples qui n'acceptent pas le commerce et, par conséquence, ne sont pas amollis par la civilisation.
Dans le livre 7, *mercator* est remplacé par une expression complexe désignant les citoyens romains venus en Gaule pour faire du commerce. Chaque fois qu'ils sont évoqués, il s'agit d'une scène de massacre ou d'expulsion. César veut insister sur la révolte générale des Gaulois qui touche même des citoyens romains.

1981: (with Olivier Buchsenschutz) 'Les fortifications de l'Age du Fer dans le Centre de la France', *Revue archéologique*, 1981/1, 45-66.

LES FORTIFICATIONS DE L'AGE DU FER DANS LE CENTRE DE LA FRANCE

La recherche sur les habitats et les fortifications de l'âge du Fer dans le centre de la France a beaucoup progressé au cours des vingt dernières années. Des enquêtes variées, sans relations entre elles, ont révélé peu à peu la richesse de cette région, sans résoudre toutefois les problèmes historiques généraux que posaient ces découvertes. Certains auteurs ont tenté une synthèse et proposé des modèles d'explication[1] (Crumley, 1974, Nash, 1976, 1978), sans peut-être prendre suffisamment garde au caractère très disparate de la bibliographie qu'ils manipulaient.

Cet exposé a pour objet de replacer ces recherches dans leur cadre géographique et historique, de mesurer les progrès accomplis depuis le XIX^e siècle, et de les situer dans le cadre de l'étude de l'habitat à l'âge du Fer en Europe tempérée.

1. Le milieu géographique

La zone considérée comprend le Berry et le Limousin, auxquels nous ajouterons l'Auvergne et certains gisements de la région Poitou-Charente à titre de comparaison. Elle couvre approximativement 300 km du nord au sud et 200 km d'est en ouest ; bordée au nord par le cours de la Loire, elle se partage entre le sud du Bassin parisien et le nord du Massif Central. Les principales régions naturelles qui la composent sont la Touraine, actuellement couverte de vignes et de vergers ; la Sologne, qui offre un paysage de forêts et d'étangs, comme la plupart des étendues de sable tertiaire du Bassin parisien ; plus au sud, la Champagne berrichonne calcaire se présente comme une plaine doucement ondulée consacrée aujourd'hui aux céréales, alors qu'elle était occupée jusqu'au XIX^e siècle par de pauvres pâturages. La Brenne au nord-ouest d'Argenton-sur-Creuse rappelle la Sologne ; le Boischaut fait la jonction avec le Massif central. La Marche et le Bourbonnais sont constitués d'une

1. C. L. Crumley, *Celtic Social Structure : the Generation of Archaeologically Testable Hypotheses from Literary Evidence*, Museum of Anthropology, University of Michigan, Anthropological Papers n° 54, 1974 ; D. Nash, The Growth of Urban Society in France, *in* B. W. Cunliffe et T. Rowley (éd.), *Oppida* in Barbarian Europe, BAR suppl. séries, II, Oxford, 1976, pp. 95-134 ; Id., Territory and State Formation in Central Gaul, *in* D. Green, C. Haselgrove et M. Spriggs (éd.), *Social Organisation and Settlement*, BAR suppl. Series, 47, Oxford, 1978, pp. 455-475 ; Id., *Settlement and Coinage in Central Gaul c. 200-50 BC*, BAR suppl. Series, 39, 2 vol., Oxford, 1978, 359 p.



1. Carte générale de la région étudiée.

série de plaines qui s'élèvent insensiblement jusqu'à 1 000 m au plateau de Millevaches à l'est de la Corrèze. L'élevage est ici beaucoup plus important que dans le nord et la forêt, qui couvre actuellement de grandes surfaces (plus du tiers de la Corrèze), réduit les possibilités de prospection. Le Limousin présente des formes anciennes et érodées qui contrastent avec les reliefs volcaniques et les riches plaines d'effondrement de l'Auvergne. Au sud-ouest, la région de Brive-la-Gaillarde se distingue par son substrat calcaire et son drainage particulier, tout le reste de la région étudiée se déversant dans le bassin de la Loire.

A l'époque de la conquête, les Bituriges Cubi, les Lémovices et les Arvernes se partageaient ce territoire. Ce n'est pas un hasard si les principaux événements de la guerre des Gaules, les fortifications les plus importantes, l'extension du monnayage en or, se localisent dans les deux régions les plus riches, l'Auvergne et le Berry.

2. Histoire de la recherche

Dès la seconde moitié du XIXe siècle sont entreprises des enquêtes sur les fortifications : Buhot de Kersers dans le Cher[2], de Cessac dans la Creuse[3] réunissent une documentation remarquable qui est encore très utile aujourd'hui. Alors qu'en Berry la recherche s'arrête au stade du relevé de surface, le problème de la « vitrification » de certains remparts va

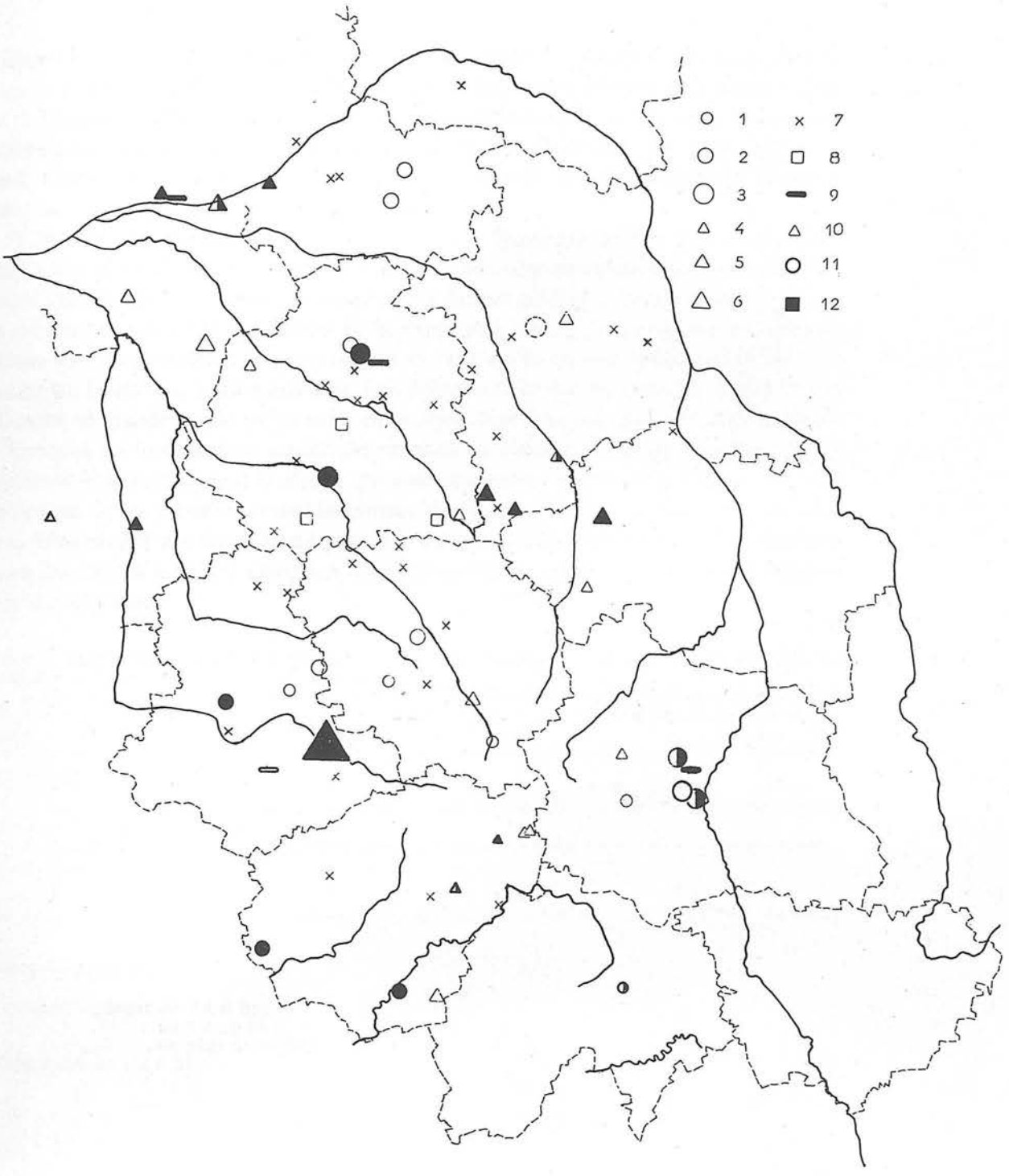
2. A. L. M. Buhot de Kersers, Les enceintes en terre dans le département du Cher, *Mémoires de la Société des Antiquaires du Centre*, 1, 1867, pp. 13-57 ; Id., Les tumulus et les forteresses en terre dans le département du Cher, *Mémoires de la société des Antiquaires du Centre*, 2, 1868, pp. 49-80 ; Id., *Histoire et statistique monumentale du département du Cher*, 8 vol., Bourges, 1875-1899 ; Id., Essai de classification des enceintes fortifiées en terre, *Bulletin monumental*, 52, 1886, pp. 594-619.

3. P. de Cessac, Coup d'œil sur l'homme préhistorique dans la Creuse : introduction au Dictionnaire archéologique du département de la Creuse, époque celtique, *Bulletin monumental*, 37, 1871, pp. 327-352 (manuscrit du dictionnaire aux archives de la Creuse à Guéret).

(Légende de la figure 1.)

1. Marcilly-en-Villette ; 2. Blois ; 3. Rochecorbon ; 4. Vernou ; 5. Amboise ; 6. Chaumont-sur-Loire ; 7. Cheverny ; 8. Cheverny ; 9. Neung-sur-Beuvron ; 10. Millançay ; 11. Sainte-Maure ; 12. Betz-le-Château ; 13. Murs ; 14. Moulins-sur-Céphons ; 15. Levroux, Colline des Tours ; 16. Levroux-les-Arènes ; 17. Vineuil ; 18. Saugy ; 19. Morthomiers ; 20. Bourges ; 21. Moulins-sur-Yèvre ; 22. Baugy ; 23. Mornay-Berry ; 24. Villedieu, camp de César ; 25. Villedieu, Mehun ; 26. Saint-Maur, Parçay ; 27. Montierchaume ; 28. Meunet-Planches ; 29. Luant ; 30. Ineuil ; 31. La Groutte ; 32. Château-sur-Allier ; 33. Chitray-Rivarennes ; 34. Saint-Marcel ; 35. Aslonnes ; 36. Cornouin ; 37. Chaillac ; 38. Parnac ; 39. Pouligny-Notre-Dame ; 40. Sainte-Sévère ; 41. Châteaumeillant ; 42. Saint-Saturnin ; 43. Sidiailles ; 44. Hérisson ; 45. Saint-Léger-Magnazeix ; 46. Arnac-la-Poste ; 47. Lafat ; 48. Lourdoueix-Saint-Pierre ; 49. Chéniers ; 50. Néris-les-Bains ; 51. Saint-Gence ; 52. Verneuil-sur-Vienne ; 53. Ambazac ; 54. Jabreilles ; 55. Thauron ; 56. Saint-Georges-la-Pouge ; 57. Sainte-Feyre ; 58. Pionnat ; 59. Saint-Jean-Ligoure, Chalucet ; 60. Saint-Denis-des-Murs, Villejoubert ; 61. Châteauneuf-la-Forêt ; 62. La Rochette ; 63. Saint-Georges-Nigremont ; 64. Saint-Pierre-le-Chastel ; 65. Clermont, Les Côtes ; 66. Aulnat ; 67. Orcival ; 68. La Roche-Blanche, Gergovie ; 69. Corent ; 70. Ussel ; 71. Aix ; 72. Saint-Etienne-aux-Clos ; 73. Espartignac ; 74. Rosiers-d'Egleton ; 75. Lamazière-Basse ; 76. Sérandon ; 77. Puy du Chalard ; 78. Monceaux-sur-Dordogne ; 79. Saint-Geniez-ô-Merle ; 80. Chastel-sur-Murat.

A. Altitude supérieure à 200 m.



2. Nature archéologique des gisements.

provoquer plusieurs fouilles en Limousin[4]. L'année même où Bombal commence ses travaux sur le gisement du puy du Tour en Corrèze[5], la Société préhistorique française entreprend la fabrication d'un inventaire national des enceintes en terre qui va mobiliser une commission pendant près de vingt ans[6]. Elle part d'une liste dressée par A. de Mortillet[7] en 1906, ajoute de nombreux gisements inédits, et fournit dans ses inventaires départementaux par commune une bibliographie très complète.

Si la seconde enquête double le nombre de gisements réunis par la première (environ 2 200 au total), elle ne change pas fondamentalement leur répartition générale sur le territoire. Dans les deux cas, les départements où la densité est la plus forte se situent sur deux lignes principales : la première s'étend de la Bretagne à l'Aisne, la seconde des Charentes maritimes à la Haute-Saône[8]. Nous laisserons de côté ici les régions méditerranéennes qui présentent un faciès tout à fait particulier. Ces différences de densité entre les départements s'expliquent en grande partie par la prise en compte dans l'enquête de la Société préhistorique française de fortifications médiévales, mottes ou maisons fortes par exemple. En ce qui concerne plus précisément la région qui nous intéresse, nous avons pu démontrer que la prospection de ces dernières restait largement inachevée, alors que les enceintes protohistoriques présentaient une répartition à peu près uniforme, moins susceptible d'être modifiée au cours des années à venir[9], exception faite des enceintes arasées que pourrait révéler la prospection aérienne.

4. J.-B. THUOT, Note sur les forts vitrifiés et les blocs de granit fondus du département de la Creuse, *Revue des Sociétés savantes des départements*, 4e série, 8, 1868, pp. 400-422.

5. E. BOMBAL, Rapport sur les fouilles opérées au puy du Tour, commune de Monceaux, Corrèze, en 1906, *Bull. Soc. Lett., Sci. et Arts de Corrèze*, 28, 1906, pp. 405-419 ; ID., Second rapport sur les fouilles..., *ibid.*, 30, 1908, pp. 67-72 ; ID., Addition au second rapport sur les fouilles..., *ibid.*, 31, 1909, pp. 223-224.

6. Travaux de la Commission d'Etude des Enceintes préhistoriques et des fortifications anhistoriques, *Bulletin de la Société préhistorique française*, 1906 à 1925, 3 à 22.

7. A. de MORTILLET, Camps et enceintes de France, *L'homme préhistorique*, 4, 1906, pp. 193-206.

8. O. BUCHSENSCHUTZ, Etat de la recherche sur les *oppida* en France, particulièrement dans le Centre, *Archéologické Rozhledy*, 23, 1971, pp. 406-416, 1 carte.

9. O. BUCHSENSCHUTZ, J. DORION, A. QUERRIEN, Pour une carte archéologique de la France, *Revue archéologique*, 75, 1975, pp. 319-332, fig. 6, p. 331.

(Légende de la figure 2.)

1. Enceinte de contour de 1 à 6 ha ;
2. — — de 7 à 19 ha ;
3. — — de plus de 20 ha ;
4. Eperon barré de 1 à 6 ha ;
5. — — 7 à 19 ha ;
6. — — plus de 20 ha ;
7. Enceintes carrées, du type « Viereckschanzen » ;
8. Autres enceintes carrées ;
9. Habitats ouverts ;
10, 11, 12. Les gisements non datés sont signalés par un signe évidé (ex. 10), ceux du premier âge du fer par un signe au contour souligné (ex. 11), ceux du second âge du fer par un signe plein (ex. 12).

Les recherches prirent un nouvel essor dans les années 1935 avec les travaux de Brogan et Desforges, de Hatt, Fournier, Lassus et d'autres sur le plateau de Gergovie et à Aulnat[10]. Stimulés par les travaux de Wheeler[11] dans le nord-ouest, de Cotton et Frère dans le centre[12], poussés également par les fouilles allemandes et les conseils de W. Dehn[13], un groupe de chercheurs regroupés périodiquement par les congrès de la revue *Ogam*[14], publie de nombreux articles sur les fortifications en terre. Il s'agit le plus souvent d'études ponctuelles ou d'inventaires limités dans le temps et dans l'espace, mais ils rendent compte d'un important travail de prospection, de fouilles, de collection de matériel, qui fait avancer la recherche et fonde les travaux actuels.

En Limousin, c'est l'inventaire de M. Vazeilles[15] complété par les sondages de Cotton et Frère[16] et repris aujourd'hui par les synthèses de July et Couchard[17], et quelques sondages (Saint-Geniez-ô-Merle, Aubusson, Jabreilles, Châteauponsac)[18].

En Auvergne, les travaux entrepris autour des sites présumés de la Gergovie historique[19] amènent à la découverte du gisement d'Aulnat, habitat ouvert antérieur à la période des *oppida*, qui va rester unique en son genre jusqu'à ces dernières années. Les recherches

10. O. Brogan et E. Desforges, Gergovia, *Archaeological Journal*, 97, 1940, pp. 1-36 ; A. Grenier, Les fouilles de Gergovie, *Gallia*, 2, 1943, pp. 71-82 ; J. Lassus et J.-J. Hatt, Les fouilles de Gergovie, la campagne de 1941, *Gallia*, 2, 1943, pp. 83-96 ; J.-J. Hatt, Les fouilles de Gergovie, la campagne de 1942, *Gallia*, 2, 1943, pp. 97-124 ; J.-J. Hatt, Essai d'une comparaison entre la céramique d'Aulnat-Sud et la céramique gallo-romaine précoce de Gergovie, *Bull. hist. et sci. de l'Auvergne*, 65, 1945, pp. 151-174 ; Id., Les fouilles de Gergovie, campagnes de 1943 et 1944, *Gallia*, 5, 1947, pp. 271-300 ; M. Labrousse, Les fouilles de Gergovie, campagnes de 1945 et de 1946, *Gallia*, 6, 1948, pp. 31-95 ; Id., Les fouilles de Gergovie, campagnes de 1947 et 1949, *Gallia*, 8, pp. 14-53 ; J. R. Collis, *Defended Sites of the Late La Tène*, BAR suppl. séries 2, 1975, pp. 183-189 ; J. B. Ward-Perkins, The Pottery of Gergovia in relation to that of other sites in Central and South-western France, *Archaeological Journal*, 97, 1940, pp. 37-87 ; J. R. Collis, Excavations at Aulnat, Clermont-Ferrand : a preliminary report with some notes on the earliest towns in France, *Archaeological Journal*, 132, 1975, pp. 1-15 ; R. Périchon et C. Chopelin, Le gisement protohistorique d'Aulnat ; premières observations stratigraphiques, *Revue archéologique du centre de la France*, 8, 1969, pp. 52-69.

11. R. E. M. Wheeler et K. M. Richardson, *Hill forts of Northern France*, Rep. Res. Comm. Soc. Antiq., London, 19, 1957.

12. M. A. Cotton et S. S. Frère, Enceintes de l'âge du Fer au pays des Lémovices, *Gallia*, 19, 1961, pp. 31-54.

13. W. Dehn, Einige Bermerkungen zur Erforschung Gallischer *oppida* in Frankreich, *Archeologické Rozhledy*, 23, 1971, pp. 393-405.

14. Congrès de la Revue *Ogam* publiés dans son supplément *Celticum* à Roanne, Châteaumeillant, etc. Cette revue a cessé de paraître il y a dix ans.

15. M. Vazeilles, Enceintes, camps et stations antiques fortifiées, *Bull. Soc. Lett., Sci. et Arts de la Corrèze*, 1954, pp. 1-16.

16. Cotton et Frère, *op. cit.*, n. 12, 1961 ; O. Brogan et S. S. Frère, Le camp du Charlat, Corrèze, *Antiquaries Journal*, 38, 1958, pp. 218-222.

17. F. July, Essai sur les enceintes du département de la Haute-Vienne, *Bull. Soc. archéol. et hist. du Limousin*, 102, 1975, pp. 27-39 ; 103, 1976, pp. 41-62 ; 104, 1977, pp. 27-44 ; 105, 1978, pp. 59-78 ; 106, 1979, pp. 65-84 ; J.-L. Couchard, *Atlas d'archéologie préhistorique de la Corrèze*, Brive, 1970 ; Id., Constructions et monuments préhistoriques de la Corrèze, fasc. 1, Région de Brive, Suppl. au *Bull. Soc. Sci., Hist. et Archéol. de la Corrèze*, 90, 1968 ; Id., Le Causse corrézien du Néolithique à l'âge du Fer, *Mélanges Marius Vazeilles*, Tulle, 1974, pp. 65-75 ; J.-L. Couchard, J.-S. Couchard et G. Lintz, Constructions et monuments préhistoriques de la Corrèze, fasc. 2 et 3, Suppl. au *Bull. Soc. Sci., Hist. et Archéol. de la Corrèze*, 95, 1973.

18. G. Lintz, L'*oppidum* du puy de Sermus, commune de Saint-Geniez-ô-Merle, Corrèze, *Bull. Soc. Lett., Sci., Arts de la Corrèze*, 79, 1976, pp. 41-52 ; P. Léger, Le camp des Chastres, commune d'Aubusson, *Mém. Soc. sci. nat. archéol. de la Creuse*, 38, 1972 et 1973, pp. 35-39 et 228 sq.

19. Vide *supra*, n. 10.

de R. Périchon et de son équipe dans le département de la Loire révèlent de nombreuses fortifications de petite taille échelonnées le long du fleuve[20].

En Berry, les fouilles d'Argenton-sur-Creuse et de Châteaumeillant apportent des données nouvelles[21], qui sont confrontées à la bibliographie ancienne dans notre inventaire[22], et complétées par les fouilles entreprises à Levroux et à La Groutte vers la fin des années 1960[23].

Malgré cette progression incontestable des connaissances, la plupart des gisements ne sont encore connus que par des découvertes ou observations de surface. Presque toutes les fouilles se sont limitées à des tranchées de sondage ou à des surfaces d'habitat très restreintes. Les plans de fortifications ou de structures d'habitat restent rares.

L'intérêt pour l'habitat celtique grandit cependant depuis quelques années. A l'occasion d'un colloque organisé à Levroux en 1978[24], il est apparu que les données éparses recueillies par les chercheurs dans chaque région esquissaient une image cohérente lorsqu'elles étaient rassemblées. Il semble que les chercheurs français commencent à se libérer de leurs complexes vis-à-vis du travail à la fois monumental et fragile de Wheeler[25], ou des synthèses anglo-saxonnes récentes[26] qui ne tiennent pas suffisamment compte de l'inégalité de l'avancement de la recherche suivant les régions, et des particularités géographiques.

3. Typologie

L'absence de carte archéologique de base pour la région Centre oblige les chercheurs à retourner aux enquêtes du début de ce siècle pour retrouver, parmi toutes les fortifications en terre, celles qui sont susceptibles d'être attribuées à la protohistoire. En attendant les

20. R. Périchon, Note préliminaire sur les recherches à l'*oppidum* de Jœuvres, Loire, *Ogam*, 13, 2/3, 1960, pp. 206-211 ; F. Besset et R. Périchon, Contribution à l'étude de quelques sites fortifiés du département de la Loire, *Celticum*, 9, 1963, pp. 69-75.

21. Fouilles de l'Association pour la sauvegarde du site archéologique d'Argentomagus, mairie de Saint-Marcel, Indre. J. Allain, M. A. Cothenet, T. Poulain-Josien et M. Vauthey, Un dépotoir augustéen à Argentomagus, *Revue archéologique du centre de la France*, 5, 1966, pp. 3-31 ; E. Hugoniot et J. Gourvest, L'*oppidum* de Mediolanum, Châteaumeillant, Cher, fouilles de 1956-1960, *Celticum*, 6, 1961, pp. 193-204 ; J. Gourvest, E. Hugoniot, Un *emporium* gaulois à Châteaumeillant, Cher, l'*oppidum* de Mediolanum, *Ogam*, 9, 1957, pp. 342-346 ; E. Hugoniot, Un nouveau dépôt d'amphores à Châteaumeillant, Cher, *Celticum*, 6, 1963, pp. 171-180.

22. I. B. M. Ralston et O. Buchsenschutz, Late pre-Roman Iron Age forts in Berry, *Antiquity*, 49, 1975, pp. 1-18.

23. A. et O. Buchsenschutz, Etude préliminaire à la fouille de la colline des Tours à Levroux, Indre, *Revue archéologique du centre de la France*, 10, 1971, pp. 208-225 ; Association pour la Défense et l'Etude du canton de Levroux, 1972, *Recherches sur le canton de Levroux*, Paris-Nanterre, 168 p. ; Id., *Levroux, histoire et archéologie d'un paysage*, Levroux, 1978, 100 p. ; O. Buchsenschutz, Etude archéologique du canton de Levroux, *Revue archéologique du centre de la France*, spécial Argentomagus, 1975, pp. 127-133 ; Id., Recherches sur l'âge du Fer en Berry ; l'exemple du canton de Levroux, Indre, *in* O. H. Frey (éd.), *Marburger Studien zur Vor- und Frühgeschichte : Festschrift zum 50. jährigen Bestehen des vorgeschichtlichen Seminars Marburg*, vol. 1, 1977, pp. 87-105 ; Id. et I. B. M. Ralston, Découverte d'un *murus gallicus* à Levroux, Indre, *Gallia*, 33, 1975, pp. 27-48 ; E. Hugoniot, L'*oppidum* du camp de César à La Groutte, Cher, *Cahiers d'Archéologie et d'Histoire du Berry*, 16, 1969, pp. 42-43 ; E. Hugoniot et B. Vannier, Fouille du rempart du camp de La Groutte, *Cahiers d'Archéologie et d'Histoire du Berry*, 24/5, 1971, pp. 22-23.

24. O. Buchsenschutz (éd.), *L'habitat à l'âge du Fer en Europe tempérée, l'évolution de l'habitat en Berry*, 1980, Colloque de Levroux 1978, sous presse.

25. Vide *supra*, n. 11.

26. Vide *supra*, n. 1.

indispensables vérifications sur le terrain, un premier tri provisoire peut être tenté à partir de la taille, de la forme, et de la position géographique des enceintes. Pour la zone considérée, les fortifications postérieures à la protohistoire ont pu être éliminées sur les critères suivants[27].

1. *La taille :* les plus petites enceintes (0,2 à 0,5 ha) forment un groupe à part, séparé des moyennes et des grandes fortifications qui couvrent au minimum 0,8 à 1 ha. Celles-là sont certainement médiévales ou modernes, celles-ci dans la plupart des cas protohistoriques, exception faite des réoccupations et des châteaux en pierre de grande surface. Cette règle générale ne souffre d'exceptions que dans les régions montagneuses, où quelques cas de petites fortifications protohistoriques ont pu être notés.

2. *La forme :* les enceintes les plus récentes préfèrent les formes géométriques simples, quadrilatérales ou circulaires. Les constructions en relief du type « motte » sont l'apanage du Moyen Age, et leur seule présence, lorsqu'elles font visiblement partie intégrante de la fortification, permet d'écarter des anciens inventaires un grand nombre de sites.

3. *La situation géographique :* les fortifications historiques sont à peu près indifférentes au relief du site où elles se dressent, ou bien, si parfois elles semblent rechercher une situation géographique particulière, ce sera un talweg ou un repli de terrain abrité. Les enceintes protohistoriques choisissent au contraire les hauteurs, les collines faciles à ceinturer ou les éperons et les méandres qu'un simple barrage suffit à transformer en refuge. Il existe des éperons qu'un château en pierre couronne, et certains barrages en terre ont dû probablement être repris au Moyen Age ou dans l'Antiquité tardive, mais nous ne connaissons pas dans notre région d'éperon barré créé de toutes pièces à la période historique.

Un groupe d'enceintes s'intercale entre ces deux catégories : il s'agit de constructions en terre quadrilatérales, généralement carrées, délimitées par un talus et un fossé peu profond. Elles s'étendent sur des terrains généralement plats[28]. Leur surface couvre généralement 1 ha. Nous les rapprochons des « Viereckschanzen » de Bavière que K. Schwartz a identifiées comme des sanctuaires de la fin de l'âge du Fer[29]. Cotton en a relevé un certain nombre en Limousin, dans lesquelles elle a cru voir des fermes[30]. Nous en avons repéré en Berry et dans les forêts de la région de la Loire moyenne[31].

27. O. Buchsenschutz, *Problèmes de cartographie archéologique*, doctorat de 3e cycle de l'Université de Paris 1, 2 vol., dactylographié, pp. 264-309, Enquête sur les enceintes en terre du centre de la France.

28. O. Buchsenschutz, Faux camps romains, ... vraies enceintes cultuelles, *Caesarodunum*, suppl. 28, Colloque Travaux militaires en Gaule romaine et dans les provinces du Nord-Ouest, t. 2, 1978, pp. 287-298.

29. K. Schwartz, Die Geschichte eines keltischen *Temenos* im nördlichen Alpenvorland, in *Ausgrabungen in Deutschland*, Römisch-Germanisches Zentralmuseum, Mainz, Monographien, vol. 1, Teil 1, 1975, pp. 324-358.

30. M. A. Cotton, Relationships between Iron Age Earthworks in France and England, *Celticum*, 1, 1961, pp. 103-113 ; Id., Quelques enceintes rectangulaires de petites dimensions en Angleterre et en Corrèze, *Ogam*, 14, 1962, pp. 97-106.

31. Vide *supra*, n. 28, liste pp. 297-298.

4. L'ORIGINE DES FORTIFICATIONS

Les fortifications protohistoriques occupent dans le Centre, comme cela a été observé ailleurs en Europe, des promontoires ou des méandres barrés par un simple talus. La construction du barrage est rarement attestée avant la période des champs d'urnes, bien que du matériel néolithique soit fréquemment recueilli à l'intérieur des aires protégées. Les buttes ou les collines isolées déterminent des enceintes « de contour » qui renforcent la position naturellement défendue du sommet.

La taille de ces enceintes, supérieure à 1 ha, est très variée et peut même dépasser dans la région étudiée 300 ha à Villejoubert (Haute-Vienne)[32]. Mais la plupart d'entre elles couvrent moins de 25 ha. Il s'agit dans presque tous les cas de fortifications de hauteur, mais Neung-sur-Beuvron (Loir-et-Cher)[33] ou Bourges sont installées au beau milieu d'une plaine[34].

Les plus anciens sites fortifiés sont généralement des éperons barrés dont la surface dépasse rarement 10 ha. Trois gisements en cours de fouilles, La Groutte dans le Cher, Moulins/Céphons dans l'Indre, et Amboise en Indre-et-Loire, révèlent des remparts à la construction très soignée et dans deux cas plusieurs phases d'occupations successives.

L'habitat fortifié de Moulins/Céphons se présente sous une forme inhabituelle pour son époque : il s'agit d'une enceinte de contour qui occupe les 10 ha d'une faible hauteur, au confluent de deux ruisseaux. Son aspect externe et la découverte de mobilier gallo-romain en surface l'avaient fait attribuer jusqu'ici à la fin de La Tène. Les sondages entrepris par A. Duval et O. Buchsenschutz[35] ont mis au jour une occupation beaucoup plus ancienne. Les quelque 50m² ouverts dans l'enceinte ont livré un abondant matériel chalcolithique, comprenant des lames du Grand-Pressigny et une centaine de formes de céramique. Il s'agit de sols d'habitat en place dont l'étude nécessitera une fouille plus étendue. Le matériel découvert dans la fortification est pauvre et très fragmenté ; il s'agit d'une céramique plus fine que dans l'habitat ; son lustrage et la présence de quelques bords facettés rappellent certaines formes du premier âge du Fer, mais cette attribution provisoire a été contredite par les datations radio-carbone obtenues sur les poutres du rempart[36]. Ce dernier est, en effet, constitué d'une armature de poutres horizontales entrecroisées pour former des caissons qui sont ensuite remplis d'argile. Conservés sur environ 50 cm de hauteur, des compartiments longs de 3,50 m et larges de 1,60 sont

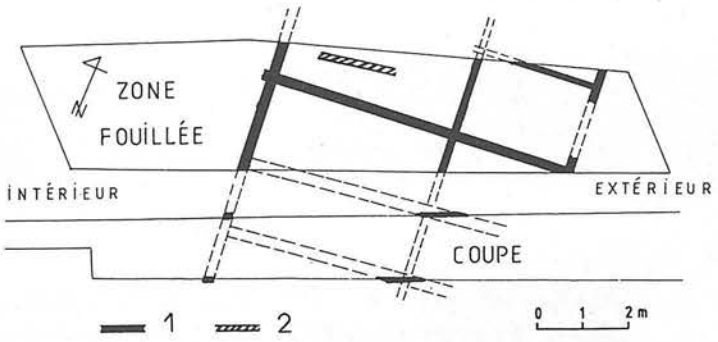
32. F. DELAGE et F. GORCEIX, L'*oppidum* de Villejoubert, commune de Saint-Denis-des-Murs, Haute-Vienne, *Bull. de la Soc. préh. française*, 20, 1923, pp. 208-228. Pour une autre hypothèse, une circonvallation réduite au seul plateau de Villejoubert (environ 44 ha), voir F. JULY, *op. cit.*, n. 17, n° 39, 1978, pp. 72-77.

33. Vide n. 22, p. 14 et pl. III *b*.

34. Le toponyme *mediolanum* évoque une situation de ce genre : cf. M. DESBORDES, Un problème de géographie historique, le *mediolanum* chez les Celtes, *Revue archéologique du Centre de la France*, 10, 1971, pp. 187-201.

35. A. DUVAL et O. BUCHSENSCHUTZ, Sondage sur un rempart protohistorique à Moulins-sur-Céphons, Indre, in *L'Indre et son passé, Bulletin du Groupe d'Histoire et d'Archéologie de Buzançais*, 11, 1979, pp. 19-28.

36. Cf. carte, *op. cit.*, n. 35, fig. 6, p. 25.



3. Plan de la fouille du rempart de Moulins-sur-Céphons.
1. Poutres superposées ;
2. poutre isolée.

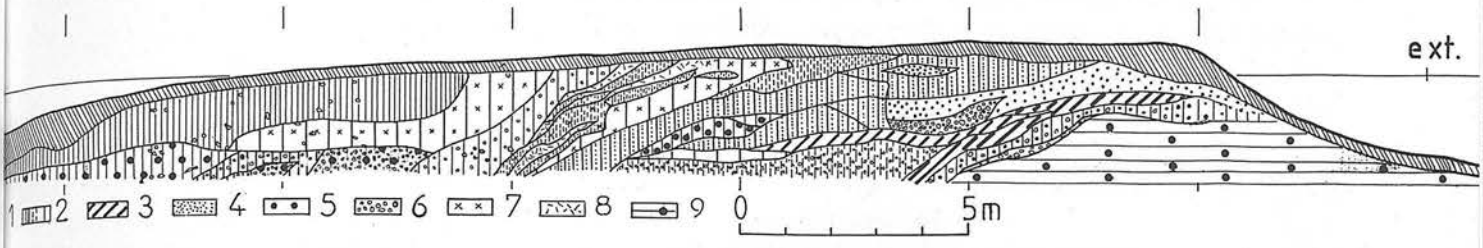
disposés en deux rangées parallèles au tracé du rempart, qui présente donc au total une largeur de 7 m. Ce type de construction est actuellement unique en France ; des parallèles existent en Suisse, au Wittnauer Horn par exemple, en Allemagne du Sud dans les premières phases de la Heuneburg, et surtout en Allemagne de l'Est et en Pologne avec le très bel exemple de Biskupin à trois rangs de caissons[37]. Deux datations par le carbone 14 parfaitement concordantes sur une poutre du rempart le placent vers 2160 avant J.-C. ; il est donc contemporain des vestiges d'habitat mis au jour à proximité immédiate. Cette découverte, difficile à interpréter parce qu'elle est isolée, atteste l'existence d'une architecture élaborée des fortifications en Europe de l'Ouest à une date au moins aussi ancienne qu'à l'est du continent. Elle montre l'utilité des datations par le C 14, pour confirmer ou infirmer des indices tirés de l'examen de l'aspect externe de l'enceinte et de l'architecture du rempart.

Le site de La Groutte a livré un important matériel chasséen et conserve des traces de l'âge du Bronze. Les travaux de E. Hugoniot montrent que la fortification a été érigée dès l'époque des champs d'urnes, probablement plus tôt ; elle a été reconstruite à plusieurs reprises jusqu'à la fin de l'âge du Fer.

Le gisement d'Amboise, installé sur un éperon dont la pointe est occupée par le célèbre château Renaissance, est connu dans la littérature archéologique par une cachette de fondeur[38], et par un niveau augustéen d'une richesse exceptionnelle. Il s'agit d'un promontoire barré au confluent de la Loire et de la Masse, qui couvre une surface de 52 ha ; le barrage principal est actuellement fouillé en sauvetage par A. Peyrard et O. Buchsenschutz. Large de 35 m à la base, il atteint 4 m de hauteur ; il est précédé d'un large fossé à fond plat. La coupe révèle plusieurs phases de construction :

37. Au moment d'achever cet article, nous recevons de Mme Delibrias les analyses suivantes : GIF 5113 (MAZ n° 10) 3720 ± 70 ans ; GIF 5112 (MAZ n° 9) 3700 ± 70 ans ; soit en datation calibrée respectivement 2170 ± 80 ans avant J.-C. et 2160 ± 80 ans avant J.-C. (lettre de G. Delibrias du 16 juin 1980). Les deux échantillons proviennent de la même poutre à la base du rempart. Il faut donc admettre que ces quelques fragments de céramique fine sont chalcolithiques, et placer l'érection rempart à une date beaucoup plus haute que les constructions du même type connues actuellement en Europe,

38. G. CORDIER, J.-P. MILLOTTE, R. RIQUET, Trois cachettes de bronze d'Indre-et-Loire, *Gallia préhistoire*, 3, 1960 pp. 108-128.



4. Coupe du rempart d'Amboise. (D'après A. Peyrard et O. B.)
1. Terre arable ; 2. Argiles ; 3. Couche rubéfiée ; 4. Sables ; 5. Charbon de bois ; 6. Cailloutis ; 7. Inclusions de silex ; 8. Calcaire ; 9. Couche centrale d'argile et de charbon de bois datée par le C 14.

— la base du rempart est marquée par un sol horizontal nettement défini en plan et en coupe par un horizon gris à noir. Il scelle une fosse contenant de la céramique décorée du Hallstatt ancien, des charbons de bois et des ossements en cours d'analyse ;
— la fortification primitive est constituée d'une matrice argilo-sableuse dans laquelle sont conservées des traces de bois indubitables, mais dont l'organisation nous échappe encore. Ce premier état du talus est conservé sur 1 m de hauteur et 10 m de large. Une datation par le radio-carbone situe ce niveau à la fin du Ve siècle avant J.-C.[39] ; si cette analyse est confirmée par d'autres prélèvements, ou par la découverte de mobilier, le rempart d'Amboise permettra enfin d'avoir une idée de l'occupation de la région au début de la période de La Tène ;
— une série de rechargements constitués tantôt d'argile, tantôt de galets de la Loire ou de calcaire, ont développé considérablement la largeur de la fortification vers l'intérieur de l'enceinte et, dans une moindre mesure sa hauteur. Une fibule du type pseudo-La Tène 2 a été recueillie dans l'un des derniers niveaux.

Ainsi ce talus, qui présentait extérieurement toutes les caractéristiques d'un rempart de type Fécamp[40], s'est élevé progressivement pendant tout le second âge du Fer. Un large éventail chronologique apparaît également dans les régions voisines. A Aslonnes, dans la Vienne, J.-P. Pautreau a mis au jour sur le camp Allaric[41] une fortification en pierre contre laquelle s'adossent des habitations ; les différents niveaux d'occupation s'échelonnent du chalcolithique au début du second âge du Fer.

39. GIF 5111 (CHAT n° 1), 2240 ± 60 ans, soit en datation calibrée 410 ± 70 ans avant J.-C. (lettre du 16 juin 1980).
40. Pour la définition du type Fécamp, cf. *op. cit.*, n. 11, pp. 8-14 : ce terme doit être préféré au « type belge », plus généralement utilisé dans la bibliographie française depuis son utilisation par P.-M. DUVAL, Une enquête sur les enceintes gauloises de l'Ouest et du Nord, *Gallia*, 17, 1959, pp. 37-62, puisque les caractères de ces fortifications ont été retrouvés en dehors de la Belgique, par exemple en Berry, *op. cit.*, n. 22.
41. J.-P. PAUTREAU, « Le camp Allaric », commune d'Aslonnes, Vienne, premiers résultats, *L'Anthropologie*, 80, 1976, pp. 389-430.

L'éperon de Crozant[42], à la limite de la Creuse et de l'Indre, a révélé des témoins d'une occupation presque continue depuis le Néolithique jusqu'au premier âge du Fer (notamment une fibule de la période de transition avec La Tène I), quoique la céramique des champs d'urnes ne soit pas formellement attestée. Une coupe effectuée par B. Lasnier a mis au jour des éléments qui laissent supposer la présence d'une fortification en murs de pierres sèches antérieurs à la construction du château du Moyen Age. Ce château a dû bouleverser la plupart des traces d'une utilisation précoce du promontoire.

Dans la Creuse également, l'éperon occupé sur une surface d'environ 15 ha par le camp des Chastres près d'Aubusson[43] est protégé par un barrage encore bien conservé. Le nettoyage d'une fouille clandestine par P. Léger a révélé plusieurs niveaux de poutres, longitudinales et transversales, et un trou de poteau dans l'axe de la construction, au niveau inférieur. Le principal élément de datation est une fibule en bronze de la fin du premier âge du Fer.

En Corrèze, le puy de Sermus, commune de Saint-Geniez-ô-Merle, domine la vallée de la Maronne. Sa taille, moins de 1 ha, est beaucoup plus restreinte que ne l'ont écrit Cotton et Frère[44]. Le déboisement a permis de retrouver un mur vitrifié, et les sondages restreints de G. Lintz ont mis au jour un sol peu épais et des traces d'occupation éparses ; la céramique se place dans la tradition du premier âge du Fer, à une date très probablement antérieure à La Tène finale.

Il faut inclure dans cette liste le promontoire de Chalucet (Haute-Vienne)[45], bien que les seules fortifications conservées sur ce promontoire soient médiévales. Les fouilles de Ch. Chevillot ont en effet permis de recueillir, malgré des perturbations causées par les travaux agricoles, un abondant matériel hallstattien, comprenant de la céramique et surtout de nombreux bracelets en lignite décorés.

Les résultats importants obtenus ces dernières années sur ces fortifications montrent qu'il ne faut pas négliger tous ces gisements dont la surface dépasse rarement 15 ha. Ils ont été cependant laissés de côté généralement par les fouilleurs, comme par les auteurs de synthèses sur les Celtes et sur les populations qui les ont précédés. En réalité, ils sont très utiles pour tenter de reconstituer l'histoire de l'habitat à l'âge des métaux dans une région où les sites ouverts nous échappent, soit parce qu'ils ont été détruits par les labours, soit parce qu'ils sont masqués par la forêt. Les petits sites fortifiés ont souvent accumulé des traces de plusieurs périodes, chaque campagne de construction s'appuyant sur les ruines de la précédente. Leur large dispersion nous permet d'appréhender la totalité du territoire ;

42. J. Allain et B. Lasnier, Note préliminaire sur l'occupation pré- et protohistorique de l'éperon de Crozant, Creuse, *Revue archéologique du centre de la France*, spécial Argentomagus, 1975, pp. 47-54.

43. P. Léger, *op. cit.*, n. 18.

44. *Op. cit.*, n. 16, p. 45, attribue à l'enceinte une surface de 4,85 ha, mais le plan de G. Lintz, *op. cit.*, n. 18, p. 43, pl. 1, présente les dimensions suivantes pour les fortifications : longueur, 120 m, largeur, 50 m.

45. C. Chevillot, L'habitat protohistorique de Chalucet, *Revue archéologique du centre de la France*, 17, 1978, pp. 201-219, avec la bibliographie antérieure.

leur taille restreinte est à la mesure des moyens de fouille habituels, dans la mesure où il est possible d'envisager l'exploration d'un pourcentage raisonnable de leur surface.

La Tène finale

C'est la période de La Tène finale qui reste encore aujourd'hui la mieux connue. Les prospections et les fouilles récentes amènent à considérer trois séries de gisements : les habitats fortifiés, les habitats ouverts, que nous évoquerons ici parce qu'ils sont souvent associés aux précédents, et les enceintes carrées.

1. *Les enceintes carrées*

Malgré la rareté des fouilles sur cette catégorie d'enceintes, plusieurs caractéristiques nous poussent à les rapprocher des enceintes cultuelles celtiques de Bavière (Viereckschanzen) :

— Leur position dans le paysage n'est jamais en relation ni avec une configuration naturelle qui pourrait favoriser leur défense, ni avec la protection d'un passage. De plus, le talus et le fossé qui les entourent sont si faibles qu'ils évoquent plutôt la limite d'un enclos qu'une fortification. Deux sites que nous avions inclus dans cette catégorie il y a quelques années doivent être écartés à cause précisément de l'importance de leur rempart[46] : il s'agit de Pouligny-Notre-Dame et de Luant, toutes deux situées dans le sud de l'Indre.

— Mrs. Cotton voyait il y a vingt ans dans les enceintes carrées du Limousin des fermes analogues à celles du sud de l'Angleterre, en s'appuyant sur des hypothèses avancées par G. Bersu[47]. Les arguments que K. Schwartz a opposés à cette idée à propos des enceintes carrées de Bavière sont valables également pour celles du centre de la France : le tracé uniforme et géométrique de l'enceinte ne correspond en rien à la croissance un peu anarchique des exploitations agricoles ; celles qui nous sont connues pour l'époque celtique présentent généralement des formes curvilignes et irrégulières. Les quelques sondages pratiqués dans ces enclos ont livré un mobilier très pauvre, alors qu'on attendrait plutôt dans une ferme un épais sol d'occupation. Enfin, leur répartition ne correspond pas à l'exploitation des terres riches : au contraire, les enceintes sont réparties irrégulièrement, par groupes de deux à dix unités séparés les uns des autres par plusieurs dizaines de kilomètres. Dans le Bassin parisien, elles occupent de préférence les sols pauvres couverts de forêts, par exemple la forêt de Marchenoir, celle de Blois ou de Rambouillet[48]. Il est certain que la protection assurée par les bois est peut-être responsable de leur conservation, et que l'inégalité de la prospection peut biaiser la répartition. Mais, dans l'état actuel des connaissances,

46. *Op. cit.*, n. 22, pp. 13-14.
47. *Op. cit.*, n. 30.
48. F. Zuber, Les « camps romains » de la forêt de Rambouillet, *Caesarodunum*, suppl. n° 28, Colloque « travaux militaires en Gaule romaine et dans les provinces du Nord-Ouest », t. 2, 1978, pp. 373-379.

et en attendant des fouilles de contrôle indispensables, l'hypothèse cultuelle reste la moins mauvaise. Comment ne pas penser aux sanctuaires de la forêt des Carnutes ?[49].

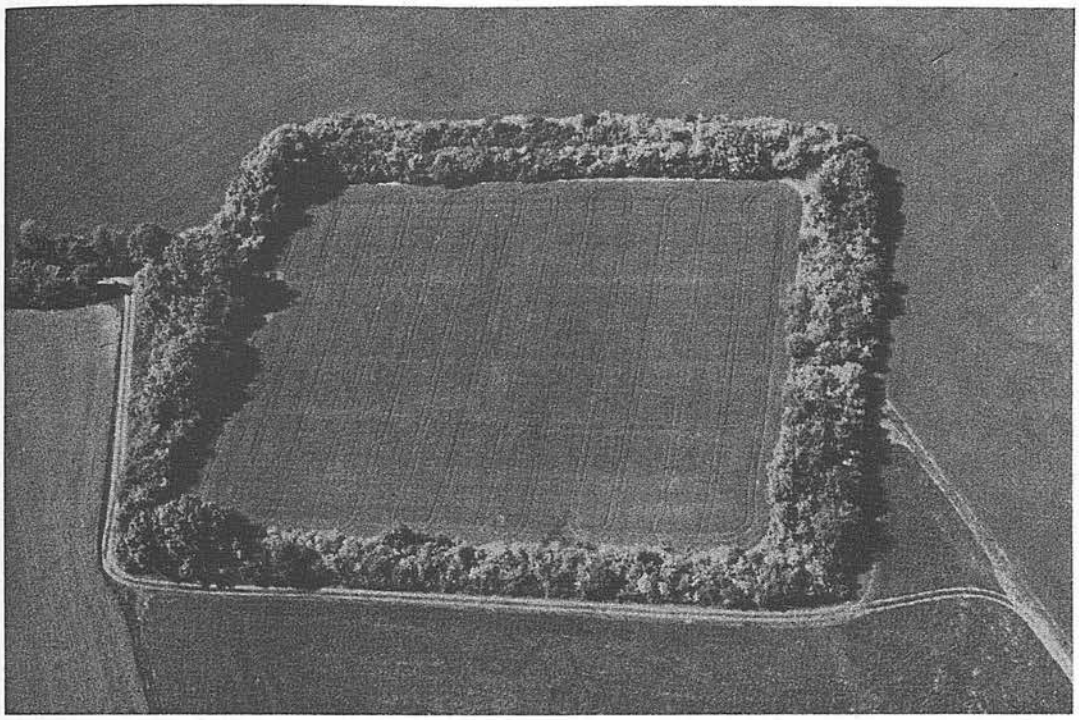
Deux enceintes de cette catégorie fouillées récemment appuyent l'hypothèse de la fonction cultuelle. En forêt de Marchenoir, nous avons participé en 1969 aux fouilles de D. Piron[50], qui ont découvert dans une enceinte de 1 ha un temple gallo-romain et des traces d'occupation de La Tène finale. A Château-Gontier en Mayenne, Lambert et Rioufreyt[51] ont détecté en prospection aérienne une triple enceinte de fossés au tracé très soigné : les portes de cet enclos sont toutes orientées dans une même direction qui correspond, au demi-degré près, au lever solsticial d'été du soleil. La dernière phase de comblement des fossés est datée de La Tène finale.

L'examen systématique des nouvelles cartes d'état-major au 1/25 000 et des photographies aériennes de l'Institut géographique national permettrait de compléter largement la carte publiée par K. Schwartz en 1975[52]. Ainsi l'enceinte de Saugy, Cher, qui avait échappé à la perspicacité d'un Buhot de Kersers[53] et de ses successeurs, a été découverte sur la carte au 1/25 000. Plus de 100 enceintes de ce type sont actuellement connues en France, particulièrement dans le centre et l'ouest du Bassin parisien[54].

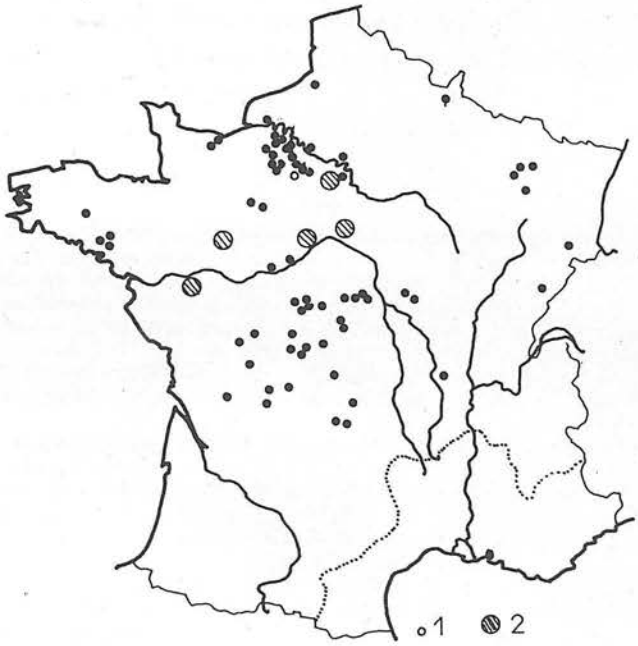
2. Les *oppida*

La définition des gisements de cette catégorie pose encore des problèmes, et l'emploi de ce terme varie d'un auteur à l'autre et selon les langues. Nous la réservons aux habitats fortifiés de la fin de La Tène, et nous suivons la définition donnée par W. Dehn[55] en insistant particulièrement sur la surface, les caractères originaux de la fortification, les fonctions de type « tertiaire ». L'*oppidum* se distingue avant tout en effet des autres fortifications par son rôle commercial, politique et parfois religieux dans la vie d'une région[56]. C'est probablement au développement particulier de cette fonction qu'il faut attribuer l'originalité des traces archéologiques observées sur ces gisements : leur taille est démesurée par rapport aux agglomérations qui les ont précédés, et leurs fortifications, par leur tracé comme par les techniques employées, semblent bien avoir eu un rôle aussi symbolique (ou juridique) que défensif. Il est préférable de ne pas utiliser le terme d'*oppidum* tant que l'un de ces deux éléments, habitat ou fortification, n'a pas pu être mis en évidence.

49. César, *De Bello Gallico*, livre 6, 13.
50. G. Picard, Informations archéologiques, *Gallia*, 27, fasc. 2, 1968, pp. 339-342 (l'orientation du plan est inexacte).
51. C. Lambert et J. Rioufreyt, La triple enceinte quadrilatérale de La Tène finale d'Azé, près de Château-Gontier, Mayenne, 1977, *Bull. de la Comm. hist. et archéol. de la Mayenne*, f. 41-3, 1975-1976, extrait non paginé.
52. *Op. cit.*, n. 29, carte Abb. 2, p. 326.
53. *Op. cit.*, n. 2.
54. *Op. cit.*, n. 28.
55. W. Dehn, Aperçu sur les *oppida* d'Allemagne à la fin de l'époque celtique, *Celticum*, 3, 1962, pp. 329-386.
56. J. Bren, Earliest Settlements with urban character in Central Europe, *in* Cunliffe et Rowley (éd.), *op. cit.*, 1976, n. 1, pp. 81-94.



5. Saint-Maure (Indre).
Enceinte carrée de Parçay.
(Cliché O. B.)



6. Répartition des enceintes carrées d'environ un hectare en France non méditerranéenne.

1. Une enceinte ; 2. Groupe d'enceintes. Pour la liste, cf. O. Buchsenschutz, 1978.

L'*oppidum* de Villejoubert en Haute-Vienne[57] par exemple, avec ses quelque 350 ha, dépasse de beaucoup les normes habituelles, puisqu'il couvre plus de dix fois la surface moyenne des habitats fortifiés de la région. Les sources littéraires attestent la présence d'autres *oppida*, comme Bourges et Orléans[58] qui sont aujourd'hui recouverts par des constructions plus récentes. Nous ne sommes pas en droit cependant d'affirmer que toutes nos capitales régionales recouvrent des agglomérations de la fin de La Tène[59] : la réforme augustéenne a pu provoquer des déplacements relativement importants de l'habitat.

Faut-il exclure de cette définition les sites qui couvrent une surface inférieure à 25 ha ? Certaines caractéristiques des *oppida* sont présentes sur des gisements comme Levroux, Indre[60], ou Châteaumeillant, Cher[61], qui par leur taille se rapprochent de la catégorie des *majors hill-fort* de Grande-Bretagne[62]. Cependant Châteaumeillant a conservé les traces indubitables d'un important trafic du vin pendant tout le Ier siècle avant notre ère ; Levroux recèle une quantité importante de céramiques d'importation, mais rien ne permet de penser que cette agglomération ait jamais dépassé de beaucoup le rôle de chef-lieu de canton qui est encore le sien aujourd'hui. Des fortifications plus restreintes encore, comme Rochecorbon, Indre-et-Loire[63], ou le puy du Tour, Corrèze[64], ont en commun avec les précédentes la présence d'un *murus gallicus*[65]. Enfin la seule différence entre les gisements que nous venons de citer et tous ceux qui sont inventoriés vient peut-être de ce que ceux-là ont été fouillés, alors que ceux-ci nous restent totalement inconnus. Il faut donc se garder de mettre sur un même plan les capitales provinciales citées par César et toute la hiérarchie complexe des grandes, moyennes, et petites agglomérations, plus ou moins bien connues, plus ou moins touchées par les importations et par les nouveaux modes de fortifications, *murus gallicus* ou rempart en glacis. Dans cette optique, les cartes des *oppida* dressées à l'échelle de l'Europe risquent de mettre sur le même plan des sites dont la fonction géopolitique devait être en réalité très différenciée[66].

57. *Op. cit.*, n. 32.

58. Le *murus gallicus* de Bourges (Avaricum) a été retrouvé en 1821 en profondeur dans les jardins de l'archevêché.

59. NASH, *op. cit.*, 1976, n. 1, carte pp. 96-97.

60. *Op. cit.*, n. 23, la colline des Tours couvre une vingtaine d'hectares.

61. *Op. cit.*, n. 23, les fossés Sarrasins à Châteaumeillant renferment environ 18 ha.

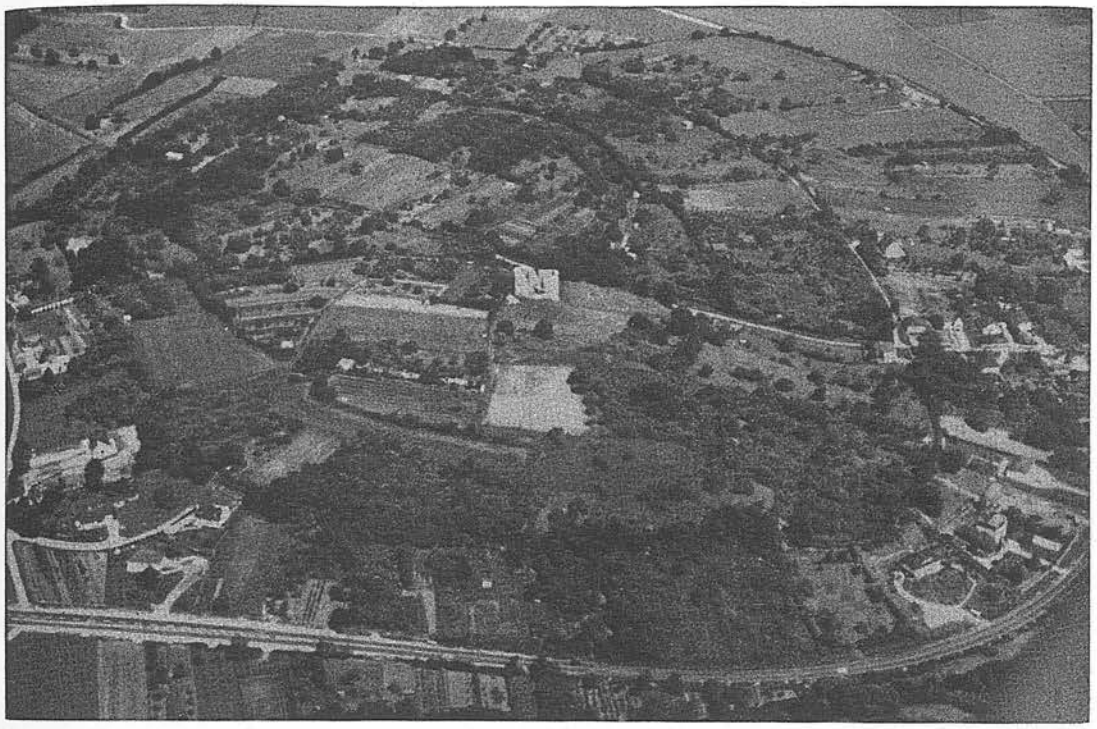
62. Le problème de l'utilisation du terme *oppidum* se pose aussi en anglais : cf. M. AVERY, 1976, Hill forts of the British Isles : A Student's Introduction, *in* D. W. HARDING (éd.), *Hillforts : later prehistoric Earthworks in Britain and Ireland*, London, 1976, pp. 40-42 et T. CHAMPION, The Iron Age : Southern Britain and Ireland, *in* J. V. S. MEGAW et D. D. A. SIMPSON (éds.), 1979, *Introduction to British Prehistory*, pp. 374-379, ainsi que I. B. M. RALSTON, The Iron Age : Northern Britain, *ibid.*, p. 488.

63. R. MAUGARD, Fouille de sauvetage dans le *vallum* d'un *oppidum* à Rochecorbon, Indre-et-Loire, *Revue archéologique du Centre de la France*, 12, 1973, pp. 187-201.

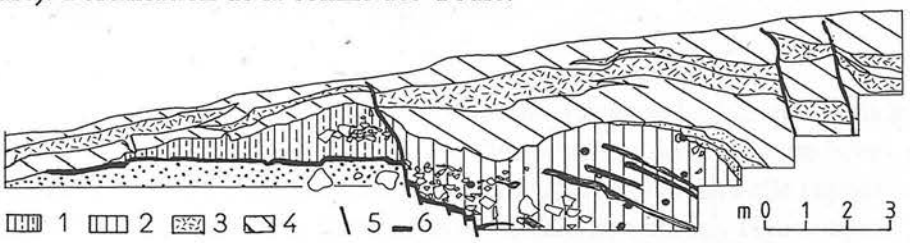
64. A. et J. MURAT, Cinquante ans de recherches archéologiques à la station du puy du Tour près d'Argentat (Corrèze), *Ogam*, 19, 1967, pp. 369-396, avec la bibliographie antérieure.

65. Pour une carte, toujours incomplète, des *muri gallici* de la France, voir I. B. M. RALSTON, The Use of timber in hill-fort defences in France, *in* G. GUILBERT (éd.), *Hill-Fort Studies*, Leicester, à paraître.

66. V. KRUTA, *Les Celtes*, 1976, p. 106, fig. 6 (coll. « Que sais-je ? », n° 1649) et U. SCHAAF et A. K. TAYLOR, Spätkeltische *oppida* im Raum Nördlich der Alpen, in *Ausgrabungen in Deutschland*, Mainz, Römisch-Germanisches Zentralmuseum, Monographin, 1, 3e vol., pp. 322-327.

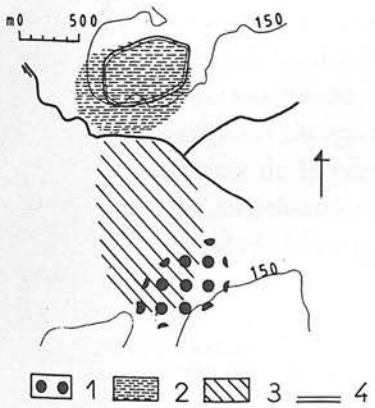


7. Levroux (Indre). Fortification de la colline des Tours.



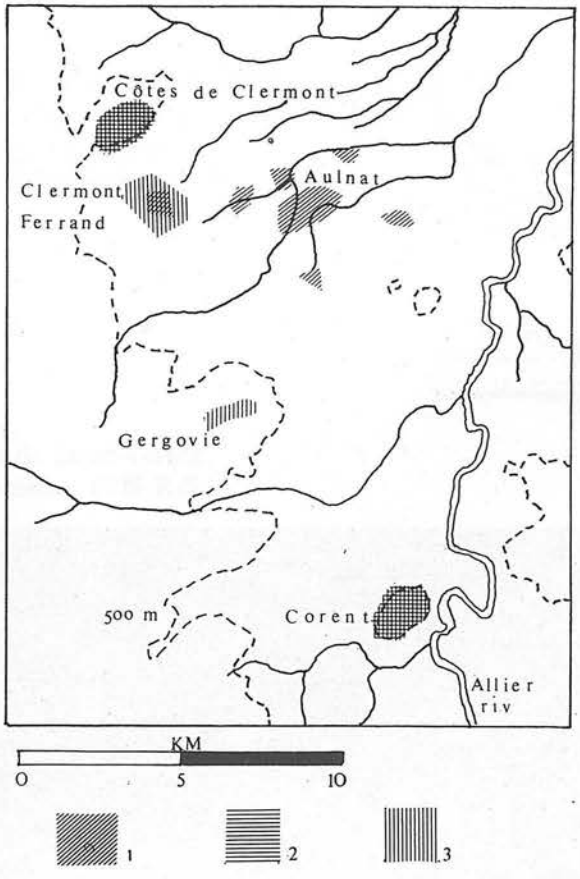
8. Levroux (Indre). Coupe du rempart.

1. Eboulis du *murus gallicus* ; 2. *Murus gallicus* ; 3. Couches calcaires du rempart massif ; 4. Couches argileuses et sableuses du rempart massif ; 5. Failles ; 6. Couche d'occupation à l'extérieur du rempart.



9. Phases d'occupation du site de Levroux.

1. Village des Arènes ; 2. Habitat fortifié de la colline des Tours ; 3. Occupation gallo-romaine ; 4. Rempart.



10. Phases d'occupation de la région d'Aulnat. (D'après J. Collis (1975).)
1. La Tène moyenne ; 2. La Tène finale ; 3. Période augustéenne.

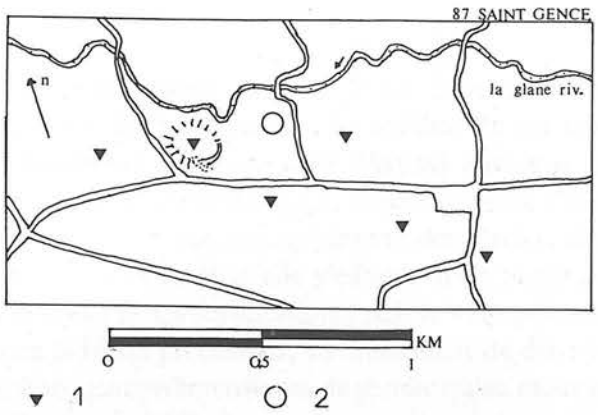
Nous ne reprendrons pas ici le problème du *murus gallicus* qui a déjà été bien exposé[67]. Nous voulons souligner seulement que l'introduction de milliers de fiches en fer dans une construction en bois traditionnelle appelle deux observations : elle suppose la possibilité de recueillir et de forger une quantité considérable de minerai. Nous voyons là une nouvelle manifestation des importants progrès technologiques qui ont marqué le IIe siècle avant J.-C. Il faut noter, d'autre part, que l'effort déployé pour forger et fixer ces clous est démesuré par rapport au surcroît de résistance qu'ils apportent à la construction : quitte à soigner l'armature du rempart, une cheville de bois aurait aussi bien fait l'affaire. La précision de la description du *murus gallicus* par César laisse supposer qu'il a obtenu des renseignements très précis de la part des Gaulois, ou qu'il a vu lui-même des remparts à demi détruits. Or, il ne mentionne pas la présence des clous dans un texte où il tente de persuader le lecteur de la solidité de ce type de construction[68]. Comment expliquer l'omission d'un élément qui est

67. W. Dehn, Einige Bemerkungen zum *murus gallicus*, *Germania*, 38, 1960, pp. 43-55 ; Id., Noch einmal zum *murus gallicus*, *Germania*, 47, 1969, pp. 165-168 ; J. Collis, I. B. M. Ralston, Late La Tène Defences, *Germania*, 54, 1976, pp. 135-146.

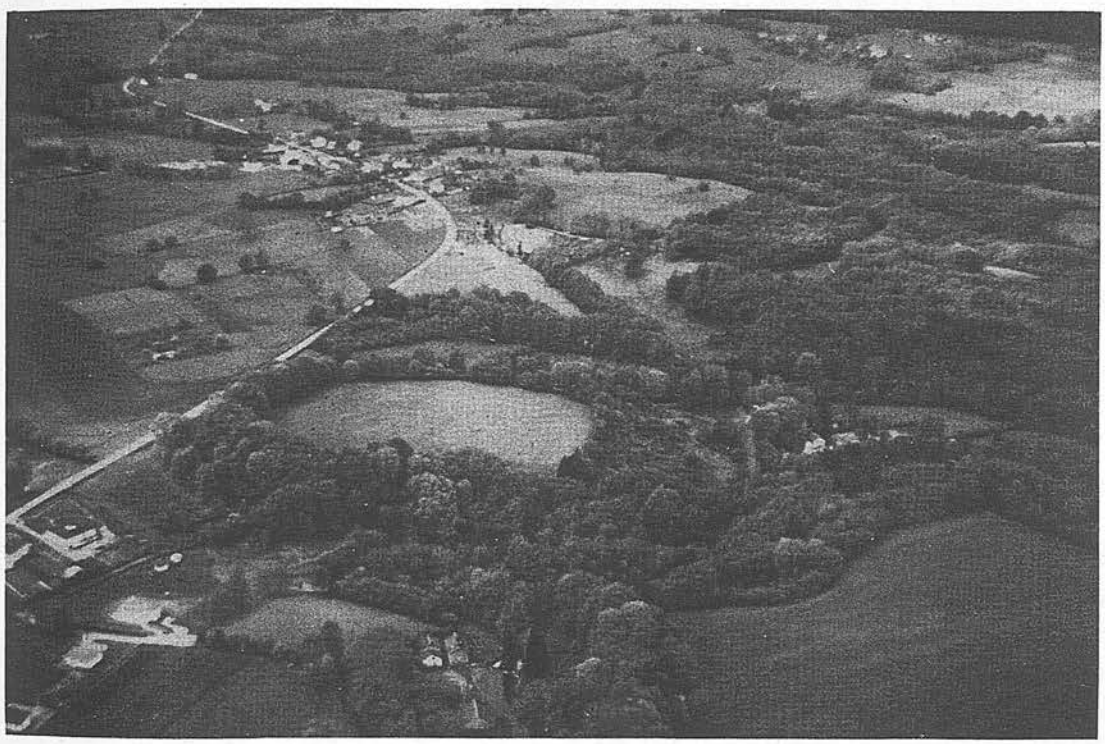
68. Jules César, *De Bello Gallico*, 7, 23.

11. Occupation de la région de Saint-Gence. (D'après Dupuy et coll., 1969.)

1. Tessons d'amphores ;
2. Habitat présumé gallo-romain.



12. Fortification de Saint-Gence. (Cliché D. Jalmain, C.N.R.S.)



à la fois le fossile directeur de cette architecture, et la caractéristique la plus insolite par rapport aux types qui l'ont précédée ? De plus la technique des remparts à armature interne clouée s'est largement répandue, touchant ausi bien de larges enceintes que de petits refuges. Ne faudrait-il pas voir dans les constructions de ce type le symbole d'une fonction juridique ou politique, au-delà du simple souci de fortification ?

3. *Les habitats ouverts*

Nous évoquons ici les habitats ouverts de la fin de La Tène dans la mesure où leur évolution reflète ou complète celle des fortifications. Le résultat de dix années de fouilles à Levroux, Indre[69], montre clairement l'alternance de l'habitat ouvert et de l'habitat fortifié en un même lieu : à la fin du IIe siècle avant J.-C., l'agglomération s'étend sur quelque 10 ha dans la plaine ; dans les années qui précèdent la guerre des Gaules, elle se déplace sur une colline qui se dresse 1 km plus au nord et elle s'entoure d'un rempart. Dès la fin du Ier siècle avant J.-C., l'habitat déborde ses fortifications, puis la ville gallo-romaine s'établit dans l'intervalle entre les deux habitats précédents, au croisement de deux voies. L'analyse chronologique précise de cette séquence n'interdit pas de penser qu'au moment où le premier rempart, un *murus gallicus*, fut construit, l'habitat ne se trouvait pas encore dans son périmètre, mais toujours en bas, dans la plaine. L'habitat de la première phase comprend des structures sur poteaux, des silos, des aires de travail semi-enterrées. Dans leur remplissage ont été recueillis de la céramique campanienne, des amphores, des meules rotatives, des « plaques de foyer », des moules à flans monétaires et de la céramique peinte. C'est le même mobilier que celui d'Aulnat (Puy-de-Dôme), gisement associé également à une fortification de hauteur, la Gergovie de César[70]. Les vestiges recueillis devant la petite fortification de Saint-Gence, Haute-Vienne[71], peuvent appartenir au même type d'habitat et à la même période ; plus au nord, la fosse de Vernou[72], à 7 km du site fortifié par un *murus gallicus* de Rochecorbon (Indre-et-Loire)[73], est trop éloignée de celui-ci pour lui être directement associée.

Conclusions

Ce rapide bilan des recherches montre que nous sommes encore loin d'avoir achevé la phase d'exploration préliminaire des habitats de l'âge du Fer dans cette région.

Un recensement réalisé à partir de l'enquête de la Société préhistorique de France et des publications postérieures les plus importantes nous conduit à recenser environ 650 fortifications protohistoriques en France non méditerranéenne. Leur répartition relativement homogène sur le territoire considéré laisse supposer que le fichier des enceintes est à peu près complet. Ce simple chiffre remet en question la validité des interprétations qui se sont fondées sur les quelque 50 enceintes les plus célèbres, sélectionnées tantôt en fonction de

69. O. Buchsenschutz, *op. cit.*, 1977, n. 23.

70. J. Collis, R. Périchon, J.-J. Hatt, *op. cit.*, n. 10 ; R. Périchon et M. Vichy, Notes de céramologie, les plaques de foyer, *Revue archéologique du centre de la France*, 6, 1967, pp. 311-318.

71. R. Juge, P. Dupuy, *et multi al.*, Fouilles de sauvetage de Saint-Gence, Haute-Vienne, *Revue archéologique du centre de la France*, 8, 1969, pp. 24-36.

72. J.-C. Marquet, Un fossé-dépotoir préromain à Vernou-sur-Brenne, Indre-et-Loire, 1 : Etude générale, *Revue archéologique du centre de la France*, 13, 1974, pp. 267-277 ; R. Maugard, Un fossé-dépotoir..., 2 : Etude du matériel céramique, *ibid.*, 16, 1977, pp. 3-18.

73. *Op. cit.*, n. 63.

leur identification probable avec un *oppidum* cité par César, tantôt par les hasards divers qui provoquent une fouille archéologique, sauvetage, proximité d'un archéologue, etc.

Nous serions tentés par l'utilisation de méthodes anthropologiques ou de techniques d'analyse spatiale, mais pour le sujet qui nous intéresse, il semble nécessaire de commencer par la constitution d'un fichier de base relativement homogène.

Nous pensons avoir montré, à travers l'analyse des fortifications du Centre, qu'il y avait parmi ces gisements quelques capitales de *cité*, mais aussi des agglomérations de seconde ou de troisième importance. La poursuite des recherches sur cette collection de plusieurs centaines d'enceintes pourrait faire apparaître notamment dans l'ensemble des caractères qui définissent actuellement la « civilisation des *oppida* », toute une série de niveaux de fonctions distinctes, sur le plan économique et sur le plan politique, et provoquer un redéploiement de la chronologie du début à la fin de la protohistoire.

La plupart des fouilles récentes révèlent une occupation longue et complexe des enceintes. Il est presque toujours impossible de les relier aux événements historiques, à la guerre des Gaules ou à plus forte raison aux passages des Cimbres et des Teutons[74]. On constate un hiatus dans la construction des fortifications pendant la période qui précède la guerre des Gaules, suivi d'une intense phase de construction autour des années 100 avant J.-C. ; mais cette solution de continuité n'est peut-être due qu'à une mauvaise sériation du mobilier de La Tène ancienne et moyenne, difficile à classer dans les régions pauvres en sépultures. Les fouilles d'habitat permettront peut-être de préciser cette évolution chronologique. La datation par le carbone 14 des remparts à poutrage interne a renouvelé déjà la chronologie des enceintes en Grande-Bretagne et en Allemagne[75] [76]. Les datations que nous venons d'obtenir pour Moulins/Céphons et Amboise bouleversent les idées reçues et nous invitent à multiplier ce genre d'analyses.

Provisoirement, les remparts de la fin de La Tène restent les mieux connus, même s'il est bien souvent difficile de les relier aux événements de la conquête. Le *murus gallicus*, attribué généralement à l'époque de la guerre à cause de la description du rempart de Bourges par César, semble bien avoir été généralement abandonné dès cette époque : les séquences stratigraphiques de Levroux et de Châteaumeillant, où le rempart à poutrage interne est remplacé par une construction massive en glacis, la stratigraphie d'autres gisements comme Huelgoat, Finistère, ou le Vieux Laon, Aisne, tendent à montrer qu'il est abandonné au profit du type « Fécamp », un talus aux parois obliques précédé par un large fossé à fond

74. Mettre en rapport la chronologie des fortifications et les agressions d'origine étrangère reste très difficile à l'aide des sources archéologiques ; A. Duval et O. Buchsenschutz, Les civilisations de l'âge du Fer dans le Bassin parisien et la France du Nord, in *La Préhistoire française*, 2, 1976, pp. 789-815 ; O. Buchsenschutz et I. B. M. Ralston, *op. cit.*, n. 23, pp. 44-46.

75. B. W. Cunliffe, *Iron Age Communities in Britain*, London, 1978 ; E. W. MacKie, Radiocarbon dates and the Scottish Iron Age, *Antiquity*, 43, 1969, pp. 15-26 ; M. Avery, *op. cit.*, n. 62, 1976, pp. 35-36.

76. W. Coblentz et F. Horst (éds.), *Mitteleuropaïsche Bronze Zeit : Beiträge zur Archäologie und Geschichte*, 1978.

plat[77]. La répartition actuelle de ce type est biaisée par l'état des recherches (le type n'apparaît que dans les régions étudiées récemment, Normandie et Centre), et par les problèmes de chronologie : comment distinguer les remparts contemporains de la guerre de ceux qui peuvent lui être postérieurs ?

Si les coupes de rempart sont rares et anciennes, comment qualifier les sondages pratiqués à l'intérieur de ces enceintes ? Tout le monde sait depuis les fouilles de Bulliot[78] la richesse que peuvent recéler certains de ces habitats. Malheureusement les seuls plans que nous possédions datent, et J.-P. Guillaumet[79] a bien démontré pour le mont Beuvray que ces documents étaient actuellement inexploitables. Le seul plan à caractère urbain actuellement disponible pour la France non méditerranéenne est celui de Villeneuve-Saint-Germain[80], mais il est de toute évidence postérieur à la conquête. Les signes d'une préurbanisation de l'époque de l'Indépendance sont manifestes, mais les plans manquent encore cruellement.

C'est en réalité dans les sites ouverts que nous découvrons les premiers signes de fonctions secondaires et tertiaires : ateliers pour le travail du métal, frappe des monnaies, commerce à longue distance, produits de luxe (Aulnat, Levroux). Transplanter cette agglomération sur une hauteur voisine, l'entourer d'un rempart de pierre, de bois et de fer, aurait représenté la dernière phase de l'urbanisation dans la conception des Celtes. Les menaces de la guerre les auraient contraints à revenir à des méthodes de fortification moins spectaculaires mais plus efficaces ; la défaite leur aurait imposé définitivement le modèle des villes méditerranéennes.

L'examen de la répartition et de la taille des *oppida* suggère différents systèmes d'organisation socio-économiques. Ainsi le Berry, malgré les incertitudes qui pèsent sur le site d'Avaricum, présente l'image d'une série d'agglomérations d'importance assez voisine. En Limousin au contraire on peut opposer un *oppidum* central immense, Villejoubert, à des fortifications datées ou datables de La Tène 3, dont la surface est toujours inférieure à 10 ha, schéma qui avait été remarqué par R. E. M. Wheeler chez les Osismi autour de Huelgoat[81].

O. Buchsenschutz,
CNRS Paris, Levroux ;
I. B. M. Ralston,
University of Aberdeen, Ecosse.

77. Pour cette séquence de fortifications, cf. : J. R. Collis, *op. cit.*, n. 10, 1975 ; Buchsenschutz et Ralston, *op. cit.*, n. 23 ; Ralston ; *op. cit.*, n. 65 ; Collis et Ralston, *op. cit.*, n. 67 ; pour Huelgoat, voir *op. cit.*, n. 11, pl. 3, site E, p. 25 ; pour le Vieux-Laon, cf. G. Lobjois, Les fouilles de l'*oppidum* gaulois du Vieux Laon à Saint-Thomas, Aisne, *Celticum*, 15, 1965, pp. 1-26.

78. J.-G. Bulliot, *Les fouilles du mont Beuvray*, 2 vol., Autun, 1899, 514 et 235 p.

79. A paraître dans *op. cit.*, n. 24.

80. Centre de recherches protohistoriques (Université de Paris 1), et URA n° 12, *Les fouilles protohistoriques de la vallée de l'Aisne*, 1 : 1972-1973, pp. 24-27 ; 2 : 1974, pp. 62-67 ; 3 : 1975, pp. 73-98 ; 4 : 1976, pp. 72-85 ; 5 : 1977, pp. 74-90.

81. Une première version de cette communication a été présentée au Colloque « Hillforts in Britain and Europe » qui s'est tenu à l'Université d'Oxford en janvier 1980.

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IAN RALSTON

The use of timber in hill-fort defences in France

Amongst the most impressive physical remains to survive from the later prehistoric periods in Europe, from the Iberian peninsula to northern Scotland and to the central heartland of the Continent, are the varieties of fortified enclosure to which the generic term 'hill-fort' may be applied. Of course this epithet obscures the range of locations that such sites occupy: hill-slope positions and others of more negligible defensive properties, as illustrated in England and Wales by Forde-Johnston (1976), may be contrasted with others on summits, naturally difficult of access, and on sea-girt promontories. In defining such sites, an essential characteristic is the presence of at least a partial circuit of man-made defences (Hogg 1979: 1).

These defences are often the most indestructible element of a site, so that all that may be apparent today is the layout of a set of banks, walls and ditches, still present as surface features and delimiting an area that is, superficially, archaeologically featureless. The organization of hill-fort interiors and the nature and extent of inter-site relationships have been attracting greater attention in recent Anglo-American treatments of, in particular, the late pre-Roman iron age in France, especially since the emergence of urbanization as a theme in the archaeology of the later La Tène periods (Crumley 1974; Collis 1975; Cunliffe and Rowley 1976; Nash 1978). This paper, which I write with pleasure for Dr A. H. A. Hogg, whose *Antiquity* article of 1969 set me off in quest of French *enceintes*, will concentrate on some aspects of the defences of sites on the other side of the English Channel.

Primarily for the reason stated above, evidence of defensive architecture, albeit of very varying quality, is more plentiful than that relating to internal structures and layout for many French hill-forts. Although recent French work is, rightfully, more concerned with the settlement aspects of these sites, much of the evidence derives from a major spate of activity, partially stimulated by the interest of Napoleon III, and lasting from the mid-nineteenth century until the First World War, during which a principal concern was to establish the constructional (and destructional) sequence of the defences and to elaborate cultural parallels on the basis of architectural similarity.

There was a considerable range of constructional variation present in de-

fensive architecture in Europe north of the Alps during the last millennium BC. The increasing application of isotopic dating techniques, especially radiocarbon, to these later prehistoric structures has been a major contribution to our comprehension of the wide chronological span over which forts were constructed, though precise chronologies must probably still elude us in view, *inter alia*, of dated samples coming from mature constructional timbers (Coles and Jones 1975) and the evidence provided by the close-dating of the gateway timbers from Cullykhan, Banffshire (Campbell *et al.* 1978). Although there is as yet little reason to envisage a continuous tradition of fort-construction for many areas of Europe, there is equally little evidence to suggest that each perceived chronological episode of hill-fort building will allow of a generalized explanation, and local factors will need to be sought. Population displacements, such as that of the Cimbri and Teutones, remain one factor inescapably to be taken into account, but are unlikely to provide a satisfactory rationale for hill-fort construction in many instances. In France, as elsewhere, there is now plentiful evidence to suggest that many of these forts had been abandoned considerably before the appearance of the Roman military over much of central and western Europe, and hence before the best-documented conflicts in which such forts were to be involved. To anticipate the next section, there can be little doubt that the appearance of Roman armies in France north of the Mediterranean coastal strip in 58 BC must have given a considerable fillip to the defensive aspect of hill-forts, though, like many 'events' in protohistory, this is in many instances notoriously difficult to substantiate unequivocally from the available archaeological evidence. It may be suggested that the critical difference between the Romans and their Celtic adversaries did not lie in military technology, even though artillery, such as catapults, and siege-towers were surely novel threats to the security of Celtic fortresses. Although Celts and Romans had been in conflict for several centuries, and Celts had served as mercenaries in the armies of the Mediterranean world, the critical difference between Roman and native in the military sphere was rather in terms of organization, of the ability to sustain military activity. Prior to the appearance of the Roman armies, hill-forts fulfilled a function in societies where warfare may be presumed to have been of a markedly different character. Whilst warfare amongst High Barbarian groupings such as the Celts will have been a more elaborate undertaking than amongst less complex societies, we are far removed from the era of total war (Harris 1975). Records of inter-barbarian warfare are few, since this lay beyond the interests of classical authors, but Irish literary sources, amongst others of a slightly later date, point to the often desultory character of military campaigning amongst the protohistoric Celts. The character of warfare they portray is often essentially 'heroic', with larger-scale engagements limited to raids, ambushes and, by later standards, short-lived battles. The role of fortified strongpoints in warfare of this type is liable to be over-estimated, particularly when there is no reason to suspect that late bronze age and iron age societies observed a frequent convention of medieval military etiquette, which demanded of an attacking force that it should not confine its activities to plun-

dering an enemy's territory, and that it was honour-bound to besiege any stronghold the defenders had chosen to protect.

In the absence of explosives, the range of fire from a fort is greatly diminished, so much so that they are essentially passively defensive in character. It is thus difficult to support a view of hill-forts dominating a surrounding tract of country in any direct military sense. The only exception to this is the use of chariots by Celtic societies, though by the time Caesar was writing in the first century BC the military use of these vehicles seems to have been in decline on the Continent. Harding (1974) has pointed out that the chariot could have been used to convey a mobile force from a hill-fort to confront an approaching enemy on lower ground: cavalry, for which the Gauls were later to become famous in the Roman Empire, would represent another means of extending the aggressive potential of a hill-fort beyond its very immediate environs. In general, though, such military considerations as underpinned the forms of Temperate European iron age defensive architecture may be suggested to have been restricted to the likelihood of raids and attacks of limited duration. Only in the final stages of their use were they sometimes pressed into service against the Roman military machine.

Two principal competing strands can be noted in the military technologies of the last centuries BC in France. One of these is rooted in native craftsmanship, the other is influenced by contacts with the Mediterranean world. Taking France as an entity, the evidence of status artifacts, wine containers of various kinds and other material, suggests that Mediterranean influence was not all-pervasive, chronologically, socially or spatially, during the course of the local iron age. Whilst certain types of iron age fortified site in France show very clear Mediterranean influence – the masonry bastions and layout of Entremont (Benoit 1975) are a clear example – other aspects of French protohistoric fortifications are perhaps less readily assimilated to Mediterranean precedents. The latter is perhaps particularly true of the varieties of timber-laced defences culminating in the *murus gallicus* described by Caesar, and it is these that we will examine more closely.

Theoretical considerations

Multifarious considerations – political, economic, cult, legalistic – may have lain behind the decision-making involved in hill-fort construction. Both the selection of the circuit that the defences were to follow and the precise defensive architecture chosen for a particular locality would have had considerable consequences, economic and otherwise, for the community concerned. It is thus undoubtedly simplistic to consider in isolation the forms of defences adopted and to assess them purely in terms of defensive requirements. However, renewed discussion of this factor at a theoretical level may make a useful contribution to the wider consideration of later prehistoric fortifications. Factors directly linked to military requirements, and which may therefore have been given consideration when the structural form of a defence was

to be decided, might have included:

a. *Numerical strength and armament of forces likely to be deployed*. Under ideal conditions a set of defences should be constructed to resist an attack by the best-equipped and largest attacking force that can be envisaged.
b. *Resources*. The local availability, quantity and quality of constructional materials (primarily stone, earth, turf and timber) sets obvious limitations on the potential range of defensive architecture.
c. *Time and labour availability*. These are liable to be particularly critical when either is in short supply.
d. *Location*. The particular geographical location and any natural defensive advantages it may have conferred are another important factor.
e. *Convention*. Tradition within a society may exert considerable pressure in the choice of structural types.

It may be instructive to consider the general forms of defence which have been reconstructed on the basis of archaeological evidence, with a view to providing an estimate, at a theoretical level and certainly exceedingly crude, of their defensive potential. Only methods known to have been used will be mentioned; other 'options' may of course remain to be discovered. For the purposes of this exercise, our hypothetical hill-fort will be considered to lie in the middle of a flat plain which offers no natural defensive advantages. In this way, the effects of factor (d) – location – may be minimized. Similarly, to neutralize the effects of differential distribution of, and access to, resources – factor (b) – the main constituents of hill-fort defences will be taken to be of equal availability. By varying the input of factor (a) – the combatants and their armament – some of the perceived differences in the scale of defences may be accounted for.

The simplest form of defence would be required against wild animals or casual banditry. In either of these cases, two principal options suggest themselves: either a delimiting wall or a wooden palisade, perhaps set in the upcast from a small ditch. A third option, a thorn hedge, either living or dead, would be possible, though difficult to detect archaeologically. The appearance of an armed force equipped for hand-to-hand fighting would require the addition of a fighting-platform and breast-work to the wall or stockade. Another element of importance is the entrance, by definition a weak point, and increasing elaboration of the defences at this position is perhaps likely as the postulated level of aggression increases.

The sword and, to a lesser extent, the spear appear to have been the weapons *par excellence* of the European iron age. Slingstones are the most frequently recorded missiles, though the classical authors occasionally mention that stone-throwing was also practised. Archery seems to have been comparatively unimportant for much of the iron age, though metal arrowheads are recorded from both Hallstatt and late La Tène contexts (Mercer 1970; Duval 1970). The use of such missiles might provoke two rather different defensive reactions. The more spectacular would involve the widening of the defensive zone by the construction of a second circuit, or

indeed multiple circuits, of ramparts. The alternative would be to increase the height of the wall, perhaps enhanced, though only slightly in defensive terms, by the excavation of a ditch outside the wall-line.

The appearance of cavalry would not be expected to inspire improvements to the main line of defence but rather to promote means of disorganizing an attack by extending the defensive zone outwards. These might include the construction of *chevaux-de-frise*, though constructions of this kind may be assumed to have disrupted foot charges as well. The use of cavalry would also increase the speed of approach, and this might necessitate the construction of watch-towers in order that defenders could be alerted. Undertakings of this kind will have had constructional implications if such superstructures were to be built onto the wall-line.

Another aggressive technique recorded in the archaeological record is the use of fire, to which two very different responses are possible. Any exposed timber in the defences would represent a major hazard, so that minimizing the quantity of timber visible to an attacker, in addition to the selection of more fire-resistant woods, might be expected to have received high priority. Greater precautions to protect unavoidably inflammable features, such as wooden gates, might further contribute to the elaboration of the defensive works around the entrances. It would be expedient to minimize the risk of structures within the fort being set alight, and one solution would involve leaving a zone of the fort interior adjacent to the fortification itself clear of buildings. This might incidentally confer defensive advantages by simplifying access to the rampart. At this stage, the arguments in favour of a radically different defensive formula become persuasive. The alternative defensive arrangement would be to abandon the construction of walls containing timberwork (with vertical external face) in favour of a dump rampart (with sloping external face). As with missile warfare, multivallation, or at least bivallation, might be advantageous, depending on the scale of the primary defence.

Against other more elaborate methods of attack the construction of a large dump rampart would also seem to be the most efficient. Height could thus be obtained and the dangers of collapse inherent in a vertical wall-face avoided. Advanced techniques of attack would embrace those mentioned in *de Bello Gallico*, including the use of battering rams, mining and sapping, artillery and siege-towers, most – though not all – of which probably represented new kinds of threats with the advent of Roman military expertise in Temperate Europe. Resistance to all these techniques would place a premium on additional precautions to render the approach to the defences more difficult, for example by deliberately waterlogging an area outside the fort, or by removing all brushwood and similar material which the attackers could utilize to level up the ditch in order to bring machinery into contact with the walls, and so on.

In all these cases, the alternative solution, that of building a stone-faced, rubble-cored wall, remains a possibility. The height of the defences might need to be increased from previous standards if siege-towers were likely to be employed. Similarly, the wall would need to be made thicker, to resist batter-

ing rams. An earthen rampart placed behind the wall would help to absorb the impact of the battering ram and might, incidentally, make the defenders' access to the fighting-platform easier. The division of the wall into compartments by internal timber-lacing (spiked at the intersections of the beams in the most elaborate Continental examples) or internal stone walls (*murus duplex*) might reduce the extent of the disintegration of the rampart core should the external wall-face collapse. This latter consideration would apply whether such internal stone walling ran parallel to (as appears usual in France) or transverse to the line of the wall. But there can be little doubt that both the construction and the maintenance of such a wall would demand greater input of labour and resources than would be required for a dump rampart of equivalent, or greater, defensive capabilities. Even in periods of prolonged peace, the natural decay of internal timberwork would require substantial investments in labour to dismantle the wall before any repair could be effected.

It is thus possible to argue that timber-laced defences, built by craftsmen accustomed to witnessing the decay of woodwork, may have been constructed to counter circumstances which the builders did not believe were going to endure indefinitely. Nor does it appear likely that such defences would have been constructed to counteract an immediate and short-term threat, when a dump rampart would seem to present a more efficient solution, either to refurbish a decayed wall or as an entirely new structure.

Two conclusions emerge from an inquiry of this kind. The first is that the type of defence recorded from a number of protohistoric fortified sites differs considerably from the type which might have been considered, on theoretical grounds, best suited to resist the forms of attack being perpetrated. This contrast can be thrown into high relief by consideration of some of the types of fortification in use during the Gallic War of the mid-first century BC. Julius Caesar described an elaborate variant of the timber-laced wall as the usual type he encountered in the campaigns of 58–51 BC. He speaks highly of its resistance both to fire and to the battering ram. However, archaeological evidence, coupled with at least one reference in Caesar's text, suggests that by the time of the Gallic War the Fécamp variant of the glacis-fronted dump rampart was becoming more common – since its distribution, as presently known, extends beyond the territorial boundaries of the Belgae, to whom Wheeler and Richardson (1957), more particularly followed by Paul-Marie Duval (1959) in his review (*type Belge*) of that work, chose to attribute this particular development. Caesar's text can also be construed to suggest that the Fécamp ramparts also formed a more formidable military obstacle to his armies, as at Noviodunum of the Suessiones (*de Bello Gallico* II, 12), than did the timber-laced walls.

Secondly, it has been argued that defences are constructed as the outcome of decisions involving a complex of factors, some interdependent, some at least partially deterministic. Accordingly, it is perhaps as valid to discuss defences in terms of methods of warfare, a model which would easily accommodate the existence of varying strengths of fortification in a past landscape,

as it is to attempt to create a typological sequence based on architectural details of the constructional methods used.

It remains, nonetheless, remarkable that various forms of timber-lacing should appear to be such a persistent feature of Temperate European protohistoric fortifications, as in the Lausitz culture area (Hawkes 1971) and amongst the Dacians (Rossi 1971), as well as in areas further west bordering on France (Graff 1963). Timber-laced ramparts are resource-consuming, demand heavy input of labour for both construction and maintenance, and appear in some circumstances to have been militarily outmoded, while in others they conferred few advantages over dump ramparts, even if substantially masked by a protective coating of turf, as has been suggested by at least two very different pieces of excavation and research (Avery *et al.* 1967; Youngblood *et al.* 1978). It is difficult not to believe that the twin goads of convention and prestige were important factors in the decisions to construct the later timber-laced walls.

Timber-laced fortifications in France

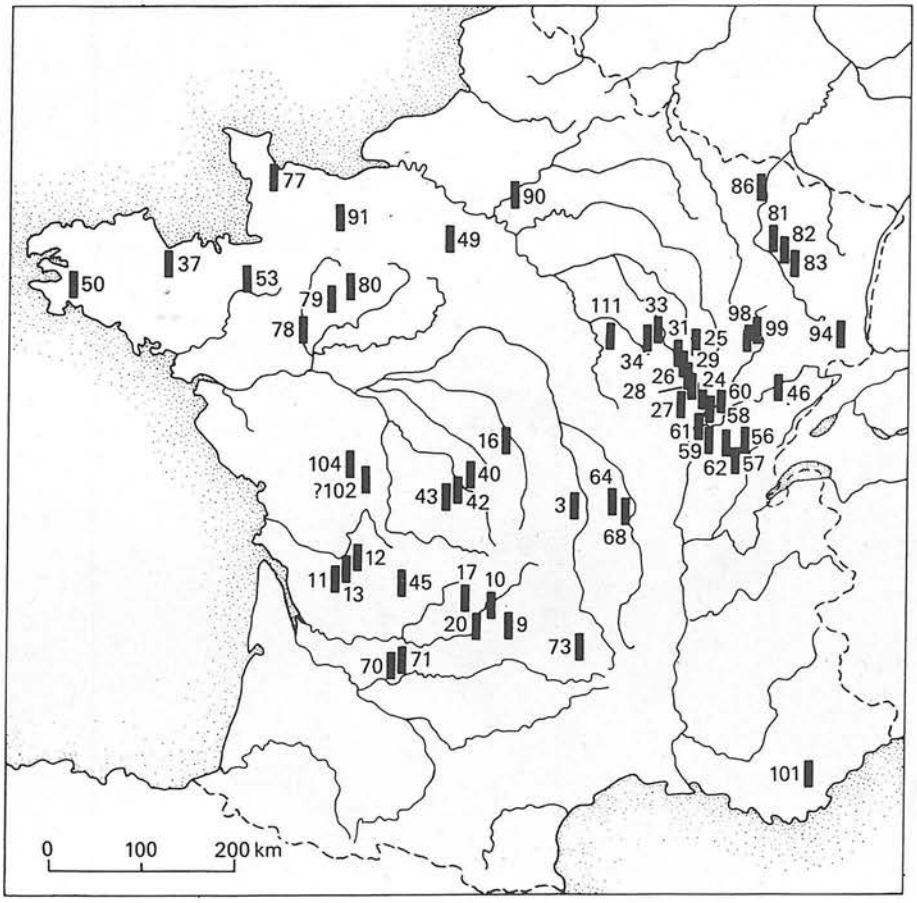
One recurrent feature of later prehistoric fortifications in France, as elsewhere in Temperate Europe, is the use of substantial quantities of timber. Architecturally, if not always chronologically, the culmination of this trend was the construction of the defensive circuits of the massive late La Tène oppida, such as Mont Beuvray in Saône-et-Loire. Such defensive works, with perimeters several kilometres long, are, as Collis has recently argued (1975), the products of societies whose economic base was at least partially industrialized. The defences themselves suggest this, on account of both the large number of uniform lengths of timber and the substantial quantities of iron nails required to fix the timber intersections in the walls of forts enclosed by true *muri gallici*.

Discussion of *muri gallici* has tended to centre on their chronological position and on the degree of Mediterranean influence which may be exhibited in this form of construction (Dehn 1960; 1969). More recently, Collis and I (1976) have argued in favour of an indigenous Temperate European background to this well-known group of sites, suggesting that the vitrified forts of France may well have formed part of the architectural legacy of the use of timberwork in defences on which the elaborations of the *muri gallici* were based.

Despite MacKie's contention (1976b: 206) that the vitrified forts of Scotland are 'unique in Europe', the 70 or so examples in north Britain are matched by a roughly equivalent number in France, and comparisons between the two sets of monuments have been made intermittently since the nineteenth century (Youngblood *et al.* 1978). In referring to such vitrified forts, we are not directly concerned with the constructional/destructional argument which has come to the fore again recently (Brothwell *et al.* 1974; Nisbet 1974; 1975; MacKie 1976b; Youngblood *et al.* 1978); it is sufficient to remark here that most theories currently propounded seem to be in agreement on the need for considerable

quantities of timberwork in the defence. The Appendix to this paper lists all examples of vitrification known to me, mainly from literary sources, as well as defences in which calcined material has been reported. It should be stressed that Nicolardot's recent work in Burgundy and the analyses carried out in conjunction with that programme (Delattre in Nicolardot 1974: 44–5) indicate that calcined material recovered from the neolithic settlement at the Camp de Myard, adjacent to the enclosing wall of that site, was not attributable to the destruction by fire of the defences. Some early identifications of fortifications in which the core has been described as calcined may therefore be suspect, but in general it appears likely that most examples where calcination has been recorded indicate the former presence of internal timberwork in a defence of limestone or similar building stone. I remain unconvinced that vitrification or calcination in most instances is anything other than an indication of the destruction by fire of a timber-laced wall. Accepting that similar defects will

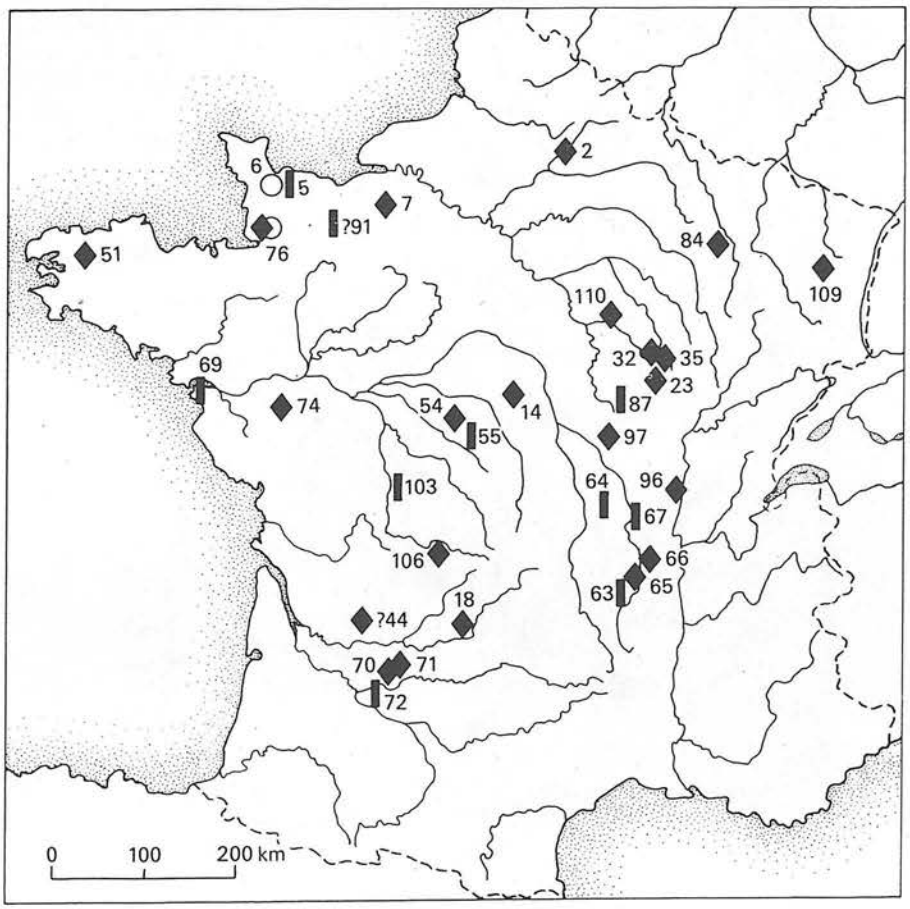
Figure 9. Sites in France reported to be calcined or vitrified (excluding mottes).



occur in this list as were noted by Nisbet (1975) in her consideration of the Scottish evidence, for example a confusion of some rock types such as conglomerate with vitrification, the overall distribution of calcined and vitrified sites bears a considerable resemblance of that of other types of timber-laced defence, as presently known (figs. 9–11). The distribution maps share a comparative paucity of sites within the Paris Basin and in Provence.

Vitrification may have as wide a chronological range as the use of timber-frameworks in defensive architecture. Thus, in Scotland, we may add late dates for the wall at Mote of Mark, Kirkcudbright (ad 459±42: Laing 1975a) and the slightly-vitrified core of a timber-laced wall at the Green Castle, Portknockie, Banffshire (Ralston 1980) to the end of the series quoted by MacKie (1976b). In France, various mottes which exhibit signs of vitrification may be presumed to represent a later use of structural timberwork in this markedly

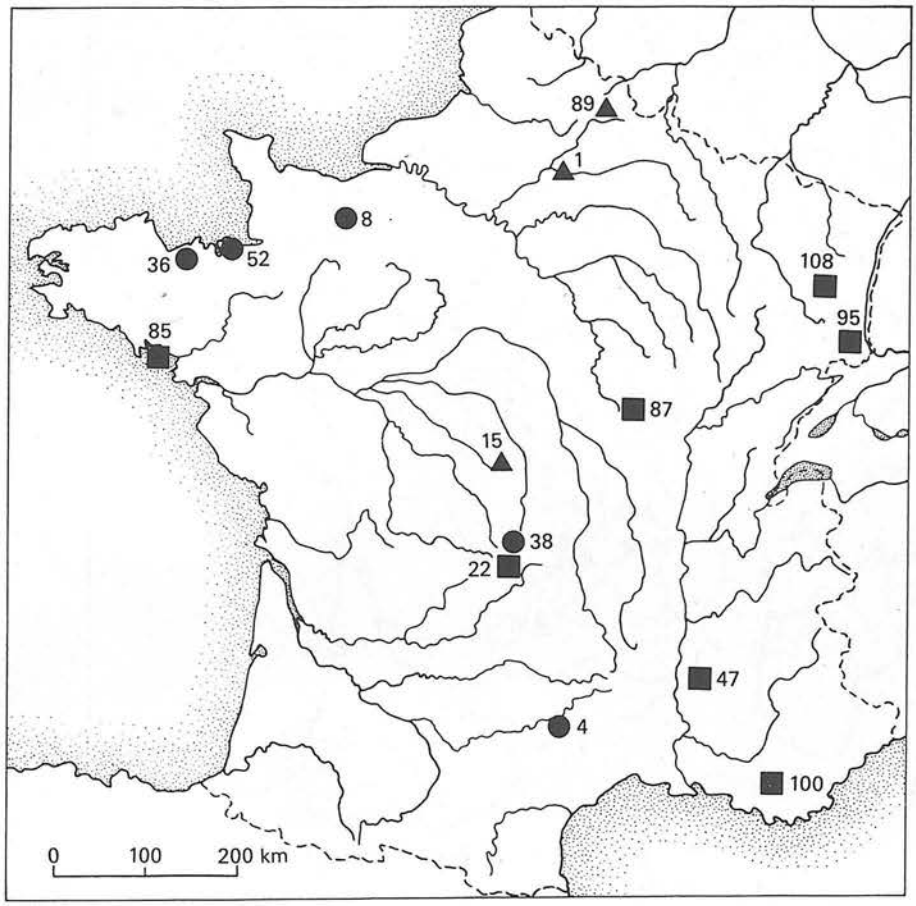
Figure 10. Late defences in France: *muri gallici* (lozenges), Kelheim types (open circles), and defences from which nails are recorded (rectangles).



different form of early medieval fortification. The Appendix includes several examples of mottes, which are mapped in fig. 12.

Given the general lack of large-scale excavation or isotopic dating, the chronological range of defences incorporating timber (including vitrified and calcined sites) lacks precision, though at least ten sites appear to have received their defences in later Urnfield or Hallstatt iron age times, including la Crête de la Granède in Aveyron, la Brèche-au-Diable in Calvados, Voeuil in Charente, la Groutte in Cher, le Puy de Sermus in Corrèze, le Châtelet d'Étaules in Côte d'Or, Aubusson in Creuse, and the Britzgyberg in Haut-Rhin; other possibilities include Erquy in Côtes du Nord, and perhaps Camp-Allaric in Vienne. Contrastingly, true *muri gallici* and Kelheim types (Collis and Ralston 1976) remain late in the French sequence, no excavated example clearly pre-dating La Tène III, and they apparently continued into early

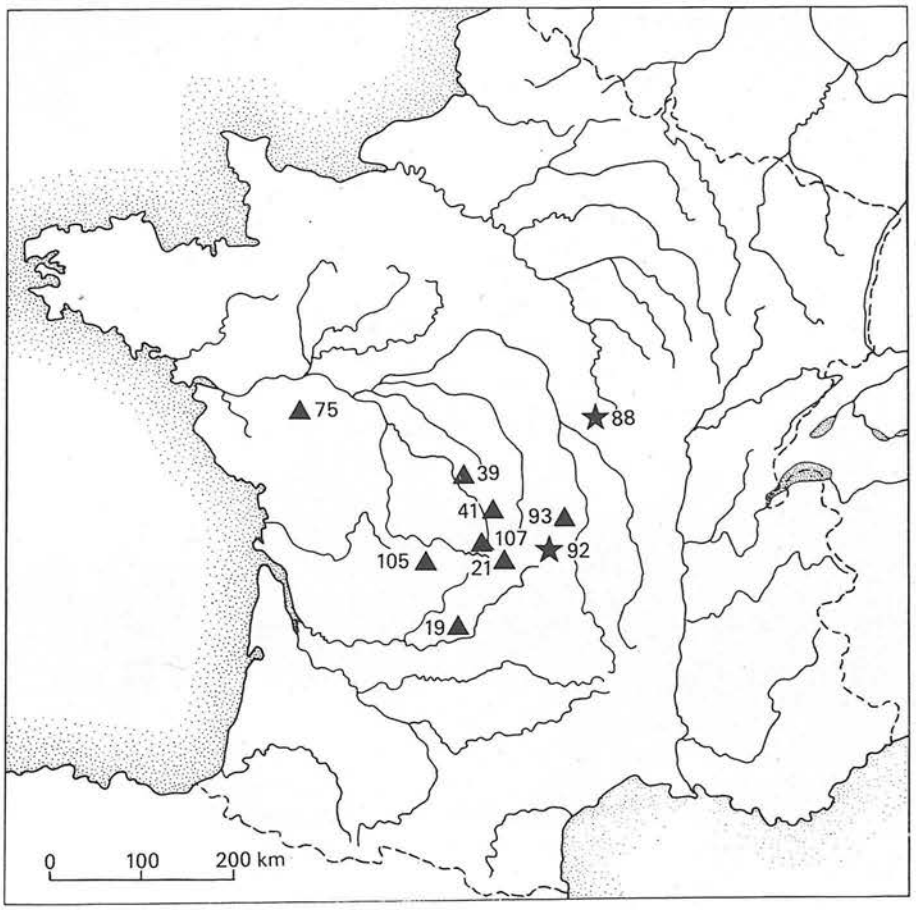
Figure 11. Protohistoric timber-laced defences in France, other than those shown in fig. 10: Ehrang type (triangles), ramparts with internal timberwork (squares), and ramparts with burnt internal timberwork (circles).



Gallo-Roman (*'précoce'*) times, as for example at Vertault in Côte d'Or. Given the recovery of nails from other types of defence in, for example, Calvados and Nièvre, as well as the occasional reference to the recovery of iron from vitrified works, it is perhaps advisable to separate those *muri gallici* identified solely by the recovery of nails from those where a more formal proof exists.

Whilst it has frequently been suggested that there may have been a hiatus in hill-fort construction in France north of Provence for two or three centuries before the spate of fortification construction in late la Tène (Hodson and Rowlett 1974: 187; Collis 1975: 11; Collis and Ralston 1976), the paucity of datable artifacts attributable to these years from settlement sites in general makes this assertion difficult to support, perhaps particularly for western France. In eastern France, recent evidence from excavations, as at La Pierre d'Appel in Vosges (see Appendix), may help to bridge this postulated inter-

Figure 12. Mottes (triangles) and other apparently medieval works (stars) in France, with vitrified material associated.



ruption, though, in view of the evidence from elsewhere in Temperate Europe (Collis 1975), there is no *a priori* reason why hill-fort construction and use need have been a continuous process.

However, given the imprecision which prevails at present, it seems preferable to avoid detailed chronological discussion. The distribution maps, with all the shortcomings of their kind, are perhaps the most graphic illustration of the feeling that a considerable expertise in the construction of wood-and-stone defences lay behind the *muri gallici* of mid-first-century BC Gaul.

Appendix: early fortifications in France with evidence of timber recorded from the defences

This appendix represents a preliminary attempt to group information on the use of timberwork in early defences in metropolitan France. Many of the sources on which it is based are old, and the gazetteer is certain to be incomplete. Not the least important reason for this is the survival of the local archaeological society as a major publication agency (for which, see the appendix to *Gallia* 23, 1965). The acquisition of a fuller picture is liable to be a considerable task in view of the lack of a direct archaeological influence on the state mapping agency in France, the Institut Géographique Nationale. In time, the Projet de la Constitution d'une Carte Archéologique de la France (Büchsenschütz *et al.* 1975) may well ameliorate the picture, but for the moment there is still considerable uncertainty about the global total of surviving early fortified sites in France (Büchsenschütz 1971). The most complete national survey remains that of the Commission d'Étude des Enceintes Préhistoriques et Fortifications Anhistoriques, published in a lengthy series of reports in the bulletin of the Société Préhistorique Française in the first three decades of this century. These reports usually take the form of annotated lists arranged by *département* (county) and *commune* (parish). For recent work, the most accessible way of monitoring excavations in France is through the summary reports of the area directors of antiquities, appended to the national archaeological periodicals *Gallia* and *Gallia préhistoire*, which are unfortunately not indexed.

The following list is arranged by *département* and *commune*, after which each entry gives the site names, selected references, and an outline of the nature of the evidence. The same numbering system is used on the maps (figs. 9–12).

1 **Aisne, Montigny-l'Engrain**
Le Châtelet
(Wheeler and Richardson 1957: 129 and 205–6; Cotton 1961: 105–6 and n.13, 113)
Primarily on the basis of Vauvillé's nineteenth-century excavations, Cotton originally considered this to be a timber-laced rampart with iron nails. In 1961, however, she suggested that this camp represented a tribal *chef-lieu* in Gallia Belgica, copying the *murus gallicus*, but without nails.

2 **Aisne, Saint-Thomas**
Vieux Laon/Camp des Romains/Camp de César
(Wheeler and Richardson 1957: 131; Lobjois 1965; Collis 1975: 206)
Classic *murus gallicus*, first recognized by Peter Goessler in 1915, enclosing 32ha. Subsequently reduced in size by the construction of a dump rampart of Fécamp type.

3 **Allier, Bègues**
Un-named site
(Capitan 1913; 1915; 1916)
Calcino-vitrified. Description suggests vertical and horizontal timbers.

4 **Aveyron, Millau**
La Crête de la Granède
(*Gallia* 17, 1959: 410–12; *Gallia* 20, 1962: 550–2; Soutou 1962: 349; *Gallia* 32, 1974: 461–2; Collis and Ralston 1976: 140)
Burnt timber-laced rampart which was constructed, at latest, in the early Hallstatt iron age.

5 **Calvados, Banville**
La Burette
(Wheeler and Richardson 1957: 208–9)
Cotton was able to cite only circumstantial evidence for the presence of iron nails from this 2ha fort in suggesting that it may have possessed a *murus gallicus*.

6 **Calvados, Castillon**
Oppidum de Castillon

(Wheeler and Richardson 1957: 116; Gourvest 1961; *Gallia 20*, 1962: 429–30; Collis and Ralston 1976: 143)
The excavation of one section across the defence of this 35ha oppidum indicated the presence of a Kelheim-type wall (Collis and Ralston 1976: fig. 1). However, quadrangular-sectioned nails came from some of the post-holes for the vertical timbers of the rampart façade.

7 **Calvados, Saint-Désir/La Motte**
Camp du Castellier
(Wheeler and Richardson 1957: 118 and 203–4)
Massive oppidum enclosing in excess of 150ha and defended by a *murus gallicus*; largely obliterated by the time of the Wheeler expedition in 1938–9.

8 **Calvados, Soumont-Saint-Quentin**
La Brèche-au-Diable/Le Mont Joly
(Edeine 1966: 247–62; Savory 1971b: 256, 260)
4ha promontory fort, with defence probably of late bronze age date. Edeine (1966: 259) was of the opinion that the traces of charcoal and burnt timber recovered from the excavation of the defences represented the remains of fires set on the clay of the rampart in order to harden the clay.

9 **Cantal, Escorailles**
Un-named site
(Vazeilles 1936: 85–6)
Vitrified site. Possibly confused with an example in the *commune* of Mauriac.

10 **Cantal, Mauriac**
Vieux Château at hamlet of Escoalier
(Fournier 1961: no. A2)
Vitrified. Various other sources, including Déchelette (1913: 706), suggest the presence of a second vitrified site here, but it may be that mentioned by Vazeilles (1936: 85–6) in the *commune* of Escorailles.

11 **Charente, Mouthiers-sur-Boeme**
Un-named site
(Büchsenschütz, pers. comm.)
Calcined.

12 **Charente, Soyaux**
Camp de Recoux
(Lièvre 1888; Savory 1971b: 259, 260)
Calcined.

13 **Charente, Voeuil-et-Giget**
Fort des Anglais/Camp de Pierre-Dure
(Lièvre 1888; de la Noë 1892; Pintaud 1956; Savory 1971b: 259)
Calcined. Bersu thought this camp was probably of final Urnfield construction (in Pintaud 1956: 125); there is material of that period from the site, paralleled at Camp Allaric, Vienne (Pautreau 1976: 414).

14 **Cher, Bourges**
'Avaricum'
(Dumoutet 1863; Wheeler and Richardson 1957: 199–201; Ralston and Büchsenschütz 1975: 10–11)
Dumoutet (1863: 1) makes the only reference to the discovery of a wall conforming to Caesar's description (*de B G* VII, 23); this was located by excavations in the Archbishop's Garden in 1821.

15 **Cher, Châteaumeillant**
Les Fossés Sarrasins
(Hugoniot and Gourvest 1961; Ralston and Büchsenschütz 1975: 11; Collis and Ralston 1976: 142)
Although it would be possible to account for the absence of iron nails from the timber-laced rampart at the southern end of this 18ha promontory fort by the

limited sampling, it may be of Ehrang type.

16 **Cher, La Groutte**
Camp des Murettes/de César
(Hugoniot and Vannier 1971; Ralston and Büchsenschütz 1975: 12)
The earlier defences of this site show evidence of fire-reddened stones and calcination.

17 **Corrèze, Lamazière-Basse/Darnetz**
Le Châtelet at La Gane
(Vazeilles 1936: 56–7; Brogan and Frere 1958: 221; Cotton and Frere 1961: 45, n. 38)
One wall is vitrified in a site which has produced evidence suggestive of use in both the iron age and medieval periods. Cotton has suggested that two phases, a vitrified Preist-type wall and a *murus gallicus*, may be represented, but this is unproven.

18 **Corrèze, Monceaux-sur-Dordogne**
Puy du Tour
(Bombal 1906; Hatt 1941; Wheeler and Richardson 1957: 182–3; Cotton and Frere 1961: 43; Murat and Murat 1967)
The post-war excavators of this c.6ha site did not re-examine the defences, even the line of which must be regarded as uncertain. Bombal's description (1906: 408–10) is somewhat ambiguous, but Cotton (in Wheeler and Richardson 1957) is surely right in suggesting that the lower part of the *murus gallicus* appears to have been rubble-built and to have lacked both the wood and nails recovered higher up. It is possible that a number of post-holes recorded below the rampart represent an earlier defence, but Bombal suggests that they may be evidence of pre-rampart settlement.

19 **Corrèze, Monceaux-sur-Dordogne**
Le Chastel, Le Puy Grasset
(Rupin 1893)
Vitrified motte.

20 **Corrèze, Saint-Geniez-ô-Merle**
Puy de Sermus
(Rupin 1893; Raymond 1910; Cotton and Frere 1961: 45; Lintz 1976)
Vitrified promontory fort which has produced a little iron age pottery.

21 **Corrèze, Saint-Pardoux-le-Vieux**
Château de Confolent
(Vazeilles 1938)
Vitrified motte.

22 **Corrèze, Ussel**
Camp du Charlat
(Cotton and Frere 1961: 31–42)
Small plateau fort occupied during late La Tène and post-Conquest times; defences of *murux duplex* construction, incorporating horizontal timbers.

23 **Côte d'Or, Alise-sur-Reine**
Mont Auxois/'Alesia'
(Wheeler and Richardson 1957: 195–8; Collis 1975: 173–4; *Gallia* 34, 1976: 440)
Oppidum enclosed by a *murus gallicus*. Collis (1975: 173) suggests, on the basis of changes of alignment, that there may have been more than one period of construction. A sector of the southern slope of the hill has recently produced indications of *murus gallicus* construction.

24 **Côte d'Or, Bouilland**
Le Châtelet
(Nicolardot 1975: 92)
Calcined.

25 **Côte d'Or, Crecey-sur-Tille**
Camp de Fontaine-Brunehaut

(*Gallia préhistoire 15*, 1972: 428–30)
The main defence of this promontory fort appears to be a dry-stone wall; only one sondage produced evidence of calcination. The wall is underlain by Hallstatt material.

26 **Côte d'Or, Êtaules**
Le Châtelet
(Raymond 1910: 3, 22; Guyot 1964)
Promontory fort with rampart of complex structure. The pre-calcined level of the rampart is Hallstatt B/Kimmig Champs d'Urnes III in date.

27 **Côte d'Or, Gevrey-Chambertin**
Château-Renard
(Nicolardot 1975: 92)
Calcined rampart.

28 **Côte d'Or, Flaverignot**
Mont Afrique/camp de César
(Drioton 1905: 50; Raymond 1910: 14; *Gallia 34*, 1976: 441)
Kruta's recent excavations do not seem to have produced further evidence of calcination. Apparently late La Tène in date.

29 **Côte d'Or, Plombières-les-Dijon**
Bois-Brulé
(Drioton 1905: 50–6; Raymond 1910: 3)
Calcined.

30 **Côte d'Or, Lavilleneuve**
Le Bois Vert
(Wheeler and Richardson 1957: 209)
Timber-lacing recovered in the enclosing wall of a barrow. The *Dictionnaire des Communes* lists three Villeneuves in this *département*. Not mapped.

31 **Côte d'Or, Val-Suzon**
Le Châtelet
(Drioton 1905: 50–6)
Calcined.

32 **Côte d'Or, Vertault**
Vicus Vertillum
(Wheeler and Richardson 1957: 198–9; *Gallia 16*, 1958: 308–10; Dehn 1960: 45; Collis 1975: 174)
The most recent investigation of this *murus gallicus*, known since the last century, suggested a post-Conquest date to the excavator, M. R. Joffroy; this depends largely on an assessment of the quality of the stonework, especially in the outer wall-face. Two other unusual features were the short length of the beams employed, and the presence of longitudinal timbers, as well as the beam-ends of the transversals, in the front face of the wall.

33 **Côte d'Or, Villeberny**
L'Haut-Mont
(Nicolardot 1975: 92)
Calcined rampart.

34 **Côte d'Or, Vitteaux**
Camp de Myard
(Nicolardot 1973; 1974; 1975)
Calcined material from directly behind the inner edge of the dry-stone defences is of neolithic date but has been attributed by Nicolardot to a settlement rather than to the wall itself.

35 **Côte d'Or, Vix**
Mont Lassois/Montagne Saint-Marcel
(Wheeler and Richardson 1957: 199; Joffroy 1960: 133; Collis 1975: 174; Joffroy 1975: 71; *Gallia 34*, 1976: 450)

Although previously described as a *murus gallicus*, the presence of vertical timbers in the outer face of the wall suggests that it may more appropriately be classed as Preist-type, or perhaps Kelheim-type. A recent sondage on the south-west edge of the plateau failed to relocate the rampart, but produced six iron spikes, up to 25cm long, of the type used in *murus gallicus* construction.

36 **Côtes du Nord, Erquy**
Cap d'Erquy
(Sancier 1964; Giot *et al.* 1968; Giot and Briard 1969; Savory 1971b: 260)
Substantial promontory fort of 35ha, with outer wall (the Fossé de Pleine Garenne) showing evidence of carbonized transversal and longitudinal timbers. A radiocarbon date of 320±110 bc (GIF-1302) has been obtained (Giot and Briard 1969: 33).

37 **Côtes du Nord, Plédran**
Camp de Péran/Camp Romain
(Daubrée 1881: 21–5; de la Noë 1892; Raymond 1910: 3–5; Wheeler and Richardson 1957: 112)
Vitrified plateau fort. Both Wheeler and Richardson and de la Noë remark on the traces of horizontal timbers in the heavily-vitrified gneiss of the main rampart.

38 **Creuse, Aubusson**
Camp des Chastres
(Léger 1972; *Gallia* 33, 1975: 443)
15ha promontory fort whose main defences incorporate burnt timber-lacing, including a vertical element. A single fibula suggests late Hallstatt construction.

39 **Creuse, Linard**
Chateau Gaillard
(Martin 1905: 51–2; Autorde 1907: 722)
Vitrified material from a motte.

40 **Creuse, Pionnat**
Chateauvieux
(Mayaud 1881; Daubrée 1881; Raymond 1910: 2; Youngblood *et al.* 1978: figs. 5a and 5b, *passim*)
Vitrified.

41 **Creuse, Saint-Dizier-la-Tour**
La butte de la Tour-Saint-Austeille
(de Cessac 1867)
Vitrified material from a motte.

42 **Creuse, Sainte-Feyre**
Le Puy de Gaudy
(de Cessac 1878; Daubrée 1882; Raymond 1910: 2; Youngblood *et al.* 1978: *passim*)
Vitrified contour fort.

43 **Creuse, Thauron**
Un-named site
(Autorde 1907: *passim*; Raymond 1910: 2, 7)
Vitrified.

44 **Dordogne, Coulounieux-Chamiers**
Camp de César/de Périgueux
(de la Noë 1887: 330; Wheeler and Richardson 1957: 207)
First cited as a *murus gallicus* by de la Noë.

45 **Dordogne, Saint-Médard-d'Excideuil**
Castel Sarrazi
(Hardy 1882; Barrière 1933: 16–17)
Vitrified.

46 **Doubs, Myon**
Châtelet de Montbergeret
(Piroutet 1906: 51; 1913: 164)

Calcined.

47 **Drôme, Le Pègue**
La colline Saint-Marcel
(Hatt 1976)
An earthen bank, at an associated site below the hill ('Chantier de l'École'), contained traces of vertical and horizontal timbers (Hatt 1976: 37–41), and appears to have been in use from late Hallstatt to La Tène II. Whether its purpose was exclusively defensive or was partially designed to protect the site from flood damage is uncertain.

48 **Eure, La Fréneuse-sur-Risle/Livet-sur-Authou**
La Berquerie
(Coutil 1909: 608)
Previously suggested as calcined, but withdrawn by Coutil. Not mapped.

49 **Eure-et-Loir, Sorel-Moussel**
Fort Harrouard
(Philippe 1936; 1937; Wheeler and Richardson 1957: 121; Collis 1975: 203–4)
Although Philippe's excavation of the main rampart revealed no details of internal structure, excavations around the perimeter of the promontory indicated the presence of a calcined rampart, with both vertical and horizontal timbers. Philippe considered this to be neolithic in date (1936: 293–8).

50 **Finistère, Ergué-Armel**
Beg-ar-Castel
(Wheeler and Richardson 1957: 107)
There are patches of burning and indications of vitrification in the rampart of this promontory fort of less than 1ha in area.

51 **Finistère, Huelgoat**
Le camp d'Artus/d'Arthur
(Wheeler and Richardson 1957: 23–38)
Murus gallicus, lacking rear revetment wall and with vertical timbers (six-post arrangement) in two of the gateways, enclosing an area of approximately 30ha. One of Wheeler's trenches (site E, see Wheeler and Richardson 1957: pl.III) shows a dump rampart, with internal retaining wall; the latter was seemingly not intended to be freestanding, but formed a capping to the main rampart; this second phase is undated.

52 **Ille-et-Vilaine, Saint-Coulomb**
Ville des Mues/Pointe du Meinga
(Wheeler and Richardson 1957: 113)
Although traces of burnt timber were recorded behind the stone revetting-wall of this 14ha promontory fort, the evidence was felt to be inadequate to classify it as a *murus gallicus*.

53 **Ille-et-Vilaine, Vieux-Vy-sur-Couësnon**
Oppidum d'Orange
(Collis 1975: 200)
Suggestion of vitrification in the inner rampart.

54 **Indre, Levroux** (fig. 13)
Les Tours
(Büchsenschütz and Ralston 1975)
Murus gallicus, lacking formal rear revetting-wall, replaced and overlain by a dump rampart.

55 **Indre, Meunet-Planches**
Le Camp de Corny
(Ralston and Büchsenschütz 1975: 13)
Nails recovered from the rampart of this c.1ha fort during quarrying operations in the nineteenth century were compared to those from Murcens. Roman finds are recorded from the interior of the fort.

56 **Jura, Cernans**
Le Grandchamp
(Piroutet 1913: 163)
Evidence of fire in the upper part of the earth-and-stone rampart.

57 **Jura, Champagnole**
Éperon de Boyise
(*BSPF* 5, 1908: 432–3)
Timber-laced rampart; apparently Merovingian in date.

58 **Jura, Chevigny**
Un-named site
(Büchsenschütz, pers. comm.)
Calcined. (Almost certainly the same site as Montmirey in the same *département*.)

59 **Jura, Mesnay**
Roch-Maldru
(Piroutet 1906: 38–42; Millotte 1963: 94)
Calcined defence overlies early bronze age occupation.

60 **Jura, Montmirey-la-Ville**
Le Mont-Guérin
(Piroutet 1909; 1913: 166; Feuvrier 1913: 692, fig. 2)
Calcined defence overlies early bronze age level.

61 **Jura, Rahon**
Le Mont-Ceint
(Millotte 1963: 123)
Evidence of burning in a defence compared by Millotte to that of the Wittnauerhorn.

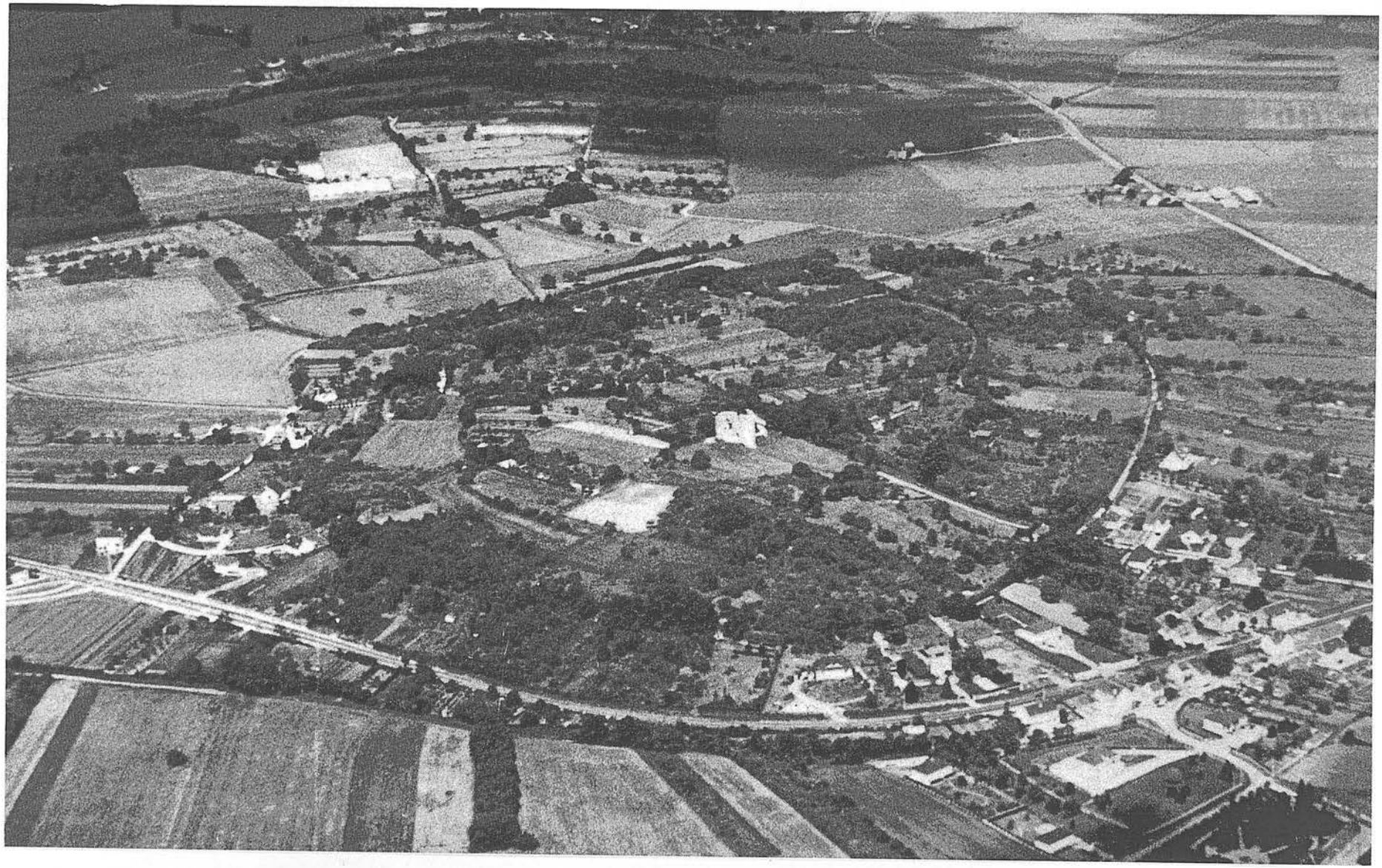
62 **Jura, Salins**
Camp du Château
(Piroutet and Déchelette 1909; Piroutet 1913: 164–5; 1930; Dayet 1967)
Partially vitrified; this was not apparent in the later excavations of Dayet. (The site is sometimes listed in the *commune* of Pretin, Doubs.)

63 **Loire, Chambles**
La Ruthe/Le Palais à Essalois
(Wheeler and Richardson 1957: 180–1; Renaud 1962; Preynat 1962; Collis 1975: 179)
Although the 1962 descriptions of this site vary, both Renaud and Preynat oppose the idea that it was defended by a *murus gallicus*. Renaud's excavations produced evidence for *murus duplex* construction, whilst Preynat (1962: 306) argues that the presence of long iron spikes can be related to destroyed wooden structures from the interior of the site.

64 **Loire, Saint-Alban-les-Eaux**
Châteaulux/Château de Verre de Châteaulus
(Bouttet 1910; Raymond 1910: 2)
Vitrified. Old excavations mention the discovery of iron nails.

65 **Loire, Saint-Georges-de-Bariolle**
Le Châtelard de Chazi/Le Crêt Châtelard
(Wheeler and Richardson 1957: 181–2; Besset and Périchon 1964: 63–6; Collis 1975: 181)
Promontory fort of 6–7ha in area. When cleared for the planting of vines, the defences produced numerous blocks of stone which did not seem to have formed

Figure 13. Indre, Levroux (site 54), from the south-west. The *murus gallicus* excavated in 1971 lies immediately south of the track encircling the 20ha oppidum (photograph O. Büchsenschütz).



a wall, and amongst which iron nails were found. A *murus gallicus* of 3m overall width seems to have been discovered on the north side of the camp.

66 **Loire, Saint-Marcel-de-Félines**
Le Crêt Chatelard
(Wheeler and Richardson 1957: 178–80; Besset and Périchon 1964; Collis 1975: 181)
Although the main defence seems to comprise only a dry-stone wall, a *murus gallicus* constructed on an artificially-cut platform has been discovered elsewhere on the perimeter of the site.

67 **Loire, Saint-Maurice-sur-Loire**
Joeuvre(s)
(Wheeler and Richardson 1957: 206–7; Besset and Périchon 1964: 70–2; Collis 1975: 181)
Only reports of the discovery of iron nails, not certainly associated with a defensive architecture, suggest that there may be a *murus gallicus* here.

68 **Loire, Villerest**
Le Château-Brulé de Lourdon
(Raymond 1910: 2; Bouttet 1910)
Vitrified.

69 **Loire-Atlantique, Vue**
Vue
(Wheeler and Richardson 1957: 207)
The only evidence to suggest the presence of a *murus gallicus* seems to be iron nails.

70 **Lot, Cras**
Murcens/Murceint/Ville des Mues
(Castagné 1874: *passim*; Wheeler and Richardson 1957: 183–5)
A classic *murus gallicus* runs across the isthmus of this promontory. A little calcined material (Castagné 1874: 472) has also been recovered from the site, but much of the perimeter defence seems to be devoid of internal timber-lacing.

71 **Lot, Luzech**
L'Impernal
(Viré 1913; Wheeler and Richardson 1957: 186–8)
A classic *murus gallicus*, isolating a plateau of about 16ha, was built on the debris which had fallen forward from an earlier calcined rampart.

72 **Lot-et-Garonne, Agen**
Plateau de l'Ermitage
(Mommèja 1901)
Tentatively suggested as a *murus gallicus* on the basis of nails recovered from the site during excavations in the 1870s.

73 **Lozère, La Fage-Montivernoux**
Puy de la Fage
(de Lasteyrie 1883: 17–18; Raymond 1910: 2; *BSPF 10*, 1913, lists this site in Cantal)
Vitrified. de Lasteyrie notes that the rampart incorporated a horseshoe.

74 **Maine-et-Loire, Fief-Sauvin**
Le Camp de la Ségourie
(Wheeler and Richardson 1957: 202–3)
Early records indicate the presence of a *murus gallicus*.

75 **Maine-et-Loire, Saint-Hilaire-du-Bois**
La Grosse Motte de la Madeleine
(Desmazières 1933)
Vitrified or calcined enclosure for a motte.

76 **Manche, Le Petit Celland**
Le Châtellier
(Wheeler and Richardson 1957: 38–54; Collis 1975: 200)

Contour fort on a promontory, approximately 20ha in area, defended by a *murus gallicus*. Collis has suggested that a massive vertical timber, located behind the external wall-face in Wheeler's trench A (Wheeler and Richardson 1957: 41, pl.XVII), may represent part of a tower, or some such superstructure, associated with the *murus gallicus*. The approach to the eastern gate displays vertical timbers in Kelheim style.

77 **Manche, Saint-Jean-de-Savigny**
Le Grand Câtel
(Wheeler and Richardson 1957: 116)
Wheeler and Richardson, following *BSPF 13*, 1916, equate this site with the unlocated La Butte des Romains, Cérisy-la-Foret, which is also said to be vitrified. No evidence of vitrification was seen during the Wheeler expedition. Both Wheeler and P.-M. Duval (1959: 49) suggest that this 14ha promontory fort may have been defended by a *murus gallicus*.

78 **Mayenne, Loigné-sur-Mayenne**
Loigné
(Büchsenschütz, pers. comm.)
Vitrified.

79 **Mayenne, Saint-Jean-sur-Mayenne**
Château-Meignan
(Daubrée 1882; Raymond 1910: 3–4)
Vitrified.

80 **Mayenne, Sainte-Suzanne**
Camp Anglais/de la Motte
(Daubrée 1881; Triger 1907: 68–85; Raymond 1910: 2)
Vitrified.

81 **Meurthe-et-Moselle, Champigneulles**
La Fourasse
(Beaupré 1902: no. 6, plan; Raymond 1910: 31; Millotte 1965: 65)
Calcined.

82 **Meurthe-et-Moselle, Essey-lès-Nancy**
La Butte Sainte-Geneviève
(Beaupré 1902: no. 8, plan; Beaupré 1910; Millotte 1965: 77)
The rampart is calcined and shows evidence of timbers.

83 **Meurthe-et-Moselle, Messein**
Camp d'Afrique at Ludres
(Beaupré 1902: 71–4; Beaupré 1909: 381–4; Raymond 1910: 14)
The inner rampart of two is calcined. (Ludres is listed in the *Dictionnaire des Communes* as a *commune* in its own right.)

84 **Meuse, Naix-aux-Forges**
Boviolles/Mont-Chalet/Mont-Chaté
(Maxe-Werly 1877; Wheeler and Richardson 1957: 204–5)
Promontory site of approximately 50ha with *murus gallicus*.

85 **Morbihan, Bilgroix-en-Arzon**
Un-named site
(André 1959: 444)
Small rectangular camp, with evidence of Roman occupation, and evidence of transversal and longitudinal timbers from its enclosing wall. (Arzon is listed as the *commune* name in the *Dictionnaire des Communes*.)

86 **Moselle, Lessy**
Un-named site
(de la Noë 1892; Coutil 1909: 608)
Calcined. Totally destroyed.

87 **Nièvre, Lavault-de-Frétoy**
Le Fou de Verdun

(Olivier *et al.* 1969; Harbison 1971: 214–5)
An inland promontory fort with an elaborate defence consisting of a wooden *chevaux-de-frise*, a small ditch and a timber-laced rampart; the latter incorporated both horizontals and verticals, at least near the entrance. According to Harbison, the description of the defences as of Preist type is based on inadequate evidence. The defences have yielded three iron nails. Available dating evidence suggests use in late Hallstatt and late La Tène.

88 **Nièvre, La Machine**
Le Vieux Château de Barbarie
(Barré de Saint-Venant and Poussereau 1906; Raymond 1910: 12)
Vitrified. Apparently medieval.

89 **Nord, Avesnelles/Flaumont-Wandrechies**
Le Chatelet/Camp de César
(de la Noë 1887: 330; Déchelette 1902: 79; Wheeler and Richardson 1957: 132 and 209; Cotton 1961: 113; Collis 1975: 206–7)
Although both de la Noë and Déchelette cited this fortification as an example of *murus gallicus*, it seems safer to classify it as timber-laced, perhaps of Ehrang type.

90 **Oise, Gouvieux**
Camp de César
(Durvin 1962: 44–8)
Vitrified. No clear evidence to support Durvin's contention that the defence consisted of a *murus gallicus*.

91 **Orne, La Courbe**
Chateau Goutier/Les Pierres Brulées/Les Vieux Chateaux
(Daubrée 1881; Coutil 1909: 606–8; Raymond 1910: 2; Wheeler and Richardson 1957: 119)
Partially vitrified. Coutil mentions an iron nail adhering to a piece of vitrified material from this site.

92 **Puy-de Dome, Bourg-Lastic**
Un-named site
(Fournier 1961: 90; *Gallia 21*, 1963: 494)
Calcined. No pre-Roman finds.

93 **Puy de Dome, Chateauneuf-les-Bains**
Montagne de Villars
(Vimont and Pommerol 1884; Raymond 1910: 12)
Vitrified motte or tumulus.

94 **Haut Rhin, Hartmannwiller**
Enceinte de Fitzethanne
(Rupin 1893: 184)
Vitrified.

95 **Haut Rhin, Illfurth**
Britzgyberg
(*Gallia 32*, 1974: 368–9; Millotte 1976: 844, with plan)
The middle and late Hallstatt defences of this promontory fort incorporate a palisade and a timber-laced rampart, the latter apparently incorporating vertical timbers in the core of the wall material.

96 **Saône-et-Loire, Macon**
'Matisco'
(Barthélemy 1973)

Figure 14. Haute Vienne, Saint-Denis-des-Murs (site 106), from the south-east. The line of trees in the centre of the photograph covers the outermost defence, a *murus gallicus*, which crosses the plateau between the wooded valleys of the Vienne (left) and the Maulde (right, flooded), the confluence of which lies over 4km to the north-west and marks the other end of the oppidum (photograph O. Büchsenschütz).



Recently discovered *murus gallicus*, the main variant feature of which is the presence of vertical timbers in the rear wall-face.

97 **Saône-et-Loire, Saint-Léger-sous-Beuvray**
Mont-Beuvray/*'Bibracte'*
(Wheeler and Richardson 1957: 190–5)
The main departure from standard practice in the construction of the *murus gallicus* of this contour site is the possible presence of diagonal elements, as well as the usual transversals and longitudinals, in the timber framework of the wall. These were recorded by the earlier excavator, J.-G. Bulliot; his successor, Déchelette, was sceptical about the existence of this irregular feature, though he did not excavate in the defences of the site.

98 **Haute Saône, Bourguignon-lès-Morey**
Un-named site
(Bouillerot 1905)
Calcined.

99 **Haute Saône, Noroy-lès-Jussey**
Un-named site
(Bouillerot 1905)
Calcined.

100 **Var, Le Luc**
La Fouirette
(*Gallia* 25, 1967: 422; *Gallia* 27, 1969: 453–4; Dehn 1969: 166; Collis and Ralston 1976: 140)
One of three towers attached to the external face of a dry-stone wall has transversal and longitudinal timbers.

101 **Var, Le Muy**
Colle du Rouet
(*Gallia* 22, 1964: 595)
Evidence of vitrification from inner defence.

102 **Vienne, Aslonnes**
Camp-Allaric
(Pautreau 1976)
Promontory fort of 2ha, defended by a dry-stone wall erected after 610±110 bc (GIF-3008). Calcined material associated with this wall takes the form of a layer overlying tumble from the wall and has been attributed to the destruction of a settlement built against its inner face, though it seems possible to interpret it as collapse from a higher part of the wall.

103 **Vienne, Lussac-les-Chateaux**
Camp de Cornouin
(Delage 1935; Wheeler and Richardson 1957: 201–2)
Records of the discovery of iron spikes form the main evidence for suggesting that this promontory fort, of c.10ha, was defended by a *murus gallicus*.

104 **Vienne, Quinçay**
Sénéret
(Chauvet 1926: 13–21; Savory 1971b: 259; Tauvel 1973)
Calcined. The Hallstatt vehicle burial (Chauvet 1926; Joffroy 1958) lay just outside the camp.

105 **Haute Vienne, Dournazac**
Le Mont Brun
(Lecler 1883: 28–9; Cotton and Frere 1961: 45, lists this site in Corrèze)
Vitrified motte.

106 **Haute Vienne, Saint-Denis-des-Murs** (fig. 14)
Villejoubert/Camp de César
(Delage and Gorceix 1923; Wheeler and Richardson 1957: 189–90; Cotton and Frere 1961: 42–3)

Massive promontory fort of approximately 350ha, defended by a *murus gallicus*.

107 **Haute Vienne, Saint-Julien-le-Petit**
Rochein
(Dubois 1900)
Motte with vitrified stonework.

108 **Vosges, Etival-Clairefontaine**
La Pierre d'Appel
(*Gallia* 32, 1974: 361–2)
This 2.5ha site apparently has four phases of timber-laced defences from La Tène II through to the Augustan period. Much less use was made of wood in the final phase than previously.

109 **Vosges, Saint-Dié**
La Bure-Tête du Villé
(Tronquart 1976)
Promontory fort of 3.5ha, defended by a *murus gallicus* at its eastern end. This defence seems to have had two phases of construction, marked by a change of alignment in the northern sector.

110 **Yonne, Saint Florentin**
Mont Avrollo
(*Gallia* 32, 1974: 450–1; Collis 1975: 175; *Gallia* 34, 1976: 462)
Small promontory fort of 3ha, defended by a *murus gallicus*.

111 **Yonne, Saint-Moré**
Camp de Cora
(Raymond 1910: 2)
Calcined.

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Bibliography

Note Places of publication are given only for those works published outside the United Kingdom.

Adomnán, *Life* of Columba. See Anderson and Anderson, 1961.

Alcock, L., 1963. *Dinas Powys, an Iron Age, Dark Age and Early Medieval Settlement in Glamorgan.*

Alcock, L., 1965. 'Hillforts in Wales and the Marches', *Antiquity 39*: 184–95.

Alcock, L., 1971. *Arthur's Britain: History and Archaeology AD 367–634* (also Penguin Books 1972).

Alcock, L., 1972. *'By South Cadbury is that Camelot . . .' The Excavation of Cadbury Castle 1966–1970.*

Alcock, L., 1976. 'A multi-disciplinary chronology for Alt Clut, Castle Rock, Dumbarton', *PSAS 107*: 103–13.

Alcock, L., 1978. *'Her . . . gefeaht wiþWalas*: aspects of the warfare of Saxons and Britons', *Bull. Board of Celtic Studies 27*: 413–24.

Allcroft, A. H., 1908. *Earthwork of England.*

Allen, D. F., 1961. 'The origins of coinage in Britain: a re-appraisal', in Frere 1961: 97–308.

Allen, J. R. and Anderson, J., 1903. *The Early Christian Monuments of Scotland* (2 vols).

Anderson, A. O., 1922. *Early Sources of Scottish History AD 500 to 1286* (2 vols).

Anderson and Anderson, VC. Anderson, A. O. and Anderson, M. O. (ed. and trans.), 1961. *Adomnan's Life of Columba.*

Anderson, M. O., 1949. 'The Scottish materials in the Paris manuscript, Bib.Nat. Latin 4126', *Scottish Hist.Rev. 28*: 31–42.

Anderson, M. O., 1973. *Kings and Kingship in Early Scotland.*

André, J., 1959. 'Les enceintes quadrilatérales du Morbihan', *Ogam 11*: 441–54.

Anglo-Saxon Chronicle. See Earle and Plummer 1892, 1899.

Applebaum, S., 1934. 'An early iron age site at Holwell, Hertfordshire', *Ant.J.14*: 383–8.

Applebaum, S., 1949. 'Excavations at Wilbury Hill, an iron age hillfort near Letchworth, Hertfordshire, 1933', *Arch.J.106*: 12–45.

ApSimon, A. M., 1968. 'The bronze age pottery from the Ash Hole, Brixham, Devon', *Procs Devon Arch.Soc. 26*: 21–30.

ApSimon, A. M., Rahtz, P. A. and Harris, L. G., 1958. 'The iron age A ditch and pottery at Pagan's Hill, Chew Stoke', *Procs Univ. Bristol Spelaeological Soc. 8.ii*: 97–105.

Ashbee, P., 1960. *The Bronze Age Round Barrow in Britain.*

Ashbee, P., 1970. *The Earthen Long Barrow in Britain.*

Atkinson, R. J. C., 1956. *Stonehenge.*

Atkinson, R. J. C., 1972a. 'The demographic implications of fieldwork', in *Field Survey in British Archaeology*, ed. E. Fowler: 60–6.

Atkinson, R. J. C., 1972b. 'Burial and population in the British bronze age', in Lynch and Burgess 1972: 107–16.
Atkinson, R. J. C., Piggott, C. M. and Sandars, N., 1951. *Excavations at Dorchester on Thames*, I.
Autorde, F., 1907. 'Les forts vitrifiés de la Creuse: étude sur la structure des murs et l'origine des vitrifications', *Compte-rendu, Congrès Préhistorique de France* 3: 721–50.
Avery, M., 1976. 'Hillforts of the British Isles: a student's introduction', in Harding 1976a: 1–58 and 361–5.
Avery, M. and Close-Brooks, J., 1969. 'Shearplace Hill, Sydling St Nicholas, Dorset, House A: a suggested re-interpretation', *PPS* 35: 345–51.
Avery, M., Sutton, J. E. G. and Banks, J. W., 1967. 'Rainsborough, Northants., England: excavations 1961–5', *PPS* 33: 207–306.
Babes, M., 1974. *Das Gräberfeld von Les Jogasses* (Saarbrücker Beiträge zur Altertumskunde, Bd 13; Bonn).
Bamford, H., 1976. 'Briar Hill: first interim report', *Northants. Archaeol.* 11: 5–11.
Bannerman, J., 1974. *Studies in the History of Dalriada*.
Baring Gould, S., Burnard, R. and Anderson, I. K., 1900. 'Exploration of Moel Trigarn', *Arch. Camb.*, 5th ser., 17: 189–211.
Barker, H. and Mackey, J., 1963. 'British Museum natural radiocarbon measurements IV', *Radiocarbon* 5: 104–8.
Barker, P., 1970. 'Some aspects of the excavation of timber buildings', *World Archaeol.* 1: 220–35.
Barré de Saint-Venant, J. and Poussereau, L.-M., 1906. 'Les fouilles du Vieux Château de Barbarie, commune de la Machine, Nièvre', *BA* 24: 91–106.
Barrett, J. C., 1976. 'Deverel-Rimbury: problems of chronology and interpretation', in Burgess and Miket 1976: 289–307.
Barrett, J. C., 1978. 'The EPRIA prehistoric pottery', in Hedges and Buckley 1978: 268–88.
Barrett, J. C., 1979. 'Later bronze age pottery in southern Britain', *Current Archaeol.* 6: 230–1.
Barrière, P., 1933. 'Les oppida des Pétrucores', *RA*, 6th ser., 1: 13–23.
Barrow, G. W. S., 1973. *The Kingdom of the Scots*.
Barthélemy, A., 1973. 'L'oppidum de Matisco', *RAECE* 24: 307–18.
Barton, K., 1962. 'Settlements of the iron age and pagan Saxon periods at Linford, Essex', *Trans. Essex Arch. Soc.*, 3rd ser., 1: 57–104.
Beaupré, J., 1902. *Les études préhistoriques en Lorraine en 1899 à 1902 et aperçu sur les époques gallo-romaines et merovingiennes dans le Département de Meurthe-et-Moselle* (Nancy).
Beaupré, J., 1909. 'De l'emploi du double vallum dans la fortification préhistorique', *BSPF* 6: 381–8.
Beaupré, J., 1910. 'L'oppidum de Sainte-Geneviève, Essey-lès-Nancy', *Mémoires de la Soc. Archéologique de la Lorraine*: 265–90.
Bede, *Ecclesiastical History*. See Colgrave and Mynors 1969.
Benoit, F., 1975. 'The Celtic oppidum of Entremont, France', in Bruce-Mitford 1975: 227–59.
Benson, D. and Miles, D., 1974. *The Upper Thames Valley – An Archaeological Survey of the River Gravels*.
Bersu, G., 1940. 'Excavations at Little Woodbury, Wiltshire. Part I: The settlement as revealed by excavation', *PPS* 6: 30–111.
Besset, F. and Périchon, R., 1964. 'Contribution à l'étude des quelques sites fortifiés du Département de la Loire', *Celticum* 9: 63–75.
Biddle, M., 1965. 'Excavations at Winchester, 1964. Third interim report', *Ant. J.* 45: 230–64.
Biddle, M., 1972. 'Excavations at Winchester, 1970', *Ant. J.* 52: 93–131.
Birchall, A., 1965. 'The Aylesford-Swarling Culture: the problem of the Belgae recon-

sidered', *PPS 31*: 241–367.
Birley, E., Dobson, B. and Jarrett, M. (eds), 1974. *Roman Frontier Studies 1969: 8th International Congress of Limesforschung*.
Bishop, M. W., 1971. 'The non-Belgic iron age in Surrey', *SyAC 68*: 1–30.
Boardman, J., Brown, M. A. and Powell, T. G. E. (eds), 1971. *The European Community in Later Prehistory: studies in honour of C. F. C. Hawkes*.
Bocquet, A., 1976. 'Les civilisations de l'âge du bronze dans les Alpes', in Guilaine 1976: II, 483–94.
Bombal, E., 1906. 'Rapport sur les fouilles operées au Puy-du-Tour, commune de Monçeaux (Corrèze) en . . . 1906', *Bull. de la Soc. des Lettres, Sciences et Arts de la Corrèze 28*: 405–19.
Bonnamour, L., Mordant, C. and Nicolardot, J.-P., 1976. 'Les civilisations de l'âge du bronze en Alsace', in Guilaine 1976: II, 601–17.
Boon, G. C., 1975. Review of Birley *et al.* 1974, *Arch. Camb. 124*: 117–20.
Bosch-Gimpera, P., 1939. 'Two Celtic waves in Spain', *Procs British Academy 26*: 25–148, plus maps and plates.
Boserup, E., 1965. *The Conditions of Economic Growth*.
Boudou, J., Arnal, J. and Soutou, A., 1961. 'La céramique incisée à méandres symmétriques du Pont du Diable (Aniane, Hérault)', *Gallia 19*: 201–18.
Bouillerot, R., 1905. 'Quelques notes sur des camps de construction néolithique dans la vallée de la Saône supérieure', *Bull. de la Soc. Grayloise d'Emulation 8*: 115–32.
Bouttet, S., 1910. 'Les enceintes vitrifiées du Département de la Loire', *Revue préhistorique, annales de palethnologie*.
Bowen, H. C., 1975. 'Air photography and the development of the landscape in central parts of southern England', in *Aerial Reconnaissance for Archaeology*, ed. D. R. Wilson: 103–18.
Bradford, J. S. P., 1942a. 'An early iron age site on Blewburton Hill, Berkshire', *Berks. Arch. J. 46*: 97–104.
Bradford, J. S. P., 1942b. 'An early iron age site at Allen's Pit, Dorchester', *Oxoniensia 7*: 36–60.
Bradley, R., 1971. 'Economic change in the growth of early hill-forts', in Hill and Jesson 1971: 71–83.
Bradley, R., 1978. *The Prehistoric Settlement of Britain*.
Bradley, R. and Ellison, A., 1975. *Rams Hill – a Bronze Age Defended Enclosure and its Landscape*, BAR 19.
Bradley, R. and Richards, J., 1978. 'Prehistoric fields and boundaries on the Berkshire Downs', in *Early Land Allotment in the British Isles*, ed. H. C. Bowen and P. J. Fowler, BAR 48: 53–60.
Bradley, R. and Richards, J., forthcoming. 'The excavation of two ring-ditches at Heron's House, Burghfield, Berkshire', *Berks. Arch. J.*
Brailsford, J. and Jackson, J. W., 1948. 'Excavations at Little Woodbury, Wiltshire (1938–39), Part II and Part III', *PPS 14*: 1–23.
Branigan, K., 1977. *Gatcombe: the excavation and study of a Romano-British villa estate, 1967–76*, BAR 44.
Bretz-Mahler, D., 1961. 'Musée d'Épernay: catalogue de la céramique des cimetières de l'époque de La Tène I', *Mémoires de la Soc. d'Agriculture, Commerces, Sciences et Arts de la Marne* (Châlons-sur-Marne) 76: 7–60.
Bretz-Mahler, D., 1971. 'La Civilisation de La Tène I en Champagne: le faciès Marnier', *Gallia*, 23rd suppl.
Brewster, T. C. M., 1963. *The Excavation of Staple Howe* (East Riding Archaeological Research Committee).
Brisson, A. and Hatt, J.-J., 1953. 'Les nécropoles hallstattiennes d'Aulnay-aux-Planches (Marne)', *RAECE 4*: 193–233.
Brisson, A. and Hatt, J.-J., 1966. 'Fonds de cabanes de l'âge du bronze final et du premier âge du fer en Champagne', *RAECE 17*: 165–97.

Brisson, A. and Hatt, J.-J., 1967. 'Fonds de cabanes de l'âge du bronze final et du premier âge du fer en Champagne (suite et fin)', *RAECE 18*:7–51.
Britton, D., 1968. 'The bronzes', in Cotton and Frere 1968: 204–13.
Brogan, O. and Frere, S. S., 1958. 'Camp du Charlat, Corrèze', *Ant. J. 38*: 218–22.
Brothwell, D. R., Bishop, A. C. and Woolley, A. R., 1974. 'Vitrified forts in Scotland: a problem in interpretation and primitive technology', *J. Arch. Science 1*: 101–7.
Bruce-Mitford, R. (ed.), 1975. *Recent Archaeological Excavations in Europe*.
Büchsenschütz, O. E., 1971. 'État de la recherche sur les oppida en France, particulièrement dans le Centre', *Archeologické Rozhledy 23*: 406–16.
Büchsenschütz, O. E., Dorion, J. and Querrien, A., 1975. 'Pour une carte archéologique de la France', *RA*: 319–32.
Büchsenschütz, O. E. and Ralston, I. B. M., 1975. 'Découverte d'un murus gallicus à Levroux (Indre)', *Gallia 33*: 27–48.
Burchell, J. P. T. and Frere, S. S., 1947. 'The occupation of Sandown Park, Esher', *Ant. J. 27*: 24–46.
Burgess, C., 1968. 'The later bronze age in the British Isles and north-western France', *Arch. J. 125*: 1–45.
Burgess, C. 1974. 'The bronze age', in Renfrew 1974: 165–232.
Burgess, C., 1979. 'A find from Boyton, Suffolk, and the end of the bronze age in Britain and Ireland', in Burgess and Coombs 1979: 269–83.
Burgess, C. and Coombs, D. (eds), 1979. *Bronze Age Hoards: some finds old and new*, BAR 67.
Burgess, C. and Miket, R. (eds), 1976. *Settlement and Economy in the Third and Second Millennia BC*, BAR 33.
Burrow, I. C. G., 1974. 'Possible Irish earthworks in Somerset', *Procs Royal Irish Academy 76c*: 228–9.
Burrow, I. C. G., 1976. 'Brean Down hillfort 1974', *Procs Univ. Bristol Spelaeological Soc. 14.ii*: 141–54.
Burrow, I. C. G., 1979a. 'Roman material from hillforts', in *The End of Roman Britain*, ed. P. J. Casey, BAR 71: 212–29.
Burrow, I. C. G., 1979b. 'Aspects of hillfort and hilltop settlement in Somerset, AD 0–700' (Ph.D. thesis, University of Birmingham).
Burstow, G. P. and Holleyman, G. A., 1957. 'Late bronze age settlement on Itford Hill, Sussex', *PPS 23*: 167–212.
Bushe-Fox, J. P., 1915. *Excavations at Hengistbury Head, Hampshire, in 1911–1912* (Society of Antiquaries of London, Research Report 3).
Calkin, J. B., 1947. 'Romano-British jugs from Gallows Gore, Worth Matravers', *PDNHAS 69*: 42–4.
Calkin, J. B., 1948. 'The Isle of Purbeck in the iron age', *PDNHAS 70*: 29–59.
Calkin, J. B., 1951. 'Prehistoric Pokesdown', *Procs Bournemouth Nat. Science Soc. 40*: 79–89.
Calkin, J. B., 1953. 'Kimmeridge coal money', *PDNHAS 75*: 45–71.
Calkin, J. B., 1962. 'The Bournemouth area in the middle and late bronze age, with the "Deverel-Rimbury" problem reconsidered', *Arch.J. 119*: 1–65.
Calkin, J. B. and Piggott, C. M., 1939. 'Iron age "A" habitation site at Langton Matravers', *PDNHAS 60*: 66–72.
Callander, J. G., 1919. 'Notes on the Roman remains at Grassy Walls and Bertha, near Perth', *PSAS 53*: 137–52.
Callow, W. J., Baker, M. J. and Hassall, G. I., 1966. 'National Physical Laboratory radiocarbon measurements IV', *Radiocarbon 8*: 340–7.
Callow, W. J., Baker, M. J. and Pritchard, D. H., 1963. 'National Physical Laboratory radiocarbon measurements I', *Radiocarbon 5*: 34–8.
Callow, W. J. and Hassall, G. I., 1968. 'National Physical Laboratory radiocarbon measurements V', *Radiocarbon 10*: 115–18.
Campbell, J., 1979. 'Bede's words for places', in *Names, Words and Graves: early medieval*

settlement, ed. P. H. Sawyer: 34–54.
Campbell, J. A., Baxter, M. S. and Alcock, L., 1979. 'Radiocarbon dates for the Cadbury massacre', *Antiquity 53*: 31–8.
Campbell, J. A., Baxter, M. S. and Harkness, D. D., 1978. 'Radiocarbon measurements on a floating tree-ring chronology from North-East Scotland', *Archaeometry 20*: 33–8.
Capitan, A., 1913. 'Bègues, Allier', *BA 31*: cli-clii.
Capitan, A., 1915. 'Bègues, Allier', *BA 33*: lx-lxiii.
Capitan, A., 1916. 'Bègues, Allier', *BA 34*: lxxxiv-xcii.
Case, H., 1963. 'Notes on finds and ring ditches in the Oxford region', *Oxoniensia 28*: 19–52.
Case, H., Bayne, N., Steele, S., Avery, G. and Sutermeister, H., 1965. 'Excavations at City Farm, Hanborough, Oxon.', *Oxoniensia 29*: 1–98.
Casey, J., 1971. 'Excavations at Brecon Gaer, 1970', *Arch. Camb. 120*: 91–101.
Casselberry, S. E., 1974. 'Further refinement of formulae for determining population from floor area', *World Archaeol. 6*: 117–22.
Castagné, M., 1874. 'Mémoire sur les ouvrages de fortification des oppidum gaulois de Murcens, d'Uxellodunum et de l'Impernal (Luzech) situés dans le Département du Lot', *Congrès Archéologique de France 41*: 427–538.
Catherall, P. D., 1971. 'Henges in perspective', *Arch. J. 128*: 147–53.
de Cessac, P., 1867. *Rapport sur les fouilles exécutées dans les buttes de la Tour-Saint-Austrille* (Paris).
de Cessac, P., 1878. 'L'Oppidum du Puy-de-Gaudy près Guéret (Creuse) et sa muraille vitrifiée', *Mémoires XLII Session Congrès Scientifique de France* (Autun).
Chadwick, H. M. 1949. *Early Scotland. The Picts, the Scots and the Welsh of southern Scotland*.
Chadwick, S., 1961. 'Longbridge Deverill Cow Down', in Frere 1961: 18–20.
Challis, A. J. and Harding, D. W., 1975. *Later Prehistory from the Trent to the Tyne* (2 vols) BAR 20.i and 20.ii.
Champion, T. C., 1975. 'Britain in the European iron age', *Archaeologia Atlantica 1*: 127–45.
Champion, T. C., 1977. 'Some decorated iron age pottery from Chinnor', *Ant. J. 57*: 91–3 and 98.
Chauvet, G., 1926. 'Deux sépultures à char en Poitou', *BA 44*: 1–23.
Chertier, B., 1973. 'Les gobelets de La Tene I du Musée Archéologique de Châlons-sur-Marne', *Celticum 13*: 552–70.
Chertier, B., 1976. 'Les Nécropoles de la civilisation des champs d'urnes dans la région des Marais de St-Gond (Marne)', *Gallia préhistoire*, 7th suppl.
Childe, V. G., 1948. 'The final bronze age in the Near East and Temperate Europe', *PPS 14*: 177–95.
Chisholm, M., 1962. *Rural Settlement and Land Use*.
Christison, D., 1894. 'The prehistoric fortresses of Treceiri, Carnarvon; and Eildon, Roxburgh', *PSAS 28*: 100–19.
Christison, D., 1898. *Early Fortifications in Scotland, Motes, Camps and Forts*.
Christison, D., 1900. 'The forts, "camps", and other field-works of Perth, Forfar, and Kincardine', *PSAS 34*: 43–120.
Christison, D., 1905. 'Report on the Society's excavations of forts on the Poltalloch Estate, Argyll, in 1904–5', *PSAS 39*: 259–322.
Clark, J. G. D., 1936. 'The timber monument at Arminghall and its affinities', *PPS 2*: 1–51.
Clark, J. G. D. and Fell, C. I., 1953. 'The early iron age site at Micklemoor Hill, West Harling, Norfolk, and its pottery', *PPS 19*: 1–40.
Clark, R. M., 1975. 'A calibration curve for radiocarbon dates', *Antiquity 49*: 251–66.
Close-Brooks, J., 1968. 'Considerazioni sulla chronologia delle facies arcaiche dell Etruria', *Studi Etruschi 35*: 323–9.

Coles, J. M., 1973. *Archaeology by Experiment*.
Coles, J. M. and Jones, R. A., 1975. 'Timber and radiocarbon dates', *Antiquity 49*: 123–5.
Colgrave, V W. Colgrave, B. (ed. and trans.), 1927. *The Life of Bishop Wilfrid by Eddius Stephanus*.
Colgrave and Mynors, HE. Colgrave, B. and Mynors, R. A. (ed. and trans.), 1969. *Bede's Ecclesiastical History of the English People*.
Collinson, J., 1791. *History and Antiquities of the County of Somerset*, III.
Collis, J. R., 1971. 'Functional and theoretical interpretations of British coinage', *World Archaeol. 3*: 71–84.
Collis, J. R., 1975. *Defended Sites of the Late La Tène in Central and Western Europe*, BAR S2.
Collis, J. R. (ed.), 1977a. *The Iron Age in Britain – a Review*.
Collis, J. R., 1977b. 'An approach to the iron age', in Collis 1977a: 1–7.
Collis, J. R., forthcoming. *Oppida: earliest towns in temperate Europe*.
Collis, J. R. and Ralston, I. B. M., 1976. 'Late La Tène defences', *Germania 54*: 135–46.
Cordier, G., 1972. 'I. Étude archéologique', in Cordier *et al.* 1972: 31–92.
Cordier, G., Riquet, R., Brabant, H. and Poulain, Th., 1972. 'Le site archéologique du dolmen de Villaine à Sublaines (Indre-et-Loire): première partie (néolithique, âge du bronze)', *Gallia préhistoire 15*: 31–135.
Cornwall, I. W., 1953. 'Soil science and archaeology with illustrations from some British bronze age monuments', *PPS 19*: 129–47.
Cotton, M. A., 1961. 'Relationships between iron age earthworks in France and England', *Celticum 1*: 99–113.
Cotton, M. A. and Frere, S. S., 1961. 'Enceintes de l'âge du fer au pays des Lémovices', *Gallia 19*: 31–54.
Cotton, M. A. and Frere, S. S., 1968. 'Ivinghoe Beacon excavations, 1963–65', *Records of Bucks. 18*: 187–260.
Coutil, L., 1909. 'Essai d'inventaire des mottes et enceintes du Département de l'Orne', *Compte-rendu, Congrès Préhistorique de France 5*: 599–620.
Cowen, J. D., 1951. 'The earliest bronze swords in Britain and their origins on the Continent', *PPS 17*: 195–213.
Cowen, J. D., 1955. 'Eine Einfuhrung in die Geschichte der bronzenen Griffzungenschwerter in Süddeutschland und den angrenzenden Gebieten', *36. Bericht der Römisch-Germanischen Kommission*: 52–155.
Cramp, R., 1976. 'Monastic sites', in *The Archaeology of Anglo-Saxon England*, ed. D. M. Wilson: 201–52.
Craw, J. H., 1930. 'Excavations at Dunadd and at other sites on the Poltalloch Estates, Argyll', *PSAS 64*: 111–46.
Crawford, I. and Switsur, R., 1977. 'Sandscaping and C14: the Udal, N. Uist', *Antiquity 51*: 124–36.
Crawford, O. G. S., 1934. 'Coludes Burh', *Antiquity 8*: 202–4.
Crawford, O. G. S., 1949. *Topography of Roman Scotland*.
Crumley, C. L., 1974. 'Celtic social structure: the generation of archaeologically testable hypotheses from literary evidence', *Museum of Anthropology, Univ. of Michigan, Anthropological Papers 54* (Ann Arbor).
Cunliffe, B. W., 1964. *Winchester Excavations 1949–60*: I (City of Winchester Libraries and Museums Committee).
Cunliffe, B. W., 1966. 'Stoke Clump, Hollingbury and the early pre-Roman iron age in Sussex', *SAC 104*: 109–20.
Cunliffe, B. W., 1968. 'Early pre-Roman iron age communities in eastern England', *Ant. J. 48*: 175–91.
Cunliffe, B. W., 1971. 'Some aspects of hill-forts and their cultural environments', in Hill and Jesson 1971: 53–69.
Cunliffe, B. W., 1974a. *Iron Age Communities in Britain* (1974; rev.edn 1978).

Cunliffe, B. W., 1974b. 'The iron age', in Renfrew 1974: 233–62.
Cunliffe, B. W., 1976a. *Iron Age Sites in Central Southern England* (CBA Research Report 16).
Cunliffe, B. W., 1976b. 'Hill-forts and oppida in Britain', in *Problems in Economic and Social Archaeology*, ed. G. de G. Sieveking, I. H. Longworth and K. E. Wilson: 343–58.
Cunliffe, B. W., 1976c. 'The origins of urbanisation in Britain', in Cunliffe and Rowley 1976: 135–61.
Cunliffe, B. W., 1976d. 'Danebury, Hampshire: second interim report on the excavations 1971–5', *Ant. J. 56*: 198–216.
Cunliffe, B. W., 1977. 'The iron age: a viewpoint', in Collis 1977a: 62.
Cunliffe, B. W., 1978. 'Settlement and population in the British iron age: some facts, figures and fantasies', in *Lowland Iron Age Communities in Europe*, ed. B. W. Cunliffe and T. Rowley, BAR S48: 3–24.
Cunliffe, B. W. and Phillipson, D. W., 1968. 'Excavations at Eldon's Seat, Encombe, Dorset, England', *PPS 34*: 191–237.
Cunliffe, B. W. and Rowley, T. (eds.), 1976. *Oppida in Barbarian Europe*, BAR S11.
Cunnington, M. E., 1911. 'Knap Hill Camp', *WAM 37*: 42–65.
Cunnington, M. E., 1917. 'Lidbury Camp', *WAM 40*: 12–36.
Cunnington, M. E., 1923. *The Early Iron Age Inhabited Site at All Cannings Cross Farm, Wiltshire.*
Cunnington, M. E., 1929. *Woodhenge.*
Cunnington, M. E. and Goddard, E. H., 1934. *Catalogue of Antiquities in the Museum . . . at Devizes* (Wiltshire Archaeological Society, 2nd edn 1934).
Curle, A. O., 1914. 'Report on the excavations . . . of . . . the Mote of Mark', *PSAS 48*: 125–68.
Curwen, E. and Hawkes, C. F. C., 1931. 'Prehistoric remains from Kingston Buci', *SAC 72*: 185–217.
Curwen, E. C., 1929. 'Excavations in the Trundle, Goodwood, 1928', *SAC 70*: 33–85.
Curwen, E. C., 1931. 'Excavations in the Trundle', *SAC 72*: 100–50.
Curwen, E. C., 1932. 'Excavations at Hollingbury Camp, Sussex', *Ant. J. 12*: 1–16.
Curwen, E. C., 1934. 'Excavations in Whitehawk neolithic camp, Brighton, 1932–3', *Ant. J. 14*: 99–133.
Curwen, E. C., 1954. *The Archaeology of Sussex* (2nd edn.).
Damon, P. E., Ferguson, C. W., Long, A. and Wallick, E. I., 1974. 'Dendrochronologic calibration of the radiocarbon time-scale', *American Antiquity 39*: 350–66.
Daubrée, A., 1881. 'Examen minéralogique et chimique de matériaux provenant de quelques forts vitrifiés de la France, conclusions qui en résulte', *RA*, 2nd ser., *41*: 18–28.
Daubrée, A., 1882. 'Examen des matériaux des forts vitrifiés de Château-Meignan (Mayenne) et de Puy-de-Gaudy (Creuse), *RA*, 2nd ser., *43*: 275–8.
Daugas, J.-P. and Pétrequin, P., 1970. 'Nouvelles considérations sur la céramique à cannelures en Franche-Comté à l'âge du bronze final', *RAECE 21*: 393–410.
Davies, H., 1936. 'The shale industries at Kimmeridge, Dorset', *Arch. J. 93*: 200–19.
Dayet, M., 1967. 'Recherches archéologiques au "Camp du Château", Salins, 1955–9', *RAECE 18*: 52–106.
Déchelette, J., 1902. 'Note sur l'oppidum de Bibracte et les principales stations gauloises contemporaines', *L'Anthropologie 13*: 74–83.
Déchelette, J., 1913. *Manuel d'archéologie préhistorique, celtique et gallo-romaine*, II pt 2: *Premier âge du fer ou époque de Hallstatt* (Paris).
Dehn, W., 1960. 'Einige Bemerkungen zum Murus Gallicus', *Germania 38*: 43–55.
Dehn, W., 1969. 'Noch einmal zum Murus Gallicus', *Germania 47*: 165–8.
Dehn, W. and Frey, O.-H., 1962. 'Die Absolute Chronologie der Hallstatt-und-Frühlatenezeit Mitteleuropas auf Gründ des Südimports', *Atti dèl 6 Congr. Internat. Sci. Prehist. e Protohist.* (Rome), I.

Delage, F., 1935. 'Le Camp de Cornouin, Vienne', *BSPF* 32: 386–97.
Delage, F. and Gorceix, C., 1923. 'L'Oppidum de Villejoubert, commune de Saint-Denis-des-Murs, Haute-Vienne', *BSPF* 20: 208–28.
Denyer, S., 1978. *African Traditional Architecture.*
Desittere, M., 1968. *De Urnenveldenkultuur in het Gebied tussen Nieder-Rijn en Noordzee* (Dissertationes Archaeologicae Gandenses, XI).
Desmazières, O., 1933. 'La Grosse Motte de Sainte-Hilaire-du-Bois et son enceinte calcinée', *BSPF* 30: 114–15.
Dixon, P. W., 1973. *Crickley Hill. Fifth Report* (Gloucestershire College of Art and Design).
Drewett, P., 1977. 'The excavation of a neolithic causewayed enclosure at Offham Hill, East Sussex, 1976', *PPS* 43: 201–42.
Drioton, C., 1905. 'Contribution à l'étude de la fortification antique dans l'arrondissement de Dijon', *Revue préhistorique illustrée de l'Est de la France* 1: 4–8 and 50–6.
Dubois, J., 1900. 'Monographie du Canton d'Eymoutiers', *Bull. Soc. Archéologique et Historique de Limousin* 46: 299–300.
Dumoutet, J., 1863. *Fouilles des caves du palais du Duc Jean de Berry* (Paris).
Dumville, D. N., 1977. 'On the North British section of the *Historia Brittonum*', *Welsh History Rev.* 8: 345–54.
Dumville, D. N., 1978. 'Palaeographical considerations in the dating of early Welsh verse', *Bull. Board of Celtic Studies* 27: 246–51.
Duncan, A. A. M., 1975. *Scotland, the Making of the Kingdom* (Edinburgh History of Scotland, I).
Durvin, P., 1962. 'A propos de quelques oppida du pays des Bellovaques', *Celticum* 3: 37–55.
Duval, A., 1970. 'Les pointes de flèche d'Alésia au Musée des Antiquités Nationales', *Antiquités Nationales* 2: 35–51.
Duval, P.-M., 1959. 'Une enquête sur les enceintes gauloises de l'Ouest et du Nord', *Gallia* 17: 37–62.
Duval, P.-M. and Kruta, V. (eds), 1975. *L'Habitat et la nécropole à l'âge du fer en Europe occidentale et centrale* (Paris).
Dyer, J. F., 1976. 'Ravensburgh Castle, Hertfordshire', in Harding 1976a: 153–61 and 421–3.
Earle, J. and Plummer, C. (eds), 1892, 1899. *Two of the Saxon Chronicles Parallel* (2 vols.)
Edeine, B., 1966. 'Le rempart de l'éperon barré de la Brèche-au-Diable (dit aussi du Mont-Joly) commune de Soumont-Saint-Quentin (Calvados)', *Gallia préhistoire* 10: 247–62.
Ellison, A., 1972. 'The bronze age pottery', in Holden 1972: 104–13.
Ellison, A. and Drewett, P., 1971. 'Pits and post-holes in the British early iron age: some alternative explanations', *PPS* 37.*i*: 183–94.
Fairhurst, H., 1939. 'The galleried dùn at Kildonan Bay, Kintyre', *PSAS* 73: 185–228.
Favret, P.-M., 1936. 'Les nécropoles des Jogasses à Chouilly (Marne)', *Préhistoire* 5: 24–119.
Feachem, R. W., 1955. 'Fortifications', in Wainwright F.T. 1955a: 66–86.
Feachem, R. W., 1956. 'The fortifications of Traprain Law', *PSAS* 89: 284–9.
Feachem, R. W., 1961. 'Unenclosed platform settlements', *PSAS* 94: 79–85.
Feachem, R. W., 1966. 'The hill-forts of northern Britain', in Rivet 1966: 59–87.
Fell, C. I., 1952. 'An early iron age settlement at Linton, Cambs.', *Procs Cambridge Ant. Soc.* 46: 31–42.
Feuvrier, J., 1913. 'Les enceintes et défenses préhistoriques et anhistoriques de la région de Dole', *Compte-rendu, Congrès Préhistorique de France* 9: 686–768.
Forde, C. D., Griffiths, W. E., Hogg, A. H. A. and Houlder, C. H., 1963. 'Excavations at Pen Dinas, Aberystwyth', *Arch. Camb.* 112: 125–53.
Forde-Johnston, J., 1976. *Hillforts of the Iron Age in England and Wales: a survey of the surface evidence.*

Fournier, G., 1961. 'Les enceintes en terre en Auvergne', *Bull. historique et scientifique de l'Auvergne 81*: 89–110.
Fowler, P. J., 1967. 'The archaeology of Fyfield and Overton Downs, Wiltshire: third interim report', *WAM 62*: 16–33.
Fowler, P. J., 1971. 'Hill-forts, AD 400–700', in Hill and Jesson 1971: 203–13.
Fowler, P. J., Gardner, K. S. and Rahtz, P. A., 1970. *Cadbury Congresbury, Somerset, 1968* (Dept of Extra-Mural Studies, University of Bristol).
Fox, A., 1961. 'South-western hill-forts', in Frere 1961: 35–60.
Fox, A. and Fox, C., 1960. 'Wansdyke reconsidered', *Arch. J. 115*: 1–48.
Fox, C., 1923. *The Archaeology of the Cambridge Region*.
Fox, C., 1955. *Offa's Dyke*.
Frere, S. S. (ed.), 1961. *Problems of the Iron Age in Southern Britain* (University of London Institute of Archaeology, Occasional Paper no. 11).
Gardner, W. and Savory, H. N., 1964. *Dinorben. A hill-fort occupied in early iron age and Roman times*.
Gates, T., 1975. *The Middle Thames Valley – an Archaeological Survey of the River Gravels*.
Giot, P. R. and Briard, J., 1969. 'Les retranchements du Cap d'Erquy: fouilles de 1968 au Fossé de Pleine-Garenne', *Annales de Bretagne 76*: 21–36.
Giot, P. R., Briard, J. and Avery, M., 1968. 'Les retranchements du Cap d'Erquy: fouilles de 1967 du Fossé Catuélan', *Annales de Bretagne 75*: 67–84.
Gourvest, J., 1961. 'L'Oppidum de Castillon, Calvados: première campagne de fouilles', *Annales de Normandie 11*: 99–103.
Goury, G., 1911. *L'Enceinte d'Haulzy et sa nécropole* (Nancy; Les Étapes de l'Humanité, 1, fasc. 2).
Graff, Y., 1963. 'Oppida et castella du pays des Belges', *Celticum 8*.
Graham, A., 1951. 'Archaeological gleanings from dark-age records', *PSAS 85*: 64–91.
Graham, A., 1959. 'Giudi', *Antiquity 33*: 63–5.
Graham-Campbell, J. A., 1976. 'The Viking-age silver and gold hoards of Scandinavian character from Scotland', *PSAS 107*: 114–35.
Gransden, A., 1974. *Historical Writing in England c. 550–c. 1307*.
Gray, H. St G., 1930. 'Excavations at Kingsdown Camp, near Mells, Somerset', *Archaeologia 80*: 59–96.
Green, H. S., 1974. 'Early bronze age burial, territory and population in Milton Keynes, Buckinghamshire, and the Great Ouse Valley', *Arch. J. 131*: 75–139.
Guilaine, J. (ed.), 1976. *La Préhistoire française* (Paris; Centre National de la Recherche Scientifique; 2 vols).
Guilbert, G. C., 1975a. 'Planned hillfort interiors', *PPS 41*: 203–21.
Guilbert, G. C., 1975b. 'Moel y Gaer, 1973: an area excavation on the defences', *Antiquity 49*: 109–17.
Guilbert, G. C., 1976. 'Moel y Gaer (Rhosesmor) 1972–1973: an area excavation in the interior', in Harding 1976a: 303–17 and 465–73.
Guilbert, G. C., 1977. 'The northern Welsh Marches: some recent developments', in Collis 1977a: 41–50.
Guilbert, G. C., 1978. 'Dinorben 1977–8', *Current Archaeol. 6*: 182–8.
Guyot, E., 1964. 'Découverte des époques d'édification et de transformation d'un éperon en Côte d'Or', *Celticum 9*: 95–102.
Harbison, P., 1971. 'Wooden and stone chevaux-de-frise in central and western Europe', *PPS 37.i*: 195–225.
Harden, D. B. (ed.), 1956a. *Dark-Age Britain*.
Harden, D. B., 1956b. 'Glass vessels in Britain and Ireland, AD 400–1000', in Harden 1956a: 132–67.
Harding, D. W., 1966. 'The pottery from Kirtlington, and its implications for the chronology of the earliest iron age in the Upper Thames Basin', *Oxoniensia 31*: 157–61.

Harding, D. W., 1972. *The Iron Age in the Upper Thames Basin.*
Harding, D. W., 1974. *The Iron Age in Lowland Britain.*
Harding, D. W. (ed.), 1976a. *Hillforts: later prehistoric earthworks in Britain and Ireland.*
Harding, D. W., 1976b. 'Blewburton Hill, Berkshire: re-excavation and reappraisal', in Harding 1976a: 133–46 and 408–13.
Harding, D. W. and Blake, I. M., 1963. 'An early iron age settlement in Dorset', *Antiquity 37*: 63–4.
Hardy, M., 1882. 'Le Camp-refuge à murailles vitrifiées de Castel-Sarrazi (Dordogne)', *Bull. de la Soc. Historique et Archéologique du Périgord 9*: 101–11.
Harris, M., 1975. *Culture, People, Nature* (New York).
Hartley, B. R., 1957. 'The Wandlebury iron age hill-fort, excavations of 1955–6', *Procs Cambridge Ant. Soc. 50*: 1–27.
Hatt, J.-J., 1941. 'Quelques objets de La Tène III trouvés au Puy-du-Tour près d'Argentat (Corrèze)', *Bull. de la Soc. Scientifique, Historique et Archéologique de la Corrèze 83*: 13–27.
Hatt, J.-J., 1955a. 'Chronique de protohistoire I', *BSPF 52*: 96–100.
Hatt, J.-J., 1955b. 'Chronique de protohistoire II', *BSPF 52*: 397–400.
Hatt, J.-J., 1956. 'Chronique de protohistoire III', *BSPF 53*: 434–45.
Hatt, J.-J., 1959. 'Chronique de protohistoire IV', *BSPF 55*: 304–6.
Hatt, J.-J., 1961. 'Chronique de protohistoire V', *BSPF 58*: 184–95.
Hatt, J.-J., 1976. 'Les fouilles du Pègue (Drome) de 1957 à 1975', *Gallia 34*: 31–56.
Hatt, J.-J. and Roualet, P., 1976. 'Le cimetière des Jogasses en Champagne et les origines de la civilisation de La Tène', *RAECE 27*: 421–48 and pls 1–57.
Hatt, J.-J. and Roualet, P., 1977. 'La chronologie de La Tène en Champagne', *RAECE 28*: 7–36.
Hawkes, C. F. C., 1931. 'Hillforts', *Antiquity 5*: 60–97.
Hawkes, C. F. C., 1934. 'The pottery', in Stevens 1934: 598–606.
Hawkes, C. F. C., 1940. 'The Marnian pottery and La Tène I brooch from Worth, Kent', *Ant. J. 20*: 115–21.
Hawkes, C. F. C., 1947. 'Britons, Romans and Saxons round Salisbury and in Cranborne Chase', *Arch. J. 104*: 27–81.
Hawkes, C. F. C., 1948. 'From bronze age to iron age: Middle Europe, Italy, the North and West', *PPS 14*: 196–218.
Hawkes, C. F. C., 1961. 'The ABC of the British iron age', in Frere 1961: 1–16.
Hawkes, C. F. C., 1962. 'Early iron age pottery from Linford, Essex', in Barton 1962: 83–7.
Hawkes, C. F. C., 1971. 'Fence, wall, dump, from Troy to Hod', in Hill and Jesson 1971: 5–18.
Hawkes, C. F. C., 1973a. '"Cumulative Celticity" in pre-Roman Britain', *Études celtiques 13*: 607–28.
Hawkes, C. F. C., 1973b. 'Innocence retrieval in archaeology', *Antiquity 47*: 176–8.
Hawkes, C. F. C. and Fell, C. I., 1943. 'The early iron age settlement at Fengate, Peterborough', *Arch. J. 100*: 188–223.
Hawkes, C. F. C., Myres, J. N. L. and Stevens, C. G., 1930. 'Saint Catharine's Hill, Winchester', *PHFCAS 11*.
Hawkes, C. F. C. and Smith, M. A., 1957. 'On some buckets and cauldrons of the bronze and early iron ages', *Ant. J. 37*: 131–98.
Hawkes, S. C. and Gray, M., 1969. 'Preliminary note on the early Anglo-Saxon settlement at New Wintles Farm, Eynsham', *Oxoniensia 34*: 1–4.
Hayes, J. W., 1972. *Late Roman Pottery.*
Hedges, J. and Buckley, D., 1978. 'Excavations at a neolithic causewayed enclosure, Orsett, Essex, 1975', *PPS 44*: 219–308.
Henderson, I., 1975. 'Inverness, a Pictish capital', in *The Hub of the Highlands, the Book of Inverness and District* (Inverness Field Club).
Henry, F., 1933. *Les Tumulus du Département de la Côte d'Or* (Paris).

Herrmann, F.-R., 1966. *Die Funde der Urnenfelderkultur in Mittel-und-Südhessen* (Römisch-Germanische Forschungen, Bd 27).
Hill, D. and Jesson, M. (eds), 1971. *The Iron Age and its Hill-Forts*.
Hodges, R., 1977. 'Some early medieval French wares in the British Isles: an archaeological assessment of the early French wine trade with Britain', in *Pottery and Early Commerce, Characterization and Trade in Roman and Later Ceramics*, ed. D. P. S. Peacock: 239–55.
Hodson, F. R., 1962. 'Some pottery from Eastbourne, the "Marnians" and the pre-Roman iron age in southern Britain', *PPS 28*: 140–55.
Hodson, F. R., 1964. 'Cultural grouping within the British pre-Roman iron age', *PPS 30*: 99–110.
Hodson, F. R., 1971. 'Three iron age brooches from Hammersmith', *British Museum Q. 35*: 50–7.
Hodson, F. R., 1975. Review of Harding 1974, *Ant. J. 55*: 430–2.
Hodson, F. R. and Rowlett, R. M., 1974. 'From 600 BC to the Roman Conquest', in Piggott *et al.* 1974: 157–91.
Hogg, A. H. A., 1945. 'Roman fragments from . . . St Abb's Head', *PSAS 79*: 172–3.
Hogg, A. H. A., 1960. 'Garn Boduan and Tre'r Ceiri, excavations at two Caernarvonshire hill-forts', *Arch. J. 117*: 1–39.
Hogg, A. H. A., 1969. 'A sample of French hill-forts', *Antiquity 43*: 260–73.
Hogg, A. H. A., 1971. 'Some applications of surface fieldwork', in Hill and Jesson 1971: 105–25.
Hogg, A. H. A., 1972a. 'Hill-forts in the coastal area of Wales', in *The Iron Age in the Irish Sea Province*, ed. C. Thomas (CBA Research Report 9): 11–23.
Hogg, A. H. A., 1972b. 'The size-distribution of hill-forts in Wales and the Marches', in Lynch and Burgess 1972: 293–306.
Hogg, A. H. A., 1973. 'Hill-forts and Herefordshire', *Trans. Woolhope Nat. Field Club 41*: 14–21.
Hogg, A. H. A., 1975. *Hill-Forts of Britain*.
Hogg, A. H. A., 1976. 'Hill-forts and settlements', in RCAHMW, *An Inventory of the Ancient Monuments in Glamorgan*, I: *Pre-Norman*, pt 2 *The Iron Age and Roman Occupation*: 5–79.
Hogg, A. H. A., 1978. 'Sample excavation', *Current Archaeol. 6*: 125–7.
Hogg, A. H. A., 1979. *British Hill-Forts: an index*, BAR 62.
Holden, E. W., 1972. 'A bronze age cemetery-barrow on Itford Hill, Beddingham, Sussex', *SAC 110*: 70–117.
Holste, F., 1953. *Die Bronze-zeit in Süd-und-Westdeutschland* (Handbuch der Urgeschichte Deutschlands, Bd 1; Berlin).
Hope-Taylor, B., 1966. 'Dunbar, Doon Hill', *Medieval Archaeol. 10*: 175–6.
Houlder, C., 1968. 'The henge monuments at Llandegai', *Antiquity 42*: 216–21.
Hugoniot, E. and Gourvest, J., 1961. 'L'oppidum de Mediolanum: Châteaumeillant, Cher. Fouilles de 1956–60', *Celticum 1*: 193–206.
Hugoniot, E. and Vannier, B., 1971. 'Fouille du rempart du camp de la Groutte', *Cahiers d'archéologie et d'histoire du Berry 24–5*: 22–3.
Hunter Blair, P., 1954. 'The Bernicians and their northern frontier', in *Studies in Early British History*, ed. N. K. Chadwick: 137–72.
Jackson, D. A. and Ambrose, T. M., 1978. 'Excavations at Wakerley, Northants., 1972–5', *Britannia 9*: 115–242.
Jackson, K., 1953. *Language and History in Early Britain*.
Jackson, K. H., 1959a. 'Edinburgh and the Anglian occupation of Lothian', in *The Anglo-Saxons*, ed. P. Clemoes: 34–42.
Jackson, K. H., 1959b. 'Arthur in early Welsh verse', in *Arthurian Literature in the Middle Ages*, ed. R. S. Loomis: 12–19.
Jackson, K. H., 1963. 'On the Northern Britain section in Nennius', in *Celt and Saxon, Studies in the Early British Border*, ed. N. K. Chadwick: 20–62.

Jackson, K. H., 1965. 'The Ogam inscription at Dunadd', *Antiquity* 39: 300–2.
Jackson, K. H., 1969. *The Gododdin.*
Jackson, K. H., 1973. 'Some questions in dispute about early Welsh literature and language', *Studia Celtic* 8: 1–32.
Joachim, H.-E., 1968. 'Die Hünsruck-Eifel-Kultur am Mittelrhein', *29. Beiheft der Bonner Jahrbücher.*
Jobey, G., 1965. 'Hill-forts and settlements in Northumberland', *Arch. Ael.*, 4th ser., 43: 21–64.
Jobey, G., 1974. 'Notes on some population problems in the area between the two Roman walls', *Arch. Ael.*, 5th ser., 2: 17–26.
Jobey, G., 1976. 'Traprain Law: a summary', in Harding 1976a: 191–204 and 436–8.
Jockenhövel, A., 1971. *Die Rasiermesser in Mitteleuropa* (Munich; Prähistorische Bronzefunde VIII, 1).
Joffroy, R., 1958. *Les Sépultures à char du premier âge du fer en France* (Paris).
Joffroy, R., 1960. *L'Oppidum de Vix et la civilisation hallstattienne finale dans l'Est de la France* (Paris; Publications de l'Université de Dijon, XX).
Joffroy, R., 1975. 'Vix: habitats et nécropoles', in Duval and Kruta 1975: 71–4.
Jope, E. M., 1961. 'Daggers of the early iron age in Britain', *PPS* 27: 307–43.
Jope, E. M., 1963. 'The regional cultures of medieval Britain', in *Culture and Environment: essays in honour of Sir Cyril Fox*, ed. I. L. Foster and L. Alcock: 327–50.
Kendrick, T. D., and Hawkes, C. F. C., 1932. *Archaeology in England and Wales 1914–1931.*
Kenyon, K. M., 1952. 'A survey of the evidence concerning the chronology and origins of iron age A in southern and midland Britain', *8th Ann. Rep. London Univ. Inst. Archaeol.*: 29–78.
Kimmig, W., 1940. *Die Urnenfelderkultur in Baden* (Römisch-Germanische Forschungen, Bd 14).
Kimmig, W., 1951. 'Où en est l'étude de la civilisation des champs d'urnes en France, principalement dans l'Est?', *RAECE* 2: 65–81.
Kimmig, W., 1952. 'Où en est l'étude de la civilisation des champs d'urnes en France, principalement dans l'Est?', *RAECE* 3: 137–72.
Kimmig, W., 1954a. 'Où en est l'étude de la civilisation des champs d'urnes en France, principalement dans l'Est?' *RAECE* 5: 7–28.
Kimmig, W., 1954b. 'Zur Urnenfelderkultur in Südwesteuropa', in *Festschrift für Peter Goessler* (Stuttgart; Tübinger Beiträge zur Vor-und-Frühgeschichte): 41–98.
Kimmig, W., 1970. 'Zur Frage der Urnenfelderkultur am Niederrhein', *Helinium* 10: 39–51.
Kimmig, W., 1979. Review of Chertier 1976, *Germania* 57: 201–6.
Kinnes, I., 1979. *Round Barrows and Ring Ditches in the British Neolithic.*
Kossack, G., 1957. 'Zur chronologie der alteren Hallstattzeit (Ha C) in bayerischen Alpenvorland', *Germania* 35: 207–23.
Kossack, G., 1959. *Südbayern während der Hallstattzeit* (Römisch-Germanische Forschungen, Bd 24; 2 vols).
De Laet, S. J., 1958. *Contributions a l'étude de la civilisation des champs d'urnes en Flandre* (Dissertationes Archaeologicae Gandenses, IV).
Laing, L., 1973a. 'The Mote of Mark', *Current Archaeol.* 4: 121–5.
Laing, L., 1973b. 'Cooking-pots and the origins of the Scottish medieval pottery industry', *Arch. J.* 130: 183–216.
Laing, L., 1975a. 'The Mote of Mark and the origins of Celtic interlace', *Antiquity* 49: 98–108.
Laing, L., 1975b. *Settlement Types in Post-Roman Scotland*, BAR 13.
Laing, L., 1975c. *The Archaeology of Late Celtic Britain and Ireland c. 400–1200 AD.*
Laing, L., 1977. 'Segontium and the post-Roman occupation of Wales', in *Studies in Celtic Survival*, ed. L. Laing, BAR 37: 57–60.
de Lasteyrie, R., 1883. 'Séance du Comité des Travaux Historiques et Scientifiques du

28 mars 1883', *BA* 1: 13–18.
Lawlor, H. C., 1925. *The Monastery of Saint Mochaoi of Nendrum*.
Lecler, A., 1883. 'Monographie du canton de Saint Mathieu', *Bull. de la Société Archéologique et Historique du Limousin* 31: 5–70.
Leeds, E. T., 1935. 'Recent iron age discoveries in Oxfordshire and north Berkshire', *Ant. J.* 15: 30–41.
Léger, P., 1972. 'Le Camp des Chastres, commune d'Aubusson, campagne de fouilles 1972', *Mémoires de la Soc. des Sciences Naturelles et Archéologiques de la Creuse* 38: 35–9.
Liddell, D. M., 1933. 'Excavations at Meon Hill', *PHFCAS* 12: 126–62.
Liddell, D. M., 1935. 'Report of excavations at Meon Hill, second season, 1933', *PHFCAS* 13: 7–54.
Liddell, D. M., 1936. 'Report on the excavations at Hembury Fort', *Procs Devon Arch. Exploration Soc.* 2: 134–75.
Lièvre, A. F., 1888. 'Le camp de Voeuil', *Bull. de la Soc. Archéologique et Historique de la Charente*.
Lintz, G., 1976. 'L'oppidum du Puy de Sermus, commune de Saint-Geniez-ô-Merle (Corrèze), *Bull. de la Soc. des Lettres, Sciences et Arts de la Corrèze* 79: 41–52.
Lobjois, G., 1965. 'Les fouilles de l'oppidum gaulois "du Vieux Laon" à Saint-Thomas, Aisne', *Celticum* 15: 1–26.
Lynch, F. and Burgess, C. (eds), 1972. *Prehistoric Man in Wales and the West – essays in honour of Lily F. Chitty*.
MacCana, P., 1971. Review of Jackson 1969, *Celtica* 9: 316–29.
MacGibbon, D., and Ross, T., 1896–7. *The Ecclesiastical Architecture of Scotland from the Earliest Christian Times to the Seventeenth Century* (3 vols).
MacKie, E. W., 1976a. *Science and Society in Prehistoric Britain*.
MacKie, E. W., 1976b. 'The vitrified forts of Scotland', in Harding 1976a: 205–35 and 439–45.
MacNair, A. S., 1973. 'History', in *Queen Elizabeth Forest Park, Ben Lomond, Loch Ard and the Trossachs*, ed. H. L. Edlin (Forestry Commission Guide): 1–17.
McNeill, P. and Nicholson, R. (eds), 1975. *An Historical Atlas of Scotland c. 400–c. 1600*.
Mansfeld, G., 1973. *Die Fibeln der Heuneberg, 1950–1966* (Römisch-Germanische Forschungen, Bd 33).
Mariën, M.-E., 1964. *La Nécropole à Tombelles de Saint-Vincent* (Bruxelles; Musées Royaux d'Art et d'Histoire, Monographies d'Archéologie Nationale, 3).
Martin, G., 1905. *Histoire d'une frontière: Aigurande depuis l'époque gauloise jusqu'à nos jours* (Guéret).
Matthews, C. L., 1976. *Occupation Sites on a Chiltern Ridge*, pt 1: *Neolithic, Bronze Age and Early Iron Age*, BAR 29.
Maxe-Werly, L., 1877. 'Notice sur l'oppidum de Boviolles, Meuse', *Mémoires de la Soc. des Antiquaires de France* 38: 276–92.
May, J., 1974. 'British antiquity 1973–4. The iron age', *Arch. J.* 131: 392–8.
Mayaud, S. P., 1881. *Notice sur l'oppidum gaulois de Châteauvieux, Creuse* (Paris).
Mercer, R. J., 1970. 'Metal arrowheads in the European bronze and early iron ages', *PPS* 36: 171–213.
Mercer, R. J., 1975. 'Carn Brea', *Current Archaeol.* 4: 360–5.
von Merhart, G., 1952. 'Studien über einige Gattungen von Bronzegefässen', in *Festschrift des Römisch-Germanischen Zentralmuseums in Mainz*, II: 1–71 and Taf. 1–26.
Meyrick, O., 1947. 'Notes on some early iron age sites in the Marlborough district', *WAM* 51: 256–63.
Miles, D., 1974. 'Abingdon and region: early Anglo-Saxon settlement evidence', in *Anglo-Saxon Settlement and Landscape*, ed. T. Rowley, BAR 6: 36–41.
Miles, H. and Miles, T., 1974. 'Trethurgy', *Current Archaeol.* 4: 142–7.
Millotte, J.-P., 1963. *Le Jura et les plaines de Saône aux âges des métaux* (Paris, 2 vols; Annales Littéraires de l'Université de Besançon 59).
Millotte, J.-P., 1965. *Carte archéologique de la Lorraine* (Paris; Annales Littéraires de

l'Université de Besançon 73).
Millotte, J.-P., 1976. 'Les civilisations de l'âge du fer dans l'est de la France', in Guilaine 1976: II, 837–46.
Ministry of Public Building and Works, 1967. *Excavations – Annual Report 1967*.
Mohen, J.-P., 1972. 'Que savons nous de l'âge du bronze dans le nord de la France? (Départements du Nord et du Pas-de-Calais)', *BSPF 69*: 444–64.
Mohen, J.-P. and Coffyn, A., 1970. *Les Nécropoles hallstattiennes de la région d'Arcachon* (Madrid; Bibliotheca Praehistorica Hispana, XI).
Mommèja, J., 1901. 'L'oppidum des Nitiobriges', *Congrès archéologique de France 48*: 167–242 (Agen).
Money, J., 1974. 'Garden Hill', *Current Archaeol. 4*: 185–8.
Mordant, C. and D., 1970. *Le site protohistorique des Gours-aux-Lions, à Marolles-sur-Seine (Seine-et-Marne)* (Mémoires de la Société Préhistorique Française 8).
Müller-Karpe, H., 1948. *Die Urnenfelderkultur im Hanauer Land* (Schriften zur Urgeschichte, Bd 1; Hessisches Landesmuseum Kassel und Hanauer Geschichtsverein).
Müller-Karpe, H., 1959. *Beiträge zur Chronologie der Urnenfelderkultur nördlich und südlich der Alpen* (Römisch-Germanische Forschungen, Bd 22, 2 vols).
Munro, R., 1882. *Ancient Scottish Lake-Dwellings or Crannogs*.
Murat, A. and Murat, J., 1967. 'Cinquante ans de recherches archéologiques à la station du Puy-du-Tour près d'Argentat, Corrèze', *Ogam 19*: 369–96.
Musson, C. R., 1976. 'Excavations at the Breiddin, 1969–1973', in Harding 1976a: 293–302 and 461–4.
Musson, R., 1950. 'An excavation at Combe Hill Camp near Eastbourne, August 1949', *SAC 89*: 105–16.
Myres, J. N. L., 1964. 'Wansdyke and the origin of Wessex', in *Studies in British History*, ed. H. R. Trevor-Roper: 1–27.
Myres, J. N. L., 1969. *Anglo-Saxon Pottery and the Settlement of England*.
Myres, J. N. L., 1977. *A Corpus of Anglo-Saxon Pottery of the Pagan Period* (2 vols).
Naroll, R., 1962. 'Floor area and settlement population', *American Antiquity 27*: 587–9.
Nash, D., 1978. *Settlement and Coinage in Central Gaul, c. 200–50 BC*, BAR S39.
Nicolardot, J.-P., 1973. 'Structures et datations par mesure du radio carbone du rempart et de l'habitat néolithique du Camp de Myard à Vitteaux, Côte d'Or', *BSPF (CRSM), 8*: 68.
Nicolardot, J.-P., 1974. 'Structures d'habitats de hauteur à caractères défensifs dans le Centre-Est de la France', *Antiquités nationales 6*: 32–45.
Nicolardot, J.-P., 1975. 'Nécropoles et habitats de la Côte d'Or aux âges du fer', in Duval and Kruta 1975: 87–93.
Niederlender, A., Lacam, R. and Arnal, J., 1966. 'Le Gisement néolithique de Roucadour (Thémines-Lot)', *Gallia préhistoire*, 3rd suppl.
Nisbet, H., 1974. 'A geological approach to vitrified forts: the archaeological and scientific background', *Science and Archaeol. 12*: 3–12.
Nisbet, H., 1975. 'A geological approach to vitrified forts: bedrock and building stone', *Science and Archaeol. 15*: 3–16.
de la Noë, G.-O., 1887. 'Principes de la fortification antique depuis les temps préhistoriques . . .', *Bull. géographique, historique et descriptive 2*: 201–331.
de la Noë, G.-O., 1892. 'Les enceintes vitrifiées et les enceintes calcinées', *Bull. géographique, historique et descriptive*.
O'Kelly, M. J., 1970. 'Problems of Irish ring-forts', in *The Irish Sea Province in Archaeology and History*, ed. D. Moore: 50–4.
Olivier, L., Olivier, M. and Olivier, G., 1969. 'L'enceinte du Fou de Verdun et son environnement', *RAECE 20*: 107–31.
Oswald, A. (ed.), 1967. 'Excavations for the Avon/Severn Research Committee at Barford, Warwickshire', *Trans. Birmingham Arch. Soc. 83*: 2–64.
Page, J. N. L., 1890. *An Exploration of Exmoor*.
Palmer, R., 1976. 'Interrupted ditch enclosures in Britain: the use of aerial photo-

graphy for comparative studies', *PPS 42*: 161–86.
Parrington, M., 1978. *The Excavation of an Iron Age Settlement, Bronze Age Ring-Ditches and Roman Features at Ashville Trading Estate, Abingdon, Oxfordshire 1974–76* (CBA Research Report 28).
Passmore, A. D., 1914. 'Liddington Castle (Camp)', *WAM 38*: 576–84.
Pautreau, J.-P., 1976. 'Le Camp Allaric, commune d'Aslonnes (Vienne): premiers résultats', *L'Anthropologie 80*: 389–430.
Perry, B., 1969. 'Iron age enclosures on the Hampshire chalklands', *Arch.J. 126*: 29–43.
Philippe, J., 1936. 'Le Fort-Harrouard', *L'Anthropologie 46*: 257–301.
Philippe, J., 1937. 'Le Fort-Harrouard', *L'Anthropologie 47*: 253–308.
Piggott, C. M., 1943. 'Report on the pottery from Winklebury Camp, Hants.', *PHFCAS 15*: 56–7.
Piggott, S., 1948. 'The excavations at Cairnpapple Hill, West Lothian, 1947–48', *PSAS 82*: 68–123.
Piggott, S., 1959. *Approach to Archaeology*.
Piggott, S., 1965. *Ancient Europe from the Beginnings of Agriculture to Classical Antiquity*.
Piggott, S., 1968. *The Druids*.
Piggott, S., Daniel, G. and McBurney, C. (eds), 1974. *France before the Romans*.
Piggott, S. and Piggott, C. M., 1940. 'Excavations at Rams Hill, Uffington, Berkshire', *Ant.J. 20*: 465–80.
Pilcher, J. R. and Baillie, M. G. L., 1978. 'Implications of a European radiocarbon calibration', *Antiquity 52*: 217–22.
Pintaud, R. C., 1956. 'Camp des Anglais ou de Voeuil ou Fort des Anglais', *Congrès Préhistorique de la France: Compte-rendu de la XV session Poitiers-Angoulême 1956*: 122–6.
Piroutet, M., 1906. 'Note sommaire pour servir d'introduction à l'étude des enceintes du Jura salinois', *Revue préhistorique illustrée de l'Est de la France 2*: 33–53.
Piroutet, M., 1909. 'Une fouille au Mont Guérin, Jura', *RA*, 4th ser., *13*: 39–45.
Piroutet, M., 1913. 'Note sur l'existence et l'âge des retranchements à calcination dans les camps préhistoriques du Jura salinois', *BSPF 10*: 161–6.
Piroutet, M., 1930. 'La citadelle hallstattienne à poteries helléniques de Château-sur-Salins (Jura)', *Ve Congrès International d'Archéologie Alger*: 47–86.
Piroutet, M. and Déchelette, J., 1909. 'Découverte de vases grecs dans un oppidum hallstattien du Jura', *RA*, 4th ser., *13*: 193–202.
Pitt Rivers, A., 1888. *Excavations in Cranborne Chase*, II.
Pollard, S. H. M., 1966. 'Neolithic and dark-age settlements on High Peak, Sidmouth, Devon', *Procs Devon Arch. Exploration Soc. 23*: 35–59.
Powell, T. G. E., 1948. 'A late bronze age hoard from Welby, Leicestershire', *Arch.J. 105*: 27–40.
Powell, T. G. E., 1963. 'The inception of the final bronze age in Middle Europe', *PPS 29*: 214–34.
Preynat, J.-P., 1962. 'Un site de La Tène en Forez: l'oppidum d'Essalois', *Celticum 3*: 287–314.
Radford, C. A. R., 1954. 'The tribes of southern Britain', *PPS 20*: 1–26.
Radford, C. A. R., 1956. 'Imported pottery found at Tintagel, Cornwall', in Harden 1956a: 59–70.
Raftery, B., 1969. 'Freestone Hill, Co. Kilkenny . . .', *Procs Royal Irish Academy 68c*: 1–108.
Rahtz, P. A., 1969. 'Cannington hillfort 1963', *Procs Somerset Arch. and Nat. Soc. 113*: 56–68.
Rahtz, P. A., 1977. 'Late Roman cemeteries and beyond', in *Burial in the Roman World*, ed. R. Reece (CBA Research Report 22): 53–64.
Rahtz, P. A. and ApSimon, A. M., 1962. 'Excavations at Shearplace Hill, Sydling St Nicholas, Dorset, England', *PPS 28*: 289–328.
Rahtz, P. A., and Barton, K. J., 1963. 'Maes Knoll Camp . . .', *Procs Univ. Bristol Spel-*

aeological Soc. 10.i: 9–10.
Rahtz, P. A. and Fowler, P. J., 1972. 'Somerset AD 400–700', in *Archaeology and the Landscape*, ed. P. J. Fowler: 187–221.
Rahtz, P. A. and Musty, J. W. G., 1960. 'Excavations at Old Sarum, 1957', *WAM 57*: 352–70.
Ralston, I. B. M., 1980. 'The Green Castle and the promontory forts of North-East Scotland', *Scottish Arch. Forum 10*: 27–40.
Ralston, I. B. M. and Büchsenschütz, O. E., 1975. 'Late pre-Roman iron age forts in Berry', *Antiquity 49*: 8–18.
Raymond, P., 1910. 'Etude sur les enceintes vitrifiées et calcinées de la Gaule', *Revue préhistorique 5*: 1–32.
RCAHME 1975. *An Inventory of the Historical Monuments in the County of Dorset*, V: *East Dorset*.
RCAHME 1976. *Ancient and Historical Monuments in the County of Gloucester*, I: *Iron Age and Romano-British Monuments in the Gloucestershire Cotswolds*.
RCAHME 1979. *Stonehenge and its Environs: monuments and land use*.
RCAHMS 1951. *An Inventory of the Ancient and Historical Monuments of the City of Edinburgh*.
RCAHMS 1971. *Argyll, an Inventory of the Ancient Monuments*, I: *Kintyre*.
RCAHMW 1956. *An Inventory of the Ancient Monuments in Caernarvonshire*, I: *East*.
Renaud, J., 1962. 'Notes sur l'oppidum d'Essalois (Loire): le tracé et la structure du rempart', *Celticum 3*: 57–67.
Renfrew, C., 1973. *Before Civilization: the radiocarbon revolution and prehistoric Europe*.
Renfrew, C. (ed.), 1974. *British Prehistory: a new outline*.
Renfrew, C., Harkness, D., and Switsur, R., 1976. 'Quanterness, radiocarbon and the Orkney cairns', *Antiquity 50*: 194–204.
Reynolds, N., 1980. 'Dark age timber halls and the background to excavation at Balbridie', *Scottish Arch. Forum 10*: 41–60.
Reynolds, P. J., 1972. 'Experimental archaeology', *Worcs. Arch. Newsletter 9*.
Reynolds, P. J., 1979. *Iron-Age Farm, The Butser experiment*.
Rhodes, P. P., 1948. 'Prehistoric and Roman site at Wittenham Clumps, Berkshire', *Oxoniensia 13*: 18–31.
Richardson, K. M., 1940. 'Excavations at Poundbury, Dorchester, Dorset, 1939', *Ant. J. 20*: 429–48.
Richardson, K. M., 1951. 'The excavation of iron age villages on Boscombe Down West', *WAM 54*: 123–68.
Richardson, K. M. and Young, A., 1951. 'An iron age A site on the Chilterns', *Ant. J. 31*: 132–48.
Rigoir, J., 1968. 'Les sigillées paléochrétiennes grises et orangées', *Gallia 26*: 177–244.
Ritchie, A., 1971. 'Settlement archaeology – methods and problems', in Hill and Jesson 1971: 91–5.
Ritchie, J. N. G., 1976. 'The Stones of Stenness, Orkney', *PSAS 107*: 1–60.
Rivet, A. L. F. (ed.), 1962. Introduction to *Map of Southern Britain in the Iron Age* (Ordnance Survey).
Rivet, A. L. F. (ed.), 1966. *The Iron Age in Northern Britain*.
Rivet, A. L. F., 1971. 'Hill-forts in action', in Hill and Jesson 1971: 189–202.
Rivet, A. L. F. and Jackson, K., 1970. 'The British section of the Antonine Itinerary', *Britannia 1*: 34–82.
Robertson-Mackay, R., 1962. 'The excavation of the causewayed camp at Staines, Middlesex', *Arch. Newsletter 7*: 131–4.
Robertson-Mackay, R., 1977. 'The defences of the iron age hillfort at Winklebury, Basingstoke, Hampshire', *PPS 43*: 131–54.
Rossi, L., 1971. 'Dacian fortifications on Trajan's Column', *Ant. J. 51*: 30–5.
Rowlett, R. M., Rowlett, E. S.-J. and Boureux, M., 1969. 'A rectangular early La Tène

Marnian house at Chassemy (Aisne)', *World Archaeol.* 1: 106–35.
Rupin, E., 1893. 'L'enceinte vitrifiée de Sermus, commune de Saint-Privat (Corrèze)', *Bull. de la Soc. Scientifique, Historique et Archéologique de la Corrèze* 15: 177–98.
Rutherford, A., 1976. 'Giudi revisited', *Bull. Board of Celtic Studies* 26: 440–4.
Salway, P., 1967. 'Excavations at Hockwold cum Wilton, Norfolk, 1961–62', *Procs Cambridge Ant. Soc.* 60: 39–80.
Sancier, R., 1964. 'L'oppidum d'Erquy', *Ogam* 16: 591–8.
Sandars, N. K., 1957. *Bronze Age Cultures in France.*
Sandars, N. K., 1971. 'From bronze age to iron age: a sequel to a sequel', in Boardman *et al.* 1971: 1–29.
Saunders, C., 1971. 'The pre-Belgic iron age in the central and western Chilterns', *Arch. J.* 128: 1–30.
Savory, H. N., 1937. 'An early iron age site at Long Wittenham, Berks.', *Oxoniensia* 2: 1–11.
Savory, H. N., 1939. 'Early Man IV: early iron age', *Victoria County History, Oxfordshire*, I: 251–61 and pls. X–XII.
Savory, H. N., 1960. 'Excavations at Dinas Emrys, Beddgelert (Caerns.), 1954–56', *Arch. Camb.* 109: 13–77.
Savory, H. N., 1971a. *Excavations at Dinorben, 1965–9.*
Savory, H. N., 1971b. 'A Welsh bronze age hillfort', *Antiquity* 45: 251–61.
Savory, H. N., 1976a. *Guide Catalogue of the Early Iron Age Collections* (National Museum of Wales).
Savory, H. N., 1976b. 'Welsh hillforts: a reappraisal of recent research', in Harding 1976a: 237–91 and 446–60.
Sawyer, P. H., 1968. *Anglo-Saxon Charters: an annotated list and bibliography* (Royal Historical Society).
Schauer, P., 1971. *Die Schwerter in Süddeutschland, Österreich und der Schweiz*, I (Munich; Prähistorische Bronzefunde, IV.2).
Simpson, G., 1964. 'The hill-forts of Wales and their relation to Roman Britain: a recension', in Gardner and Savory 1964: 209–20.
Simpson, W. D., 1941. 'The development of Dunnottar Castle', *Arch. J.* 98: 87–98.
Simpson, W. D., 1951. 'Glen Urquhart and its castle', in *Aspects of Archaeology in Britain and Beyond*, ed. W. F. Grimes: 316–31.
Simpson, W. D., 1964. *Urquhart Castle.*
Simpson, W. D., 1968. *Dunnottar Castle, Historical and Descriptive.*
Simpson, W. G., 1967. 'The Welland Valley project'. *Current Archaeol.* 1: 2–4.
Skinner, Rev. J., *Journals* (British Museum Add. MSS. 33646 F10, 33719 F95–98; 1812 and 1830).
Small, A., 1969. 'Burghead', *Scottish Arch. Forum* 1: 61–8.
Small, A. and Cottam, M. B., 1972. *Craig Phadrig* (University of Dundee, Department of Geography, Occasional Papers no. 1).
Small, A., Thomas, C. and Wilson, D. M., 1973. *St Ninian's Isle and its Treasure*, 2 vols.
Smith, C., 1977. 'The valleys of the Tame and Middle Trent – their populations and ecology during the late first millennium BC', in Collis 1977a: 51–61.
Smith, I. F., 1965. *Windmill Hill and Avebury: excavations by Alexander Keiller.*
Smith, K., 1977. 'The excavation of Winklebury Camp, Basingstoke, Hampshire', *PPS* 43: 31–130.
Smith, M. A., 1955. 'The limitations of inference in archaeology', *Arch. Newsletter* 6: 3–7.
Smith, M. A. (ed.), 1957. 'Bronze age hoards and grave-groups from the N.E. Midlands', *Inventaria Archaeologica, Great Britain*, 4th set, cards G.B. 19–24.
Smith, M. A., 1959. 'Some Somerset hoards and their place in the bronze age of southern Britain', *PPS* 25: 144–87.
Smith, R. A. (ed.), 1925. *British Museum Guide to Early Iron Age Antiquities* (2nd edn).
Soutou, A., 1962. 'Le castellum gabale du Roc de la Fare (commune de Laval-du-

Tarn), Lozère', *Gallia 20*: 333–51.
Stanford, S. C., 1970. 'Credenhill Camp, Herefordshire: an iron age hill-fort capital', *Arch. J. 127*: 82–129.
Stanford, S. C., 1971. 'Invention, adoption and imposition – the evidence of the hill-forts', in Hill and Jesson 1971: 41–52.
Stanford, S. C., 1972. 'The function and population of hill-forts in the central Marches', in Lynch and Burgess 1972: 307–19.
Stanford, S. C., 1974a. *Croft Ambrey*.
Stanford, S. C., 1974b. 'Native and Roman in the central Welsh borderland', in Birley *et al.* 1974: 44–60.
Stead, I. M., 1967. 'A la Tène III burial at Welwyn Garden City', *Archaeologia 101*: 1–62.
Stead, I. M., 1968. 'An iron age hill-fort at Grimthorpe, Yorkshire, England', *PPS 34*: 148–90.
Stevens, F., 1934. ' "The Highfield Pit Dwellings", Fisherton, Salisbury', *WAM 46*: 579–624.
Stevenson, R. B. K., 1949. 'The nuclear fort of Dalmahoy, Midlothian, and other dark age capitals', *PSAS 83*: 186–98.
Stevenson, R. B. K., 1976. 'The earlier metalwork of Pictland', in *To Illustrate the Monuments. Essays on archaeology presented to Stuart Piggott*, ed. J. V. S. Megaw: 246–51.
Stone, J. F. S., 1935. 'Trial excavations at Hayes Wood Enclosure, Freshford, Som.', *Procs Somerset Arch. and Nat. Soc. 81*: 133–48.
Stuart, J. D. M. and Birkbeck, J. M., 1937. 'A Celtic village on Twyford Down, excavated 1933–1934', *PHFCAS 13*: 188–207.
Swan, V. G., 1975. 'Oare reconsidered and the origins of Savernake ware in Wiltshire', *Britannia 6*: 36–61.
Tauvel, D., 1973. 'Le premier âge du fer dans la Vienne', *Revue archéologique du Centre de la France 12*: 227–42.
Thénot, A., 1976. 'Les civilisations de l'âge du fer en Champagne', in Guilaine 1976: II, 826–36.
Thomas, C., 1959. 'Imported pottery in dark-age western Britain', *Medieval Archaeol. 3*: 89–111.
Thomas, C., 1971. *The Early Christian Archaeology of North Britain*.
Thomas, C., 1976. 'Imported late-Roman Mediterranean pottery in Ireland and western Britain: chronologies and implications', *Procs Royal Irish Academy 76c*: 245–55.
Thomas, F. W.L., 1879. 'Dunadd, Glassary, Argyllshire; the place of inauguration of the Dalriadic kings', *PSAS 13*: 28–47.
Thomas, I., 1960. 'The excavations at Kynance 1953–1960', *The Lizard* (The Lizard Field Club, Marazion, Cornwall), *n.s. 1.iv*: 5–16.
Toms, H., 1925. 'Bronze age or earlier lynchets', *PDNHAS 46*: 89–100.
Tratman, E. K., 1963. 'The iron age defences and Wansdyke', *Procs Univ. Bristol Spelaeological Soc. 10.i*: 11–15.
Tratman, E. K., 1970. 'The Glastonbury Lake Village: a reconsideration', *Procs Univ. Bristol Spelaeological Soc. 12.ii*: 143–67.
Triger, R., 1907. *Sainte-Suzanne (Mayenne): son histoire et ses fortifications* (Paris).
Tronquart, G., 1976. 'Le camp celtique de la Bure (Vosges)', *Gallia 34*: 201–14.
Unz, C., 1973. 'Die spätbronzezeitliche Keramik in Sudwestdeutschland, in der Schweiz und in Ostfrankreich', *Prähistorische Zeitschrift 48*: 1–124, plus 49 plates and 5 maps.
Varley, W. J., 1964. *Cheshire before the Romans*.
Varley, W. J., 1968. 'Barmston and the Holderness crannogs', *East Riding Archaeologist 1.i*: 12–26.
Vazeilles, M., 1936. *La très vieille histoire locale (part 3): archéologie préhistorique, celtique et gallo-romaine de la Montagne Limousine* (Bourges).
Vazeilles, M., 1938. 'Les bracelets en or du Bois de Train, commune de Saint-

Pardoux-le-Vieux', *Bull. de la Soc. Scientifique, Historique et Archéologique de la Corrèze 60*: 102.
Verron, G., 1976. 'Les civilisations de l'âge du bronze en Normandie', in Guilaine 1976: II, 585–600.
Vimont, E. and Pommerol, F., 1884. 'Présentation d'un échantillon de muraille vitrifiée provenant des environs du Châteauneuf-les-Bains', *Revue d'Auvergne 1*: 68–72.
Viré, A., 1913. 'Les fouilles protohistoriques de Luzech, du Puits d'Issolud, et d'Uzerche', *BSPF 10*: 687–713.
Vogt, E., 1950. 'Der Beginn der Hallstattzeit in der Schweiz', *Jahrbücher der Schweizerischen Gesellschaft für Urgeschichte 40*: 209–31.
Wade-Evans, A. W., 1938. *Nennius's 'History of the Britons'*.
Wailes, B., 1976. 'Dún Ailinne: an interim report', in Harding 1976a: 319–38 and 474–7.
Wainwright, F. T., 1948. 'Nechtansmere', *Antiquity 32*: 82–97.
Wainwright, F. T. (ed.), 1955a. *The Problem of the Picts*.
Wainwright, F. T., 1955b. 'The Picts and the problem', in Wainwright 1955a: 1–53.
Wainwright, F. T., 1963. *The Souterrains of Southern Pictland*.
Wainwright, G. J., 1962. 'The excavation of an earthwork at Castell Bryn-Gwyn, Llanidan parish, Anglesey', *Arch. Camb. 111*: 25–58.
Wainwright, G. J., 1967. 'The excavation of an iron age hillfort on Bathampton Down, Somerset', *Trans Bristol and Glos. Arch. Soc. 86*: 42–59.
Wainwright, G. J., 1968. 'The excavation of a Durotrigian farmstead near Tollard Royal in Cranborne Chase, southern England', *PPS 34*: 102–47.
Wainwright, G. J., 1970. 'An iron age promontory fort at Budbury, Bradford-on-Avon, Wilts.', *WAM 65*: 108–66.
Wainwright, G. J., 1971. 'The excavation of a fortified settlement at Walesland Rath, Pembrokeshire', *Britannia 2*: 48–108.
Wainwright, G. J., 1979a. *Mount Pleasant, Dorset: Excavations 1970–71* (Society of Antiquaries of London, Research Report 37).
Wainwright, G. J., 1979b. *Gussage All Saints. An iron age settlement in Dorset*. (Department of the Environment, Archaeological Report 10).
Wainwright, G. J. and Longworth, I. H., 1971. *Durrington Walls: Excavations 1966–68* (Society of Antiquaries of London, Research Report 29).
Wamser, G., 1975. 'Zur Hallstattkultur in Ostfrankreich. Die Fundgruppen im Jura und in Burgund', *56. Bericht der Römisch-Germanischen Kommission*: 1–179.
Ward Perkins, J. B., 1938. 'An early iron age site at Crayford, Kent', *PPS 4*: 151–68.
Waterbolk, H. T., 1977. 'Walled enclosures of the iron age in the north of the Netherlands', *Palaeohistoria 19*: 97–172.
Watkins, T., 1979. 'Dalladies: the excavation of an iron age settlement in Kincardineshire', *PSAS 110*.
Watson, W. J., 1926. *The History of the Celtic Place-Names of Scotland* (Edinburgh 1926; reprinted Shannon 1973).
Wendland, W. M. and Donley, D. L., 1971. 'Radiocarbon-calendar age relationship', *Earth and Planetary Science Letters 11*: 135–9.
Wheeler, R. E. M., 1926. 'The Roman Fort near Brecon', *Y Cymmrodor 37*.
Wheeler, R. E. M., 1943. *Maiden Castle, Dorset* (Society of Antiquaries of London, Research Report 12).
Wheeler, R. E. M., 1953. 'An early iron age "beach-head" at Lulworth, Dorset', *Ant. J. 33*: 1–13.
Wheeler, R. E. M., 1954. *Archaeology from the Earth*.
Wheeler, R. E. M. and Richardson, K. M., 1957. *Hill-Forts of Northern France* (Society of Antiquaries of London, Research Report 19).
Wheeler, R. E. M. and Wheeler, T. V., 1932. *Report on the Excavation of the Prehistoric, Roman and Post-Roman Site in Lydney Park, Gloucester* (Society of Antiquaries of London, Research Report 9).
Whitelock, D. (ed.), 1955. *English Historical Documents c. 500–1042*.

Williams, A., 1950. 'Excavations at Allard's Quarry, Marnhull', *PDNHAS 72*: 20–75.
Williams, I., 1938. *Canu Aneirin*.
Williams-Freeman, J. P., 1940. 'Field archaeology, 1938–39', *PHFCAS 14*: 270.
Worsfold, F. H., 1943. 'A report on the late bronze age site excavated at Minnis Bay, Birchington, Kent, 1938–40', *PPS 9*: 28–47.
Young, A., 1966. 'The sequence of Hebridean pottery', in Rivet 1966: 45–58.
Young, H. W., 1891. 'Notes on the ramparts of Burghead, as revealed by recent excavations', *PSAS 25*: 435–47.
Young, H. W., 1893. 'Notes on further excavations at Burghead', *PSAS 27*: 86–91.
Youngblood, E., Fredriksson, B. J., Kraut, F. and Fredriksson, K., 1978. 'Celtic vitrified forts; implications of a chemical-petrological study of glasses and source rocks', *J. Arch. Science 5*: 99–115.
Ziegert, H., 1963. *Zur Chronologie und Gruppengliederung der westlichen Hügelgräberkultur* (Berliner Beiträge zur Vor-und-Frühgeschichte, Bd 7).
Zumstein, H., 1964. 'L'âge du bronze dans le département du Haut-Rhin', *RAECE 15*: 7–66 and 161–213.
Zumstein, H., 1965. 'L'âge du bronze dans le département du Haut-Rhin (suite et fin)', *RAECE 16*: 7–56.
Zumstein, H., 1976. 'Les civilisations de l'âge du bronze dans l'Est de la France. A: les civilisations de l'âge du bronze en Alsace', in Guilaine 1976: II, 630–9.

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ANTIQUITY, XLIX, 1975 PLATES II–III

Late pre-Roman Iron Age forts in Berry

IAN RALSTON and OLIVIER BÜCHSENSCHÜTZ

*In 1969 we published 'A sample of French hillforts' by Mr A. H. A. Hogg, with emphasis on those of the centre and south. Mr Ralston and M. Büchsenschütz, in the course of fieldwork in Berry, have identified a number of Fécamp-style ramparts which they feel will be of interest to English-speaking readers. Mr Ralston is in the Department of Geography, University of Aberdeen; M. Büchsenschütz, who works with CNRS, is at the Institut d'Art et d'Archéologie, University of Paris I/IV.**

Hillforts in France, as Hogg (1969) has indicated, remain a rather neglected aspect of the protohistory of that country. The material presented here represents the outcome of new fieldwork, initially undertaken independently by the two authors. Excavation is in progress at five sites within the Departments of Cher and Indre: modification of the views contained here is therefore likely, but in view of structural similarities with the N French forts magisterially surveyed by Sir Mortimer Wheeler and Miss Richardson (1957), an English-language summary of the position in the later pre-Roman Iron Age seems worthwhile.

GEOGRAPHICAL BACKGROUND

The major elements of Berry are the Departments of Cher and Indre, which occupy some 14,200 sq. km. between the SW limits of the lowlands of N France and the Massif Central. Limestones form the principal component of the solid geology.

La Sologne, in N Berry, is a gently undulating plain, with altitudes varying from 120 to 160 m.: here, surface geology—'unconformable sheets of sands, clays and gravels' (Monkhouse, 1959, 228)—combined with gentle gradients, has produced a myriad of small lakes and impeded drainage. Largely unrewarding agriculturally, the region used to be disease-ridden.

In terms of area, the low undulating plateau of the Champagne Berrichonne forms the major element of Berry. It rises gently southward from the Sologne to the Massif Central, attaining 220 m. in altitude. The geology is of Jurassic and Cretaceous limestones, which form a series of anticlines, running primarily east-west, over much of the area. Of the rivers, which flow NW towards the Loire, the Cher and the Indre are the most important. During the Roman period, the area was noted for its iron-workings, notably in the Forêt d'Allogny (Davies, 1935). To the E, a narrow zone of upland, aligned north-south, borders the fertile valley of the Loire. The Sancerrois and Pays Fort are of Portland Limestone, reaching maximum altitudes of around 440 m.

Brenne and Boischaut are formed principally of Jurassic sandstones covered by impermeable clays. Brenne is covered with small lakes, like the Sologne. The southern extremity of Berry is one of complex geology and relief as the northern periphery of the Massif Central is reached. This region, the Bourbonnais, is much faulted; at its limit with the Champagne the

* This work was originally presented as a Maîtrise d'Histoire at the University of Paris (1968), under the direction of Professor J. Picard, and as an MA thesis, supervised by Professor Piggott, at Edinburgh University (1972). We would also like to thank Dr J. Allain, M. J. Favière, Mr A. H. A. Hogg and the fieldworkers of Berry for their generous assistance.

geology is of Jurassic limestone and marls. Further south Permian rocks give way to highly metamorphosed gneisses and schists.

HISTORICAL BACKGROUND

At the time of the Gallic War, Berry was occupied by the Bituriges Cubi, save for its eastern march, the Sancerrois, where the displaced Boii seem to have been resettled. Sancerre itself would seem to have been the oppidum of the latter tribe (Thévenot, 1960).

The early eminence of the Bituriges, reflected perhaps in the tribal name (Guyonvarc'h, 1961, 142), has as its principal literary mention, the historian Livy (V, 34). By the time of Caesar, however, the position and prowess of the Bituriges had long been eclipsed, first by the Arverni, and later by the Aedui, Sequani and Carnutes. The last-mentioned tribe, although nominally a client of the pro-Roman Remi, were instigators of rebellion at several points in the Gallic War (*de BG*, VI, 5). In their territory lay the *locus consecratus* (*de BG*, VI, 13), by Caesar's description, the political, religious and judicial centre of Gaul (Jullian, 1909b, 97). This has been located by Vaillant (1950) at Saint-Benoît-sur-Loire, Loiret: Le Roux (1961), in accepting this site, tentatively suggests that it may have initially lain in Bituriges' territory, later to be annexed by the Carnutes.

Roman influences penetrated northwards more directly after the conquest of the Provincia prior to 120 BC, and its extension westwards to Toulouse in 106 BC. Although the evidence in archaeological terms was slight, Ward-Perkins (1940, 56–7) has suggested that the enmity of Aedui and Arverni may have been in part based on their being 'competing streams of Mediterranean influence' into Aquitaine and the heartland of Gaul.

Thévenot (1960, 7–22) argues that the Arverni seem to have declined with the establishment of Gallia Narbonensis, and that after this the links between Rome and the Aedui were strengthened (*de BG*, I, 32). As regards trade, the geographical position of the Aedui and their clients in the Centre and into the Paris Basin was potentially of great importance to Rome. From the Ambarri and Segusiavi in the area of the Rhône-Saône confluence and the upper reaches of the Loire, to the Bituriges Cubi (*de BG*, VII, 5) and N to the Senones, Parisi, and Bellovaci, the Aedui had a series of client states with control over the middle reaches, at least, of the most important rivers of Gaul. The geographical setting of this loose grouping of nominally pro-Roman tribes had at least the potential to isolate resistance to Rome to a comparatively circumscribed area. The Aedui had, however, suffered reversals in the decade prior to Caesar's arrival in Gallia Comata.

The Bituriges Cubi, whose territory can be equated approximately with the early Christian diocese of Bourges, thus occupied a central position in the struggles of the last century BC. Famed for their iron-workings, and in an agriculturally prosperous area, the Bituriges may also have been able to exploit the central French tin district, which, whilst primarily located in Creuse and Haute-Vienne, also existed near the Bituriges/Arverni frontier in the Bourbonnais (Jullian, 1909a).

HILL FORTS

We will concentrate on forts which, through excavation, collection of surface finds, or the typology of the surviving defences, indicate that construction or use late in the La Tène sequence is likely. The camps are described alphabetically by Département and commune: their exact locations will be found in Table 1 on p. 11.

Allier

Commune of Hérisson

The camp de Châteloy lies in the angle formed by the R. Aumance and one of its tributaries. The river flows through a steep-sided gorge for much of this stretch. Natural defences isolate the camp on its N and W sides. The E limit also takes advantage of a valley. The main artificial defence occurs on the southern part of the east side, and on the southern side: at the angle, the single bank of massive proportions accompanied by a broad ditch with steep outer side can all clearly be seen. These 800-m. long defences belong broadly to the Fécamp series defined by Wheeler and Richardson (1957).

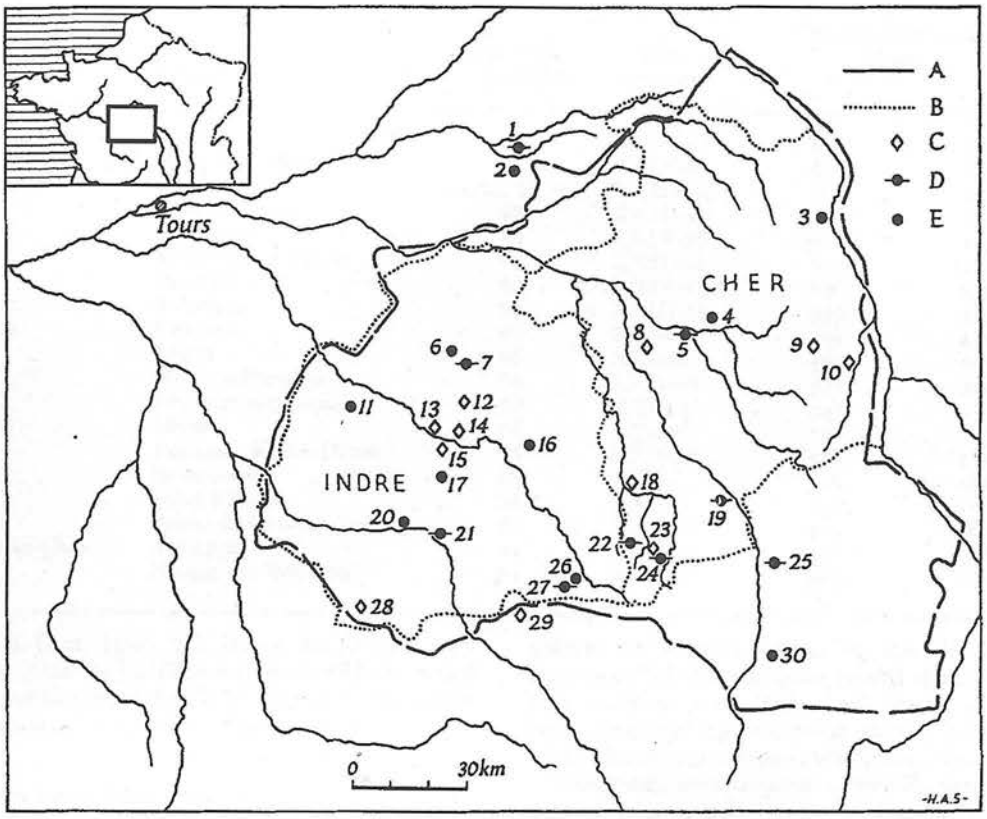


Fig. 1. Hillforts and Viereckschanzen of La Tène III in the territory of the Bituriges Cubi
A: approximate limits of the territory of the Bituriges; B: departmental boundaries; C: probable Viereckschanzen; D: hillforts; E: probable hillforts. 1. Neung-sur-Beuvron; 2. Millançay; 3. Sancerre; 4. Moulins-sur-Yèvre; 5. Bourges; 6. Moulins-sur-Céphons; 7. Levroux; 8. Morthomiers; 9. Mornay-Berry; 10. Menetou-Couture; 11. Murs; 12. Vineuil; 13. Villedieu-sur-Indre; 14. Villers; 15. Niherne; 16. Meunet-Planches; 17. Luant; 18. Ineuil; 19. La Groutte; 20. Rivarennes; 21. Saint-Marcel; 22. Châteaumeillant; 23. Saint-Saturnin; 24. Sidiailles; 25. Hérisson; 26. Saint-Sévère-sur-Indre; 27. Pouligny-Notre-Dame; 28. Chaillac; 29. Lourdoueix-Saint-Pierre; 30. Néris-les-Bains

The camp is about 20 ha. in extent, and would seem to be the last major oppidum of the Bituriges on their southern frontier with the Arverni. Materials from the site seem to be limited to finds from a 'puits funéraire' in 1803 (Anon., 1949, 53, no. 317).

Commune of Néris-les-Bains

The surviving portion of the Camp de Cézard lies within the town of Néris. The rampart, isolating an area of about 2 ha., survives to the height of about 8 m., preceded by a ditch. Gourvest considers the fortification to date to the La Tène period.

Cher

Commune of Bourges

There is little to add to Mrs Cotton's summary of the evidence (Wheeler and Richardson, 1957, 199–201). The only mention of the location of the *murus gallicus* described by Caesar (*de BG*, VII, 23), refers to a fortification of this type being located in the Archbishop's garden in 1821 (Dumoutet, 1863, 1). Both estimates of the area of the La Tène III enceinte given by Cotton (those of Napoleon III and de la Noë) are considerably larger than that of the Gallo-Roman circumvallation, which enclosed a little over

Table 1

Dépt.	Commune	Michelin 1:200,000	IGN 1:50,000	Coordonnées Lambert (Zone 2) x	y
Allier	Hérisson	69	XXIV-27	628	168
	Néris-les-Bains	73	XXIV-28	624	143
Cher	Bourges	64, 65, 68, 69	XXIII-24	604	231
	Châteaumeillant	68	XXIII-27	589	174
	La Groutte	69	XXIV-26	614	187
	Moulins-sur-Yèvre	69	XXIV-24	615	233
	Sancerre	65	XXIV-23	638	259
	Sidiailles	69	XXIII-27	599	167
Indre	Levroux	68	XXI-24	545	221
	Luant	68	XXI-26	539	193
	Meunet-Planches	68	XXII-25	571	202
	Moulins-sur-Céphons	68	XXI-24	541	223
	Murs	68	XX-25	510	213
	Pouligny-Notre-Dame	68	XXII-27	574	163
	Rivarennes	68	XX-26	526	182
	Saint-Marcel	68	XXI-27	537	178
	Sainte-Sévère-sur-Indre	68	XXII-27	579	164
Loir-et-Cher	Millançay	64	XXI-22	557	272
	Neung-sur-Beuvron	64	XXII-21	560	281

26 ha. (Lot, 1950, 72). Buhot de Kersers suggested that the La Tène fortress need have varied little in size from the Gallo-Roman town, a view which was followed by Jullian (1903).

Commune of Châteaumeillant

The oppidum of Mediolanum occupies the S and narrower extremity of the steep-sided promontory between the river Sinaise and the Goutte Noire at an altitude of about 240 m. (PL. III*a*). A rampart and ditch bar the promontory to the south. The northern limit of the fort is not precisely known, owing to the later development of the area, but seems to have been in the region of the motte (Gourvest and Hugoniot, 1957, 343), the area thus enclosed being about 18 ha.

Only preliminary reports detailing the structure of the rampart have been published (*Gallia*, XVII, 1959; XIX, 1961; XXI, 1963; Hugoniot and Gourvest, 1961). The sequence is based on two partial sections. The two phases of the rampart are interpreted as forming a construction of *murus gallicus* type, succeeded by a bank of Fécamp type. Gourvest (personal communication, 1971) suggests that the former defence should date to a period around the time of the movements of Cimbri and Teutones, with the bank being added around the mid-century.

The main structural features of the *murus gallicus* are present, except for the absence of iron nails (limited sampling?) and the optional rear revetting wall. This work seems to have been destroyed by fire, being already collapsed when the dump rampart was piled over it.

Gourvest's interpretation of this Fécamp rampart as being pre-Conquest depends, *inter alia*, on the dating of a fibula of Nauheim type, found in a pit in the subsoil at the tail of the rampart, sealed below the Gallo-Roman level. Gourvest's dating of these fibulae to pre-Conquest times has obtained support from Chapotat (1970, 60–3), but they may well be expected to have a fairly long existence.

The preliminary reports indicate that the *murus gallicus* was built on top of an earlier feature (*Gallia*, XXV, 1963, 386). This platform incorporated burnt wattle-and-daub and sherds earlier than those contained in the *murus gallicus*. Occupation of this site may then have begun earlier in the second century BC at least.

Amphorae of Dressel I and IV types indicate that the inhabitants were engaged in the wine trade with the south from about the time of the annexation of Provence. The amphorae datable prior to 30 BC are found in caches: this tentatively suggested to Hugoniot (1965, 19–20) the lower limit of this period of intensive contact: thereafter, single examples indicate a continuing local prosperity until the Claudian period.

Commune of La Groutte

The Camp de César (or des Murettes) is a classic example of an *éperon barré*, a promontory fort isolating one section of a limestone ridge which dominates the valley of the Cher to the east by about 60 m. The descent from the camp is steep on all sides save the south, where the principal rampart is situated. It dominates the exterior of the camp by about 5 m., and the interior by slightly less. A *Zangentor*, only slightly inturned, divides the 230 m. long rampart some 60 m. from its western extremity. The presence of a ditch has been confirmed by excavation.

Recent excavations have shown the rampart to be of three phases (Hugoniot, 1969; Hugoniot and Vannier, 1971; Hugoniot, personal communication), with Chassey material underlying these. The third phase of the construction contains material of Late La Tène and immediately after the Conquest: it is, however, not certain whether this material corresponds to the construction or reduction of this phase. The main structural features are two dry-stone walls, the inner one of which, constructed on top of a similar wall of the second phase (dated to Late Hallstatt or Early La Tène), is the better preserved. The walls of the third phase are of white limestone blocks, which appear to have been newly cut when used. The angle at which the inner wall runs suggests that it is related to the dry-stone faced inturned entrance. Much of the front face of the rampart has collapsed: stone from here lies almost horizontally in the ditch, suggesting that it was not recut at this stage, though Hugoniot thinks that the material for the walls may have been acquired by extending the outer edge of the ditch.

Commune of Moulins-sur-Yèvre

Camp de Vercingetorix, de César, de Chou or des Monts at Maubranches.

Long suggested as the site of Vercingetorix's camp during the campaigns of 52 BC, the final name best evokes the character of the defence. This consists of an unevenly preserved, or unfinished, rampart, surviving to a height of 6 m. (maximum) above the bottom of the ditch which cuts off a low promontory, defined to the east by a narrow stream and, less definitively, by a shallow natural valley on the W. The camp is no higher than the land outside it to the N.

The rampart and ditch which mark the N extremity of the camp are, according to surface characteristics, Fécamp in character. Both have been eroded at their extremities by agricultural operations. There is no entrance in the surviving portions of rampart, but IGN aerial photographs do not indicate that the promonotory was ever barred right across. The ditch is flat-bottomed and virtually constant (12 m.) in width. The rampart dominates the interior of the camp by a maximum of 3 m.

Excavation, consisting of a section through the rampart and ditch, indicates that the latter was cleaned out, if not initially dug, shortly before the site was abandoned (Allain, 1969).

Commune of Sidiailles

This 16-ha. promontory fort, Le Camp de César, is the clearest example of the Fécamp class of earthwork in Cher. The camp occupies a steep-sided promontory, overlooking, at its eastern end, the river Arnon (PL. II*b*). The natural defences are enhanced by a stream to the south, and by a stream and marshy land on the northern side. The defences are at their most substantial at the western end, and at the western extremity of the south side. These consist of a high rampart of sand and clay, incorporating locally-derived quartz and micaceous fragments, preceded by a 17-m. broad ditch, 2 m. deep. This is of typical canal-like profile. There is a substantial counterscarp bank on the southern side.

In the western side is a prominent *Zangentor*, the side inturning about 20 m. beyond the crest of the rampart: ploughing may have eradicated up to a further 5 m. The entrance is now 6 m. wide, but was initially probably narrower.

About 200 m. along the south side from the western corner of the fort, the camp is divided by an internal rampart, of which only the southern extremity is preserved, dominating the camp by 5 m. to the west and 2 m. to the east. The sequence of construction is impossible to assess, the outer defence here being formed uniquely by a steep slope. Buhot de Kersers clearly shows that this rampart was preceded by a ditch, but its form and dimensions are now uncertain. Another camp of Fécamp type to incorporate a less substantial earthwork is La Cité des Limes, Bracquemont, Seine Maritime, where the feature has been subject to more varying interpretation (Mangard, 1969). Surface finds from the camp include Italic amphorae comparable to those from Châteaumeillant, La Groutte, and Néris-les-Bains.

Indre

Commune of Levroux

Finds from the 23-ha. oppidum on La Colline des Tours have been recorded since last century (Büchsenschütz and Büchsenschütz, 1971). This contour camp isolates the southern extremity of a plateau at the limit of the Champagne Berrichonne and Boischaut. The site is delimited by two terraces, whose parallel courses can be traced round the hill. The outer one has been sectioned: it contains a *murus gallicus*.

This has an outer wall-face, irregularly built, intersecting transversal and longitudinal timbers, nailed at their intersections, the interstices being filled with clay. A vestigial inner revetting wall, which has rather the form of a layer of stone set on the surface of the clay core, marks its inner limit. The quantity of stone recovered suggests that the outer wall-face was originally at least 3·5 m. high.

A thin occupation layer* sealed under the rampart already contained imported amphorae sherds, suggesting that the *murus gallicus* ought to date to the last century BC. The situation is further complicated by the existence of a layer of Jurassic limestone, imported from the Champagne. About 1 m. thick, this overlies the *murus gallicus*, including its collapsed front wall. Such dating evidence as is contained in this layer speaks broadly for a date at the end of La Tène/beginning of Gallo-Roman. Without further investigation, it is impossible to be certain whether this represents a refortification of the site or not.

Levroux became a provincial centre during the Roman period. Material of Augustan and later date has been recorded from huts and shafts outside the oppidum.

Commune of Luant

Le Châtelier at Les Pornins is situated at the E limit of Brenne in SW Berry. The camp, being dominated by a rampart 4 to 6 and occasionally 8 m. high, is the most heavily defended in relation to its size in Berry, it being about 1 ha. in area. The defences are broadly of Fécamp type, though for much of the circuit the rampart does not have the simple dump profile typical of the series. Entrance is by a *Zangentor*, about 3 m. wide, on the S side. The ditch, generally flat-bottomed, varies greatly in width, reaching 12–14 m. on the N and E sides, where its outer limit is often ill-defined.

* A radiocarbon date has been obtained from charcoal in this layer by Dr D. Harkness at East Kilbride: (SRR-310) 1702 ± 46 bp.

Commune of Meunet-Planches

A 20-m. long section of rampart and ditch is all that survives of Le Camp de Corny. On its NW side, the limit of the camp is determined by a slope towards the river Théols. Originally, it may have been about 1 ha. in extent. Finds of *terra sigillata* and tiles, combined with the report of the somewhat unreliable Martinet (1882) of the discovery of frescoes all suggest a Roman occupation.

However, there is a nineteenth-century report of the discovery of iron nails in considerable quantity during the extraction of stone from the rampart. These were apparently exactly similar to examples from Murcens, Lot, and suggested a Gaulish date to Buhot de Kersers (1898, 74).

Commune of Moulins-sur-Céphons

The defences of this camp are principally preserved on its northern side, where there is a broad ditch, possibly flat-bottomed. The main defensive feature is the difference in altitude (some 7–10 m.) between the height of the slight eminence on which the camp sits and the ditch which has been dug in the lower surrounding ground. The defences have a possible bivallate sector on the NE side. A farmyard has obliterated the western part of the enceinte, but the camp would seem to be about 10 ha. in extent.

Commune of Murs

This 15-ha. camp lies on a terrace between two branches of the Ruisseau de Murs. On the southern side is a rampart 160 m. long and 10 m. high.

Commune of Pouligny-Notre-Dame

Les Fossés Sarrazins is a rectangular camp, measuring 135 m. by 100 m. The site lies on the N slope of a small schist plateau, dominating a tributary of the Indre, to the E, and a smaller stream to the W. A single section through the western rampart, prolonged for 70 m. into the camp, indicated that occupation was late in the La Tène sequence (*Gallia*, XXIII, 1965, 361).

The rampart (Gourvest, 1960) was constructed on the old ground surface. Its structure was of irregularly alternating layers of clay, schists and humus. The ditch was triangular in profile: there was no berm. Possibly only the N entrance is original.

All the evidence of occupation was concentrated in the 13 m. nearest the rampart. The native pottery was poorly preserved, but could be generally paralleled in the Châteaumeillant sequence, as were fragments of Italic and Graeco-Italic amphorae.

Whilst the geographical situation of the camp near the frontier with the Lemovices and the dimensions of the rampart suggests a work of primarily defensive character, the possibility of a farm (Cotton, 1962) has not been eliminated.

Commune of Rivarennes

Le Gourde is a camp of over 1 ha. on the N bank of the river Creuse. The SE side of the camp is marked by a rapid declivity of 20 m. towards the river, the remainder of the circuit being marked by a slope of 2–4 m. Büchsenschütz was able to parallel pottery from this site, and shafts in its immediate vicinity, amongst the Late La Tène and Early Gallo-Roman material at Levroux.

Commune of Saint-Marcel

Les Mersans, a 27-ha. plateau fort (bibliography in Jenny, 1973) dominates the Creuse to the S and is limited to the E by a valley. On these two sides, and on the W, the principal defence consists of the natural slope of the land, whereas on the N there is a rampart and ditch, the former having been sectioned in 1968. It seems to have been of simple dump construction.

Excavation within this irregular polygonal enceinte has revealed a complex occupation in Gallo-Roman times (Argentomagus): prior to this there is a La Tène III occupation, the transitional period to full-blooded Romanization being marked by a series of pre-Augustan levels, a sterile layer, and then, from the reign of Augustus on, a continuity of occupation in which it has proved possible to document the survival of certain pre-Conquest traits.

There is some evidence for bronze- and gold-working on the site. The importance of the oppidum may stem from its role as a trade centre (it lies at the junction of several Roman roads) and as a site of industrial production.

Commune of Sainte-Sévère-sur-Indre

Camp du Guesclin

The southern end of an inland promontory is barred by an earth and stone rampart 140 m. long. The other sides of the promontory are steep, and they have stream courses at their foot.

Loir-et-Cher

Commune of Millançay

Camp Romain—Camp de César—Les Châteaux: this 5-ha. camp lies to the NW of the modern town: its NE boundary is defined by the now partially-drained Grand Étang, one of the many in the Sologne. The principal defence is on the SE side and consists of a massive rampart of earth and sand preceded by a shallow ditch, 25–50 m. wide. The rampart dominates the interior of the camp by 4 m. and the ditch by at least 8 m. and up to 12 m. Elsewhere the defences consist of a slope of 3–5 m., without the addition of a rampart.

Commune of Neung-sur-Beuvron

Les Monts: this 10-ha. camp occupies a platform about 10 m. above the surrounding land and is defended by the Beuvron to the S and the Tharonne, another stream, to the N: these converge to the SW of the site (PL. III*b*). The only substantial artificial defence is on the E side. This consists of a massive rampart of earth and sand, reaching 12 m. in height and preceded by a 20-m. broad, flat-bottomed ditch. These run between the two river courses in an arc over some 300 m. Apart from the modern road which enters the town at the southern end of the rampart, there is no evidence of an entrance.

VIERECKSCHANZEN

Rectangular enclosures seem to have fulfilled some function of broadly ritual significance to the Celts. To these belong the cult enclosures discussed by Schwarz in a series of papers since 1958: generally concentrated in Central Europe, an outlying group has been mapped by Piggott (1968, 68) and Waldhauser (1970) in north-central France. They are often found in, or in association with oppida. The clearest example of this in Central France is La Terrasse de Mont Beuvray (Drda *et al.*, 1971, 288).

No certain example of this type of enclosure is known from Berry, if only because none of a class of approximately square enclosures, measuring about 100 m. by 100 m., has been excavated. Examples in Cher are at Boisroux (commune of Ineuil), Château-Basin (Menetou-Couture), Villeville (Mornay-Berry), Les Bordes (Morthomiers: PL. II*a*), and Bagneux (Saint-

Saturnin). In Indre, there are examples at Milloux (Chaillac), Camp de César (Niherne), and Chambon (Villedieu-sur-Indre). Another lies in N Creuse, at Lignaud (Lourdoueix-Saint-Pierre).

Most of these are figured by Büchsenschütz (1971, 413, fig. 4) and some may date to our period, though other examples are more likely to be medieval, as at Raymond (Cher) and Parnac (Indre). Recent aerial photography has produced two further examples in Indre, one in the area of Levroux, and an example at the airfield of Châteauroux. In addition, an aerial view shows that the site at Les Bordes is formed by two contiguous enclosures.

Surface finds, though not numerous, are generally Gallo-Roman, and it would seem insupportable to insist either on a Late La Tène date or a cult use for any of them: some may perhaps represent the aedificia (*de BG*, VII, 14) for which we have otherwise no evidence.

DISCUSSION

Hogg (1969, 262) has already published one Fécamp rampart from Vienne, at Châtillon-en-Couhé. Combined with those recorded here, also from S of the Loire, it must now be questioned whether the Belgic affinity accorded these forts by Wheeler and Richardson (1957, 9) and their use in the tighter definition of *Belgium* (Hachmann *et al.*, 1962, 46–7: Hawkes, 1968, 10) can be upheld. The dating evidence for the Berry Fécamp forts is not very full—later than the *murus gallicus* at Châteaumeillant and accompanied by *Zangentore* at Sidiailles and Luant. If there is a dump rampart at Levroux, this would also post-date the *murus gallicus*, but at this site there is no surface indication of a ditch, and, in view of the terrain and the composition of the overburden, this is perhaps unlikely. Similarly, at Vieux-Laon, Saint-Thomas, Aisne (Lobjois, 1965), the structural sequence would place the Fécamp rampart later than the *murus gallicus*, and probably close in date to the Conquest.

Avery *et al.* (1967, 251) have noted that some dump ramparts are earlier than the Fécamp type in England: the remodelling of Rainsborough IV, involving the erection of a dump rampart over a collapsed wall, led to the suggestion that this may have been due to the necessity of hurriedly refurbishing the defences. This requirement—for hurried fortification or refortification of a site—may well account for the number of dump ramparts apparently of a constructional date around the time of the Gallic War.

Wheeler and Richardson followed the view that, since *muri gallici* are absent in the Provincia annexed by Rome in the later second century BC, they ought to be later than that date. Evidence of timber-laced defences in the Province, at any date from the Late Bronze Age on, is not great. Exceptions include Le Luc (*Gallia*, XXV, 1967, 421; Dehn, 1969) and the vitrified fort at La Colle du Rouet, Le Muy (*Gallia*, XXII, 1964), both in Var.

There is no *murus gallicus*-defended fort which needs to be significantly earlier than *c.* 120 BC: that at Vertault (Côte d'Or) would appear to be post-Conquest. But it would seem that there is no *a priori* reason why the forts of Gallia Comata should march in step with those of the Province. In view of the relative numbers of both *muri gallici* and Fécamp ramparts now known from France, it would seem that Wheeler and Richardson's statement that *muri gallici* seem 'outside Belgic Gaul . . . suddenly and significantly to have become the standard anti-Roman device' (1957, 4) is open to challenge. As Hawkes (1958) pertinently noted, it seems unlikely that a fortification type as complex and time-consuming was first disseminated in the western Celtic areas in the thick of war. The modification of the defensive system at Saint-Thomas, and the refortification of Châteaumeillant might be taken to suggest that, in some areas at least, the *murus gallicus* might have been considered inadequate on either labour- and resource-consuming, or more purely military grounds around the time of Caesar's campaigns.

Judging by Professor Atkinson's calculations (1961, 295), one of the most efficient ways of constructing a dump rampart would be to eliminate the presence of a berm between bank and ditch, and to minimize the depth of the ditch (accepted that there is a minimum depth

consonant with the needs of defence) needed to obtain material by cutting it broad. This would seem to maximize the return for the effort expended, the more energy-consuming vertical lift being minimized. This would seem to account for the typical profile of the Fécamp series: there are perhaps military consideration in addition to this.

Caesar states that the *murus gallicus* (*de BG*, VII, 23) was an effective form of defence against both the battering-ram and fire: perhaps this was the case, relatively speaking. A similar echo is in Vitruvius (I, v, 3) relating to the difficulty of setting fire to ramparts laced with particular types of wood. Nonetheless, both the battering-ram and fire would be even less effective against earthen dump ramparts. The same might also be the case with the much-used technique of tunnelling (Rivet, 1971).

More problematical is the Roman use of towers and similar siege-weapons. Noviodunum of the Suessiones, which caused Caesar trouble because of the width of its ditch and the height of its rampart, is probably to be identified with the fort at Pommiers (Aisne), defended by works of Fécamp type (Rivet, 1971, 192, no. 2). Noviodunum of the Bituriges (see below) may well have been similarly defended. It would be an economical solution to envisage a causative link between the introduction of the elaborate siege machinery of the Romans and a Celtic reply to broad ditch and sloping rampart-face, but the evidence of *de BG*, II, 12, would seem to speak against this.

However, where it has been possible to estimate the original height of *muri gallici* in Gaul (Levroux: Huelgoat, Cotton in Wheeler and Richardson, 1957, 168) by archaeological means, a height of *c.* 3·5 m. is obtained. Bulliot estimated the original height of the Mont Beuvray rampart at 5 m. (Cotton in Wheeler and Richardson, 1957, 192). Caesar's siege mound at Avaricum was nearly 25 m. high, but this may be regarded as exceptional, the outcome, at least in part, of the defence tactics.

The emergence of siege warfare utilizing complex machinery seems to correlate with the construction of much higher defensive walls in Greece in the middle of the first millennium BC, and similar considerations may have been a contributory factor to the spread, if not the genesis, of the massive Fécamp ramparts in Gaul.

However, in a society where warfare, even of a more limited and less mechanized kind, seems to have been endemic (e.g. *de BG*, V, 9) it seems to be unnecessary to tie defensive architecture too rigidly to the activities of Caesar or other documented threats of external origin, such as the Cimbri and Teutones, Ariovistus, or the earlier annexation of Provence. It is probably most economical to envisage both the elaborate *muri gallici* walls and the Fécamp ramparts as broadly contemporary fortification types in extra-Mediterranean Gaul stemming from different considerations, military or otherwise.

HILLFORTS IN ACTION: BERRY DURING THE GALLIC WAR

Fighting only took place in Bituriges' territory at the end of the war: all the sites that we have tentatively identified relate to Caesar's campaigns of 52 BC (*de BG*, VII, 9–32). The textual references are conveniently listed by Rivet (1971, 197–8, nos. 19–22): alternative interpretations have been presented by many authors (Thévenot, 1960, 27–63, pl. II).

Vercingetorix approached Berry from the S, from the territory of the Arverni, and Caesar from the N, from Cenabum (Orleans). We would follow Thévenot in locating the Boii in the eastern march of Berry, which whilst providing considerable defensive possibilities, is largely devoid of evidence of Iron Age settlement. The oppidum of Gortona/Gorgobina could then be placed on the isolated Portland limestone outcrop of Sancerre, a strong defensive position, overlooking the Loire. Direct archaeological evidence for this location is lacking, but other arguments have been put forward by Boyer (1882) and Chénon (1921).

The oppidum of Noviodunum, which capitulated to Caesar after Vercingetorix's relief force had been checked, ought to be situated in the Sologne, between Orleans and Sancerre (*de BG*, VII, 12–13). There are three main contenders: Pierrefitte-sur-Sauldre (Thévenot,

1960), Neung-sur-Beuvron (Soyer, 1904), both in Loir-et-Cher, and Neuvy-sur-Barangeon (Cher). Of these, both the examples in Loir-et-Cher are more likely than Neuvy-sur-Barangeon, the name of which suggests an origin in Gallo-Roman times ('novus vicus'). The major find from there is a collection of bricks bearing spurious quotations from *de Bello Gallici* (Boyer, 1861; Buhot de Kersers, 1895, 319).

On the grounds of the defensive specification and of name, Neung-sur-Beuvron seems the most likely location, though the defences at Pierrefitte have been erased, and the latter site is more directly in line between Orleans and Sancerre. The fort at Neung in fact lies in the early diocese of Chartres, but it is sufficiently close to the Bituriges' frontier to have lain originally in their territory: a consideration which may be irrelevant, since, according to Soyer (1904, 6) most of the manuscripts of *de Bello Gallico* do not state that the oppidum should be in Bituriges' territory. It is perhaps worth remarking here that the other main forts of Fécamp type near the Bituriges' frontiers lie opposite the Arverni, another tribe hostile to the Aeduan 'confederacy' of which the Bituriges were loosely a part.

The evidence for Avaricum/Bourges has been discussed many times: the only tentative addition to the discussion that can be made is that part of Vercingetorix's reluctance to defend the site may stem from the fact that the timber-laced defences, in the ill-drained context of Bourges, may have been in a decaying state. Of Vercingetorix's camps during the siege, the first lay *milia passum XVI* from Avaricum (*de BG*, VII, 16). The fact that the armies approached the town from the north, coupled with the fact that Vercingetorix was able to maintain contact with the defenders in Avaricum, would seem to indicate that he positioned his forces to the north of the town. The suggested locations for this camp were discussed by Rice Holmes (1899, 726–7). Although there is no reason to suppose that this camp was fortified, Vallois (1876) considered the enigmatic 100 ha. enclosure at La Haute Brune (communes of Allogny and Saint-Martin d'Auxigny, Cher) in the context both of a camp of Caesar and of Vercingetorix: neither role does it fit satisfactorily.

Many sites have been proposed for the second camp, situated nearer to Avaricum (*de BG*, VII, 18): its situation was described fairly exactly by Caesar (*de BG*, VII, 19). Originally unfortified, defences were to be added after the fall of Avaricum, though it has been argued by Jullian (1909c) that these need not have amounted to a rampart and ditch. Of the camps suggested, that at Moulins-sur-Yèvre, between Avaricum and the Boii, has the merit of being possibly unfinished and late La Tène in date. This suits the historical evidence, as events in the Nivernais soon called for its abandonment (*de BG*, VII, 32).

BIBLIOGRAPHY

Abbreviations of French journals used below

CAHB Cahiers d'Archéologie et d'Histoire du Berry
MSAC Mémoires de la Société Archéologique du Centre
RACF Revue archéologique du Centre de la France
RAECE Revue archeologique de l'Est et du Centre-Est

ALLAIN, J. 1969. Nouvelles recherches au Camp de Chou, Commune Moulins-sur-Yèvre, Cher, *CAHB*, No. 16, 1969, 43–4.

ANON. 1949. *Au temps de la Gaule indépendante* (Bourges, Museum catalogue).

ATKINSON, R. J. C. 1961. Neolithic engineering, *Antiquity*, XXXV, 292–9.

AVERY, M., J. E. G. SUTTON and J. W. BANKS. 1967. Rainsborough, Northants, England: excavations 1961–5, *PPS*, XXXIII, 207–306.

BOYER, H. 1861. *Noviodunum Biturigum et ses graffiti* (1861) (Bourges).

1882. Les origines de Sancerre, *Mém. Soc. Hist. Cher, 3rd ser.*, II, 1882, 293–333.

BÜCHSENSCHÜTZ, O. 1971. Etat de la recherche sur les oppida en France, particulièrement dans le Centre, *Arch. rozh.*, XXIII, 406–16.

BÜCHSENSCHÜTZ, A. and BÜCHSENSCHÜTZ, O. 1971. Etude préliminaire à la fouille de la Colline des Tours à Levroux (Indre), *RACF*, X, 208–25.

BUHOT DE KERSERS, A.-L.-M. 1867. Les enceintes en terre dans le département du Cher, *MSAC*, I 13–57.

1895. (*Histoire et*) *Statistique monumentale du département du Cher*, VII (Bourges).

1898. Classement des enceintes de terre: mémoire inédit., *MSAC*, XXII, 71–9.

CHAPOTAT, G. 1970. *Vienne Gauloise—le matériel de La Tène III trouvé sur la colline de Sainte Blandine* (Lyon).

CHENON, E. 1921. Notes archéologiques sur les environs de Châteaumeillant (3rd series), *MSAC*, XL, 18–109.

COTTON, M. A. 1962. Quelques enceintes rectangulaires de petites dimensions en Angleterre et en Corrèze, *Celticum*, III, 97–106.

DAVIES, O. 1935. *Roman mines in Europe*, 1935.

DEHN, W. 1969. Noch einmal zum 'Murus Gallicus', *Germania*, XLVII, 165–8.

DRDA, P., J. WALDHAUSER and M. CIZMAR. 1971. Oppida und Viereckschanzen, *Arch.rozh.*, XXIII, 288–93.

DUMOUTET, J. 1863. *Fouilles des caves du Palais du Duc Jean de Berry* (Paris).

GOURVEST, J. 1960. L'enceinte rectangulaire des Fossés Sarrazins à Pouligny-Notre-Dame(Indre), *OGAM*, XII, 21–3.

GOURVEST, J. and E. HUGONIOT. 1957. Un emporium gaulois à Châteaumeillant, Cher: l'oppidum de Mediolanum, *OGAM*, IX, 342–5.

GUYONVARC'H, C. J. 1961. Mediolanum Biturigum: deux éléments de vocabulaire religieux et de Géographie sacrée, *OGAM*, XIII, 137–58.

HACHMANN, R., G. KOSSACK and H. KUHN. 1962. *Volker zwischen Germanen und Kelten* (Neumünster).

HAWKES, C. F. C. 1958. The hill-forts of Northern France, *Antiquity*, XXXII, 154–62.

1968. New thoughts on the Belgae, *Antiquity*, XLII, 6–16.

HILL, D. and M. JESSON (eds.). 1971. *The Iron Age and its hill forts*, University of Southampton Monograph series No. 1.

HOGG, A. H. A. 1969. A sample of French hillforts, *Antiquity*, XLIII, 260–73.

HUGONIOT, E. 1965. Châteaumeillant, *CAHB*, No. 1, 19–20.

1969. L'oppidum du Camp de César à La Groutte, Cher, *CAHB*, No. 16, 42–3.

HUGONIOT, E. and J. GOURVEST. 1961. L'oppidum de Mediolanum, Châteaumeillant, Cher: fouilles de 1965–1960, *Celticum*, I, 193–204.

HUGONIOT, E. and B. VANNIER. 1971. Fouille du rampart du camp de la Groutte, *CAHB*, Nos. 24–5, 22–3.

JENNY, J. 1973. Premier essai de bibliographie sur Argentomagus, *CAHB*, No. 32, 24–5.

JULLIAN, C. 1903. *Vercingétorix* (3rd edit.).

1909 (a) *Histoire de la Gaule*, 2nd revised edit. Vol. I, Les invasions celtiques et la colonisation grècque.

(b) *Histoire de la Gaule*, Vol. II, La Gaule indépendante.

(c) *Histoire de la Gaule*, Vol. III, La Conquête Romaine et les premières invasions Germaniques.

LOBJOIS, G. 1965. Les fouilles de l'oppidum gaulois du 'Vieux Laon' à Saint-Thomas, Aisne, *Celticum*, XV, 1–26.

LOT, F. 1950. *Récherches sur la population et la superficie des cités remontant à la période Gallo-Romaine, Vol. II* (Paris).

MANGARD, M. 1969. État des recherches sur la Cité des Limes, communes Neuville-les-Dieppe et Bracquemont, Seine Maritime, *OGAM*, XXI, 31–56.

MARTINET, L. 1882. Le Berry prehistorique, *Mém. Soc. Hist. Cher.*, 3rd series II, 1–142.

MONKHOUSE, F. J. 1959. *A regional geography of Western Europe* (London).

PIGGOTT, S. 1968. *The druids* (London).

RICE HOLMES, T. 1899. *Caesar's conquest of Gaul.*

RIVET, A. L. F. 1971. Hill-forts in action in (ed.) D. Hill and M. Jesson, 189–202.

LE ROUX, F. 1961. Le Celticum d'Ambigatus et l'omphalos Gaulois. Le Royauté Suprême des Bituriges, *OGAM*, XIII, 159–84.

SCHWARZ, K. 1958. Spätlatènezeitliche Viereckschanzenkeltische Kultplatze, *Neue Ausgrabungen in Deutschland*, 203–14.

SOYER, J. 1904. Etude critique sur le nom et l'emplacement de deux oppida celtiques mentionnés par César dans les 'Commentarii de Bello Gallico', *MSAC*, XXVIII, 1–20.

THÉVENOT, E. 1960. *Les Eduens n'ont pas trahi.* (Coll. Latomus, Vol. L).

VAILLANT, R. 1950. Saint-Benoît-sur-Loire, omphalos gaulois, *OGAM*, III, 81–6.

VALLOIS, G. 1876. Le camp de la Haute Brune et la voie romaine de Bourges à Orléans, *MSAC*, VI, 1–89.

WALDHAUSER, J. 1970. Problém Viereckschanzen (Keltskych Ctyruhelnikovych Valu) a Nové Zjistené oppidum v. Severnich Cechach, *Arch.rozh.*, XXII, 327–34.

WARD-PERKINS, J. B. 1940. The pottery of Gergovia in relation to that of other sites in Central and South-western Gaul, *Arch. Journ.*, XCVII, 37–87.

WHEELER, R. E. M. and K. M. RICHARDSON, 1957. *Hill-forts of Northern France* (London).

a



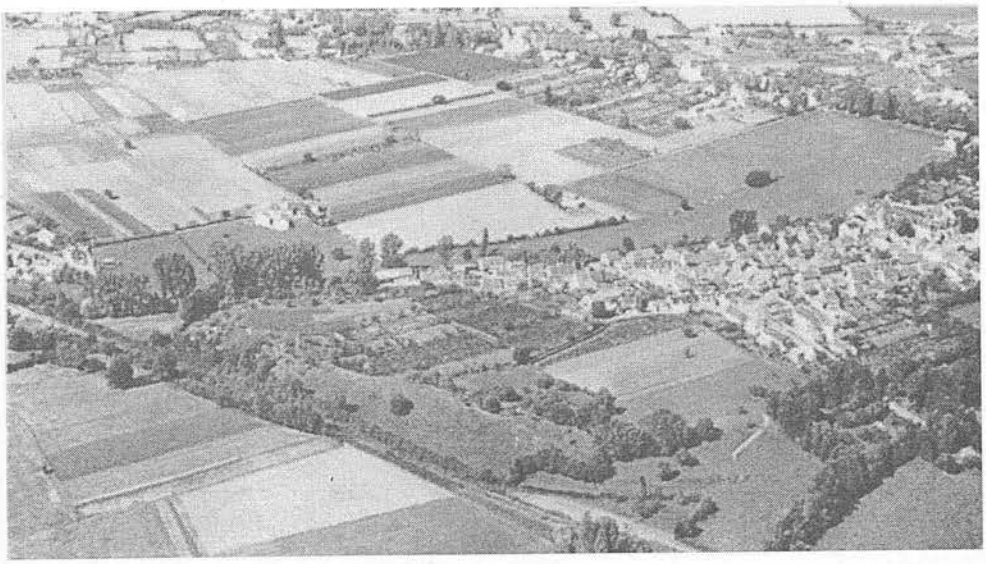
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PLATE II: LATE PRE-ROMAN IRON AGE FORTS IN BERRY
(a) Morthomiers ; (b) Sidiailles (Cher)

See pp. 8–18

Photos : Ralston and Büchsenschütz



a



b

PLATE III: LATE PRE-ROMAN IRON AGE FORTS IN BERRY

(a) Châteaumeillant (Cher); (b) Neung-sur-Beuvron (Loir et Cher)

See pp. 8-18

Photos: Ralston and Büchsenschütz

(with Rachel Pope) 'Approaching sex and status in Iron Age Britain with reference to the nearer continent', *in eds* Moore, T. and Armada, L. *Atlantic Europe in the First millennium BC: crossing the divide*. Oxford: Oxford University Press, *forthcoming*.

Approaching sex and status in Iron Age Britain with reference to the nearer continent

Rachel Pope and Ian Ralston

Introduction

For almost three decades, British Iron Age studies have seen the traditional paradigm framed in terms of a timeless, hierarchical 'Celtic society' face sustained challenges (Collis 1981, 67; Hill 1989; Hill 2006). Regarding social organisation, hierarchies must now be demonstrated in the evidence rather than assumed. In a similar way, approaches to Iron Age gender centred on archaeological and osteological evidence remain under-developed; with a tendency instead to focus on the few classical testimonies and to gender prehistory by formal analogy (cf. Pope 2007). The challenge remains to develop an *archaeological* understanding of Iron Age societies: one that takes neither power-structure nor sex-class for granted; and one that prioritizes the archaeological data. The authors explore this issue by selectively addressing the 'woman question' in west European Iron Age studies; with a review of recent work in non-Mediterranean France providing context for the British material.

In terms of social modelling, a significant dichotomy in the temperate European Iron Age can be discerned between a continental tradition in which plentiful burial evidence, at least for some areas and periods, lends itself to the interpretation of social hierarchy; whereas in Britain the main datasets are of Iron Age settlement, now dominantly taken to represent forms of community-based egalitarianism. The challenge is now to test such ideas. To keep a vast topic manageable, we aim to discover what the burial record of Hallstatt D to La Tène C France (*c.* 600-150 BC) and Early to Middle Iron Age Britain (out of necessity focussed on the latter: *c.* 350-100

BC) can tell us about sex and status in Iron Age societies. Such treatment is inevitably selective, but we hope it highlights issues and data that merit further examination.

In recent years British Iron Age studies have attempted to absorb the principle that grave wealth – as evidenced by architectural elaboration and/or grave-goods – need not necessarily intimate social ranking. Where power is held and how status is represented are both culturally determined and, as such, grave wealth can have other meanings. Indeed, status items may be representative of group rather than individual identity, although recognising such concepts archaeologically is problematic. As such, we must remain open to the idea that other mechanisms might contribute to the presence of high-status grave-goods, rather than an elevated secular or ritual role for the interred individual: for example the corpse could be the well-loved head of an extensive, extended family in which emotional loss is represented materially. As a result, the authors accept that grave wealth *does* represent social status, but contend that 'status' is not always linked to social *hierarchy*.

Particularly interesting in this light are the human remains in the cemetery at Hallstatt, where it is well-established that wealthy goods accompany both males and females (Hodson 1990). Most interesting, however, is that the skeletal evidence for hard physical work – with female muscle development in some cases exceeding that of males – indicates that it was the salt miners, the workers, who were buried with such valuable and by extension high-status items (Musée de Bibracte 2004; Pany and Teschler-Nicola 2007, 95). Here, it may be the workers that were the elite. Other interpretations are of course possible, and, for the purposes of this paper, we simply wish to understand whether, and if so when and where, the burial of high-status items with individuals – whatever this may 'mean' – is an act

that is gendered, thus revealing sex as a structuring principle in the Iron Age of Western Europe.

Approaching sex and status

In recent years, J.D. Hill has proposed the rejection of the 'triangle-shaped' approach to Iron Age societies in Britain (Fig. 1), suggesting that the acceptance of such hierarchies may well be anachronistic; and reinforcing his call for the possibility of a 'different' past (Hill 1989; 2006; this volume). This critique, however, does not directly challenge the universality of male authority. When it comes to sex-based hierarchies, British Iron Age studies in general remain unwilling to accept the possibility of difference. Whilst some accept the likelihood of female authority in the British Iron Age (Cunliffe 1995, 82), others approach the past rather differently. James (1993), for example, confidently used headings such as 'courage' and 'power' in discussing the historical evidence in his account of 'Celtic women'. In interpreting the archaeological record, however, topics such as 'fashion' and 'cosmetics' were highlighted. In the four pages on women, almost half was given over to their appearance. Archaeologists appear more comfortable discussing Iron Age women within a distinctly modern mainstream template of femininity; with a tendency to be distinctly *uncomfortable* discussing female association with symbols of power; especially when lacking a direct reference to female power from the historical texts. Torcs, for instance, and their association with 'rank or status, nobility or power', are only discussed with reference to men, whilst female jewellery signals marital or maternal status (James 1993, 65). Any evidence for female power, such as that proffered by the Vix assemblage, is tempered:

> "how common it really was for women to hold supreme political power in their own right is more open to question"

Equally, Boudica's status is immediately qualified:

> "her leadership may have been symbolic"
>
> (James 1993, 67)

For Bettina Arnold, discussion on the social role of women in the Germanic tradition of Iron Age studies a generation ago ranged from "benign neglect to active sabotage" (1991, 366). Arnold cites a number of 1980s studies in which apparently female high-status burials, including examples with gold torcs, weapons, or drinking horns, were reinterpreted as male transvestites, largely it would seem because flexibility in Iron Age gender roles – the possibility of high status females (in authority), female warriors or even of females drinking – was difficult to entertain.[1] In the 1980s, some scholars were more comfortable arguing for the existence of transvestism amongst Iron Age men than even the possibility of elevated status amongst Iron Age women; telling us more about the gender politics of our discipline in the 1980s than about Iron Age society.

This unwillingness, in the face of difficult evidence, to countenance the significance of Iron Age women was shared by other male archaeologists of the 1980s. Grave 12 at the Tinqueux cemetery (Marne) illustrates something of the problem. This shallow and disturbed grave contained the incomplete skeleton of a young adult (aged 17-25), accompanied by a few grave-goods including a short iron sword, placed unusually with respect to the body. The slenderness of the femurs suggested the individual's sex as female, but by the time the cemetery data was summarized (Flouest and

[1]Although Pauli (1972) had previously discussed differential status *amongst* females on the basis of age.

Stead 1981, 157-8; Tableau 1, p. 171), the presence of the short sword led to Grave 12 being identified as 'certainly male'.[2] Tinqueux 6 is also described as male although no sexable skeletal remains survived. Similarly the East Yorkshire burial of Rudston 163, with sword and shield, was identified as a 'possible female' by Sheelagh Stead on the basis of the osteology; a detail later qualified in the summary: "(but not according to the grave goods)" (I. Stead 1991, 127; 205).

Hinton's (1986) study of the social status of burials at Münsingen-Rain, Switzerland highlights a cognate issue: on finding that the majority of high-status burials were female, Hinton consciously abandoned any link between wealth and status, suggesting instead that women were perhaps wearing their 'bridewealth' which a man would use "as a symbol of his wealth by displaying it on his wife"[3] Like Pauli (1972), there were no qualms when ranking status *within* the sexes, but ranking status *between* the sexes could not be entertained. When it was women who had the 'wealthiest' assemblages, the wealth = status model simply had to be re-thought, so that (female) wealth = wife:

> "90.9% of the very rich graves are those with female burials ... At first this seems to indicate that women have a higher status than men. *At this point* we have to abandon the assumption that wealth is always equivalent to status ... because the alternative is to postulate a matriarchal society – for which there is no ethnographical or historical parallel. An alternative interpretation of this phenomenon is that the woman is being used to display her husband's wealth; that

[2]Other interpretations of burials with short swords are offered below (following Marion 2004).

[3] Before moving on to suggest that, again, rather than status, jewellery was perhaps more about I identity and the movement of brides.

she is a symbol of his status ... that a richly ornamented woman is a status symbol for a man"

(Hinton 1986, 364-365; italics added)

Assuming a universal, lower status for women than men has not only serious political ramifications, but the rejection of the wealth = status model, purely on the basis of sex, highlights a disturbing lack of both scientific and philosophical rigour in mainstream 1980s archaeology. Interpretations like these contributed to the rise of gender archaeology, as informed by feminist theory, so that by the late 1980s, Ehrenberg (1989) and Arnold (1991) began specifically to discuss the topic of Iron Age women. However, even by the later 1990s, Iron Age women were still viewed primarily as wives, with any authority due only to male absence (Arnold 1995) and Parker Pearson's structuralist interpretation of the British evidence had Iron Age women serving the men (1999a, 53).[4] Knüsel (2002), having reassessed the skeletal evidence, accepted the 'dame de Vix' as a high-status female, but continued to justify this status by seeing her as a 'ritualist'. Certainly some anxiety remains about equating female 'wealth' with autonomous political status and authority. However, new gender theory and methodology means we can no longer justify uncritical, androcentric versions of the past based on formal analogy and must instead strive to become better archaeologists (see especially Wylie 2002, but also Moore and Scott 1997; Gilchrist 1999; Stig Sørensen 2000; Arnold and Wicker 2001; Nelson 2006; Joyce 2008).

The mortuary evidence from temperate Europe west of the Rhine

The later prehistoric funerary record of temperate Europe west of the Rhine is extensive, if geographically and chronologically uneven. It is only

[4] For a full critique of structuralism in 1990s prehistoric studies see Pope 2007.

possible here to summarize certain trends in the burial evidence, examined since the nineteenth century, more particularly that from eastern and northern France. The amount of data available is considerable, although the quality of it is very varied. Even for the less well-known later prehistoric centuries (third – first BC) some 3000 graves could be listed for this area by 1990 (Pion and Guichard 1993).

Little analytical work has been carried out on the skeletal remains until relatively recently, the first anthropological study of a cemetery of the Aisne-Marne culture for example being that at Pernant (Aisne) in the late 1960s (Demoule 1999, 40 and fn 19). Most sexing is thus dependant on interpretations of the accompanying grave-goods. Where large datasets are available, e.g. for the Aisne-Marne culture of North-East France, most cemeteries show a rough equivalence between the number of apparently masculine and feminine burials (e.g. Demoule 1999, 192 and tab 11.4), suggesting that here at least amongst adults, rules that led to particular individuals being interred in ways that are archaeologically-recoverable do not seem to have skewed the sex ratio. It should also be noted that in many areas that have burials, unaccompanied interments seem to be the norm: for the central Paris Basin, Marion (2004, 157) estimates approximately 40% overall, including accounts derived from early excavations, and up to 60% of all interments in larger cemeteries dug to modern standards. Much lower percentages are however recorded for Aisne-Marne culture cemeteries (Demoule 1999), perhaps relatively unsurprising as here pottery was regularly included amongst grave-goods whereas this was not the case in some other regions.

In this section we focus particularly on periods and areas where richly-accompanied or particularly imposing female graves are apparent. The indications, unsurprisingly, are that their prevalence changes through time and by area, again stressing the considerable internal variation that is

characteristic of the temperate west European Iron Age. Against this general background, however, the general trend on the part of continental archaeologists, also noted in other contexts, has been an increased willingness to recognize greater complexity in the surviving archaeological evidence than was previously envisaged, particularly for the earlier centuries of the Iron Age (e.g. Buchsenschutz 2007; Brun and Ruby 2008, 23). During the period, moreover, a range of grave-goods is apparent, which can help archaeologists to differentiate the wealth/status of the defunct; these can be categorized summarily as items of personal burial dress (comprising prominently jewellery) and weaponry, including defensive or parade gear such as helmets or shields and, especially in richer graves, ancillary equipment associated primarily with banqueting, horses and vehicles (Brun 2004, fig. 2; cf. Diepeveen-Jansen 2001, Ch. 2; Cordie *et al.* 2006). It is acknowledged however, that it is difficult to rank these coherently, particularly from period to period, since it is notable that certain suites of evidence can simply disappear from dominant rites (e.g. banqueting equipment in La Tène A for Champagne), as Baray (2004a) has demonstrated. Such disappearances are sometimes too readily interpreted as indicators of impoverishment.

The intention here is to summarize certain trends apparent in a range of recent, particularly Francophone, literature. The assumptions maintained are that differences in funerary practices, in the architecture of graves, and in the accompanying grave-goods, may have age and/or gender components to them; and further, that in some instances at least the presence of such variations may indicate individuals who have moved their place of residence more than locally. If there is an underlying assumption that Iron Age societies in temperate Europe were primarily patrilocal and that migration on occasions was predominantly a male affair, neither of these conditions was necessarily universal and, perhaps more particularly at more local scales, there is good reason to envisage

the movement, perhaps particularly, of high-status women (Arnold 2005). That said, there are other cases where stability of populations at the local scale over considerable periods is vouched for: this is the case, for example, with the pair of elite families argued to be represented over up to ten generations at the Münsingen-Rain cemetery near Berne in Switzerland (Müller *et al.* 2008: for women see esp. fig. 5). Contrastingly, there are very few indications of particular trades or skills amongst the grave-goods encountered with females, which are largely restricted to spinning, weaving and the working of leather (Cordie *et al.* 2006, 14). Taking a wider perspective on the presence of tools from Iron Age graves (some of which occur in elite examples), it is clear that very different selection principles have prevailed at different times and places with regard to such material, rendering interpretation particularly challenging (Stöllner 2007).

All this has not stopped archaeologists reading social, gender and age-class significances into these funerary assemblages, as reviewed for example by Marion (2004, 184-203), following earlier work by Baray. For example, in eastern France, torcs are primarily associated with women in middle age but can occur with both children and the elderly; anklets and ear-rings are more exclusively items accompanying adult females. Other authors have been keen to use grave-goods primarily as a means of defining levels within a social hierarchy, as in Demoule's treatment (1999) of the Aisne-Marne culture, where four ranks are put forward: vehicle burials; burials with weapon panoplies or whole sets of jewellery; those with incomplete series of weapons or ornaments; and the unaccompanied.

In some circumstances, the nexus of age, gender, and hereditary position may render the selection of grave-goods, or the 'reading' of the grave more complex. Thus Marion (2004, 185) highlights an inhumation grave from Barbey (Seine-et-Marne) which includes a torc as well as weaponry

(a rare association also known at Bouqeval in the same *departement*). In this case, the sword is less than normal size and the skeleton is that of an immature male, so that the burial may be of someone on the cusp of leaving childhood and its symbols to attain adult, warrior, status. Superimposed on all this, graves are constructed by the living: elements of performance and display, and whether these societies believed in a concrete afterlife, will also have potentially been significant in the definition of the form and content of the grave remains, as noted elsewhere by Stig Sørensen and Rebay (2007, 122).

With these provisos, a generalized funerary sequence for parts of north-eastern France may be proposed. During the end of the Bronze Age and the Early Iron Age (Bronze final 3b and Hallstatt C – from the 9th century to late 7th BC), recent reviewers (Baray 2000; Olivier 2000), focusing on Burgundy and the sector of the Hallstatt province west of the Rhine, indicate that gender, age and status differentials in the funerary record are marked in a number of ways e.g. by variations in the size and architecture of covering mounds. Inhumation is established early as the dominant recognizable rite; inevitably, reliable data sets are small, and it is usually argued that they concern only a small proportion of the population. From southern Burgundy northwards, inhumations accompanied by weapons occur from *c.* 800 BC. Olivier (2000, fig. 3a) has rehearsed data from the excavation of the barrow cemetery at Haroué (Meurthe-et-Moselle), which emphasizes that at the beginning of the Iron Age the biggest barrows each cover a male inhumation, usually accompanied by a sword (Olivier 2000; fig. 3a); secondary burials may subsequently be added to such mounds. Female and children's mounds are normally smaller and located more peripherally within cemeteries. In certain other areas, for example in the northern Massif central and in Berry, this accent on sword-bearing male inhumations under barrows can also be detected for the beginning of the Iron Age (Milcent 2004).

Marked developments ensue in these areas during the course of the First Iron Age in Hallstatt D, during *Hallstatt moyen* (= D1; *c.* 630-540 BC) and *final* (= D2 and D3; *c.* 540-470 BC). The rite of inhumation becomes geographically more widespread; barrows increasingly include secondary burials as well as the primary defunct (Olivier 2000); and secondary inhumations can be double or multiple (including adult-adult and adult-child combinations): secondary burials can include an admixture of male, female and child graves, the latter now less infrequent. Newly-constructed barrows from this period contrastingly are often associated with high-status individuals; and, more frequently than in Hallstatt C, these can be female.

Late Hallstatt women

In Hallstatt D1, female burials accompanied by regionally-differentiated and impressive jewellery became more common: dress varied, for example between Franche-Comté and Burgundy (Brun 1987; Milcent 2004 fig. 92). At the large Les Jogasses (Chouilly) cemetery, near Epernay, too, the male and female graves were spatially segregated, although such divisions seem to be relatively rare, and subsequently 'family' subdivisions of cemeteries may be suggested. Wider issues of the status and significance of women at this time have been explored by Milcent (2004 esp. 197-211), based on jewellery, many of the more elaborate items of which were doubtlessly better to look at than comfortable to wear; newish, sometimes exotic, materials – including iron, glass, coral – are deployed in the production of these ornaments. Milcent sees religious significance in the symbols present on this material (2004, 198), and the occasional iron dagger from a female grave suggests that sexual differentiation was not rigid. Thereafter, particularly in eastern France, high-status female graves become easier to recognize as the

panoply of jewellery (now including both torcs and brooches) increases – at a time when recognizable male graves (daggers, razors) become much less frequent than the sword burials of Hallstatt C, and also limited to relatively few regions west of the Rhine.

In Franche-Comté, for instance, the primary Hallstatt D1 burial in the barrow at Courtesoult (Haute-Saone) is female and this is by no means unusual; subsequent burials – men, women and children - were added and the barrow enlarged into the beginning of La Tène A (Piningre *et al.* 1996; Milcent 2004, fig. 95). A number of such barrows with a female 'founder' may ultimately include a hundred or so secondary burials over the generations through to the beginning of the La Tène period (Milcent 2003, 330). By the late 7th century BC it is thus possible to see in the funerary record of parts of east-central France the emergence of high-status women recognizable from their personal possessions. Some of these – including relatively modest artefact types – are foreign to their burial place and allow Milcent (2003, 332-3; 2004) to propose that some may have traveled e.g. as a result of marriage arrangements. At the very least, non-local jewellery indicates that these women were implicated in the medium- and longer-distance exchange networks that characterized this period. It has even been proposed that some eastern French societies were matrilinear at this time.

From Milcent's map (2003, fig. 234) of 5th century BC vehicle graves in the West Hallstatt and Hunsrück-Eifel areas, it is possible cautiously to note that a high proportion of such burials in north-east France are female, with proportionately fewer vehicles accompanying females in the Jura and Switzerland; only rare examples of females occur near or east of the Rhine (Fig. 2). It is towards the end of Hallstatt D in parts of east-central France that certain of the characteristics associated with high-status females become most marked, as well as more diversified over space,

although in most regions e.g. the Upper Seine Basin the display of masculinity/femininity continued to characterize a minority – in this case about a quarter – of known burials (Evans 2004).[5] Wagon burials (Pare 1992; a determinant of the *Fürstengräber*, or so-called *princely burials*), appeared in certain restricted sectors to the west of the Vosges, where an early (male) example at Marainville-sur-Madon (Vosges), with elaborate Mindelheim sword, dates to Hallstatt D1 (Olivier 2002a); from the start of Hallstatt D2 e.g. La Butte at Ste-Colombe in Burgundy, when interment with a wagon becomes a less exotic rite, some of these are female interments; overall nine of the 15 sexed wagon burials in France are female (Milcent 2003, 334).

These include some exceptionally wealthy instances, notably the 'Vix Princess', studied anew and confirmed as female in the major work marking the fiftieth anniversary of her discovery (Rolley 2003). The nearby but less well-known cases from Ste Colombe, barrows which had been partially robbed in antiquity and which originally had covering mounds even larger than that of Vix fall into this category. Together, these are the three biggest individual barrows of later Hallstatt D in Burgundy and all seem to have been erected for individual women (Baray 2000, figs 13 and 14, étape IIB/IIC; Milcent 2003 fig. 234). The middle-aged woman buried in Barrow 1 at Vix has probably had more written about her than any other female in the temperate European Iron Age (e.g. Knüsel 2002; various authors in Rolley 2003). It cannot be our purpose here to attempt a further review of her social, political and ritual status; and we must content ourselves with highlighting the exceptional admixture of items – and the iconography and symbolism – in her grave, studied in detail by Milcent (2003). Of particular interest is the removal of the parade of warriors from

[5] The terms 'masculine' and 'feminine' allow for qualities of masculinity or femininity to be marked in either male or female graves. Evans (2004, 217) is very clear, in his statistical analysis of burials from north-east France, that no items are *exclusively* associated with a bipolar definition of biological sex; that instead this *lack* of exclusivity represents complex gender identities in some individuals.

the rim of the krater's lid/sieve to highlight the lid's central female figure. The combination of a richly decorated vehicle, an exceptional suite of vessels, very high quality jewellery and other items makes plain her high-status, to which the adjective 'royal' may certainly apply.

The small barrow cemetery at Diarville (Meurthe-et-Moselle: Olivier 2002b), only a few kilometres from Marainville, illustrates the rise of women in Hallstatt D3 in a new light. This small cemetery – with seven ploughed-down barrows excavated perhaps from an original total of 15 – with nearby traces of Early Iron Age iron-working and settlement – was established in the 7th century BC. Here, the initial high-status burials are of men, accompanied on their right sides by long iron swords, and placed in wooden boxes set on the old ground surface under the barrows. Although there are secondary cremations both under and within the make-up of these mounds, accompanied female burials are rare at this time. Significantly, one occurs – equipped with amber and bronze beads – inserted in a stone-lined grave secondarily – but only shortly after – and beside the sword burial under barrow 6. It is in the following century that the character of the cemetery changes, with the burial of three (and a probable fourth, but very damaged) wagon burial. The central burial under the biggest barrow (7) at Diarville, 41 m in diameter (and thus only slightly smaller than Vix), was of a woman placed in the box of a partially-dismantled wagon, and accompanied by a matched panoply of principally copper-alloy jewellery, but including gold ear-rings, plainly intimating wealth and status, albeit on a more modest level compared to Vix. Secondary burials in this barrow included a further partially-dismantled vehicle in a wooden chamber, with a further woman laid out on the wagon box, again with a panoply of ornaments, in this case including copper-alloy *passe-lacets* (lace terminals) as at Vix; such decoration for shoes was normally male attire. A third rich setting under this barrow lay north-east of the central grave and consisted of a double burial of two females: each

had a bronze bracelet on each forearm, and also paired copper-alloy anklets; wear patterns suggest the latter likely fitted over boots and were items fashionable essentially on the Middle Rhine, and so exotic here. Iron tyre fragments hint that this damaged barrow may originally have contained a third wagon, stressing its uniqueness. Secondary burials inserted in at least one of the other barrows at this time were also predominantly female. During the 6th century BC, these Diarville burials indicate the dominance of women in this community; their wagons are among the westernmost examples of a type distributed east to Bohemia; and elements of their jewellery too point to long distance linkages (Olivier 2002b, 80). By the following century, these high-status markers were no longer evident here.

Demonstrably high-status female inhumation burials continue to be recognized at the Hallstatt D3/La Tène A *ancienne* transition (about the middle decades of the 5th century: *c.* 470/430 BC), and on into developed La Tène A. These occur as far west as Berry (Milcent 2003, 334), but most famously west of the Rhine at Reinheim (Saarland), although also for example including a young girl at Saint-Sulpice (En Pétoleyres S. 48) in Vaud, Switzerland (Kaenel 1990,110-111, planches 42-44). Four-wheel wagons disappear from the funerary arrangements; and the first two-wheeled vehicles had already appeared west of the Rhine in the Hunsrück-Eifel in Hallstatt D3. Another new status rite to which women had access is cremation, with deposition of the ashes in a copper-alloy container, a practice which appears to have its origins in northern Italy. Burials in this latter style vary in apparent wealth, with the richest examples discovered at the cemetery of La Picardie, Gurgy (Yonne) in northern Burgundy (Delor and Rolley 1999; Milcent 2003, figs 227 and 228); here too the wealthiest burial was female and attributable to earlier in Hallstatt D. Rich female cremations are also noted further west at the transition period, as at the route de Dun, immediately south-east of the

assumed *Fürstensitz* site, at Bourges in Berry, in this case with a range of grave-goods including north Italian trinkets. Such cremation deposits can be the first to be installed under particular barrows, but in other cases they are definitely secondary in barrow cemeteries that were already established.

These rich female burials are considered as part of Verger's (1995) detailed overview of the changes, both regional and chronological, affecting aristocratic burials west of the Rhine during the key, 5th, century BC. It is difficult adequately to summarize the series of patterns, some very localized, others of wider import, he distinguishes, but key points (again, assessments are based primarily on grave-goods) include the fact that females are included in all status burial traditions represented in this broad zone of eastern and central France during this century. In the case of chariot burials, however, the earliest Champagne examples, of la Tène A *ancienne*, seem to be exclusively male (Verger 1995, 369); subsequent examples in the Marnian heartland, notably the late 5th century BC Somme-Bionne, have richer suites of grave-goods. In the generation before the transition to La Tène B (i.e. during La Tène A *récente*), chariot burial becomes more common, and the general impression is of increasing inventories of objects (and e.g. food remains) from these graves. In terms of military equipment, swords replace earlier daggers, panoplies of weapons become more common and are extended to include the first shield fittings and copper-alloy helmets (these last only found in chariot graves); and a few gold ornaments have been identified amongst this male gear. It is at this stage, during La Tène A *récente*, that female chariot graves are first recognized, within the Aisne-Marne area almost exclusively in its western part.

Local studies can nuance such patterns. Evans' (2004) analysis of selected burial evidence from the Upper Seine Basin found that at around

430 BC, social prestige – having been held for several generations by a feminine Hallstatt elite with wide-ranging social networks – began to shift gradually towards a culture in the developed stages of early La Tène more associated with masculine warrior identity. Evans considered that, following a high degree of feminine wealth in the Late Hallstatt period, the former gap between feminine and masculine wealth began to narrow (Fig. 3a-b; Evans 2004, 162). More specifically, a decrease in gendered status items (torcs, beads and swords:Fig. 3c) ran alongside a very marked increase in the provision of spears with masculine burials, which he considered indicative of a non-elite warrior status (Fig. 3d). Meanwhile in Britain there are the first high-status burials, including the unsexed Newbridge chariot in Midlothian (520-370 BC) with its parallels in the Belgian Ardennes (Carter and Hunter 2003).

Early La Tène women

At the start of La Tène A, rich female burials were normally simple inhumations, lacking a vehicle or horse-gear but accompanied by jewellery comprising a torc and a pair of bracelets, and sometimes other items including gold ear-rings; a famous and particularly wealthy example from the Saarland west of the middle Rhine is the Reinheim grave (Echt 1999). From La Tène A *récente*, however, graves in Champagne with gold ear-rings also include a cart or chariot, its fitments closely resembling those found in contemporary male graves, although the harness fittings differ (Verger 1995, 390). Such graves include food remains (including whole pigs), storage vessels, and tableware, but never, seemingly, weapons. Female cart burials, usually much less richly-accompanied, are also found in the off-shoot of the main Marnian tradition of the Champagne in the Belgian Ardennes; these may represent the by-product of an actual migration, in which elite females would thus have participated. Although not considered in detail here, the Hunsrück-Eifel also contains high-status

female chariot graves as at Bad Dürkheim. In general, when chariots are recovered from graves, there is no need to envisage them as an exclusively military indicator, where they may have served essentially to support the corpse. Taking the longer view – of the three elite burial traditions considered here – vehicle burial, cremation in a high-status copper-alloy vessel, or extended inhumation, sometimes within a wooden chamber or similar, and accompanied by numerous grave-goods – it was the third that was to be dominant in the longer term. Although all three rites are more commonly employed for males, there are also female instances of each; and in some instances females are buried with items – a belt fitment, a vessel decorated with gryphons – which are normally exclusively male equipment (Verger 1995, 445). Such ambiguities have already been noted for the otherwise male footwear fitments at the female wagon-graves of Diarville and Vix; and if ambiguities occur across the sexes, they also occur across age-cohorts, as young girls are buried with adult equipment, and vice-versa (Verger 1995).

It is onto this regionally diversified pattern of elite burials (patterns that also extend to the nature and scale of the cemeteries in which they occur) that the new suite of male sword graves, usually considered as characteristic of the earlier La Tène culture, is superimposed. Generally speaking, the earliest, 5th century examples of these are not rich in terms of their grave-goods, although the graves themselves may be sizeable. From a longer-term perspective, the ensuing centuries are often seen in social and political terms as something of a sagging hammock between the achievements of the late Hallstatt system, and that which is marked more particularly by the rise of oppida in the final two centuries BC (e.g. Marion 2007, 91; Schönfelder 2007), with the presence of numerous warriors assumed to correspond with a decline in social complexity.

For the following centuries (the 4th and 3rd BC: La Tene B1, B2 and the start of C), the biggest data sets for the funerary record in temperate France are for the Marne and Burgundy (Baray *et al.* 2007). There are marked changes from earlier periods. In the latter case, flat cemeteries within rectilinear enclosures are entirely dominant from La Tène B2, some barrows having continued in use into B1. Burgundy at this stage is part of a cultural zone extending towards Switzerland, marked *inter alia* by an absence from graves of toilet equipment, food offerings and (significantly) pottery. During these phases, female graves are not richly furnished, and are accompanied usually by copper-alloy jewellery, glass beads and lignite items; although iron becomes more prevalent from the 3rd century BC. Throughout, brooches and belts in particular are in positions that indicate they were functioning with garments clothing the corpse in the tomb. Weapons are proportionately most significant in Burgundy during La Tène B2 (Baray *et al.* 2007, fig. 29). In this area, the relatively rare anklets again seem to be a status item in female graves. Cremation, already present by La Tène B2, becomes more frequent from Middle la Tène, by which time grave-goods are dominantly jewellery (especially brooches); and weapons are absent.

In general, elite graves of the 4th and 3rd centuries BC are rare (Schönfelder 2007), and this fact, combined with the apparent collapse of the *Fürstensitze* before and during La Tène A, and the relative lack of secure 4th and 3rd century BC Mediterranean imports (Adam 2007), has led to interpretations suggesting distinctly less complex social and political arrangements than in the 6th and 5th centuries. Rich objects of La Tène B tend to be found in cult or similar locations and not directly associated with individuals in graves, certainly – with rare exceptions - west of Switzerland (Schönfelder 2007, 293, 297); but it is undoubtedly possible to overplay the apparent collapse of socio-political hierarchies relative to earlier times. Such general patterns are borne out further west into the Auvergne and

Berry (Augier *et al.* 2007, 164-165) where flat inhumations take over by the end of La Tène A and, particularly after La Tène B, in which a few feminine graves still can be recognized by the presence of torcs, only really sword-bearing males can be distinguished from suites of poorer, and in numerous cases unaccompanied, graves.

From the work of Evans (2004), a decline in traditional status items (torcs and swords) included with burials continued throughout the La Tène period in the Upper Seine Basin (Fig. 3c-d). For Evans, this apparent waning of the Hallstatt elite social system witnessed greater social access to status display in the early La Tène period (*c.* 450-300 BC): with a trend towards greater social equality, as one system aged and another began to form, with swords instead deposited on sanctuary sites. It may be relevant that during La Tène Anc. II (LT B1; from *c.* 400/350 BC), food offerings in male graves increased proportionately, whilst decreasing for women; and an apparent increase in stillborn babies may suggest declining female welfare (Evans 2004, 217; 179; fig. 8.8; 8.51).

The Île-de-France, recently considered in detail by Marion (2004, 108-217; 2007), presents a further case during the 4th and 3rd centuries BC; and for which the results obtained from recent rescue excavations are particularly significant. The phases represented by Marion's *étapes* 3-6, contemporary with Early and the first part of Middle la Tène, are still relatively poorly documented, particularly at the outset, but for much of the period a male-dominated pattern of warrior-graves is manifested, albeit varying in intensity inter-regionally and across time; furthermore, latterly at least, the discarding of swords in contexts other than graves, notably sanctuaries, becomes more prevalent. As elsewhere, numerous graves are of course unaccompanied inhumations – 50% of known examples for the 5th and 4th centuries here (Marion 2007, 100). In the 4th century BC, cemeteries, some enclosed, are generally small, and the richest burials locally are

relatively rare, with swords in the case of males, and a copper-alloy torc, brooches and sometimes a bracelet for women. Vehicle graves are entirely lacking.

This part of the Paris Basin sees major changes in the decades around 300 BC (developed La Tène B2). As elsewhere, these are marked by rapid developments in weaponry (swords, shields, suspension chains), which continue into Middle la Tène. In the Paris basin many new cemeteries, again sometimes enclosed, are established and burials are much more commonly recovered than for the previous period. During this period too the first really big (several hundred graves) cemeteries begin, notably that at the Hôpital d'Avicenne at Bobigny, south-east of Paris. Female graves seem to have less by way of jewellery; in some areas, weapon burials contrastingly become more frequent. Around Paris itself, between the confluences of Seine and Marne and Seine and Oise, marked changes in the funerary record at this time have been assimilated with the emergence of the *Parisii*. Here, a peripheral series of small cemeteries with warrior and cart burials (as at Charles de Gaulle airport at Roissy; or Nanterre, where all the male burials include weapons) contrasts with the emergence in the heartland of the territory of larger cemeteries, as at Bobigny and St-Maur-des-Fossés (Marion 2007, fig. 9). With over 500 interments for a span of use of about 100 years, Bobigny highlights a major change in funerary practices. Children's graves (some with small bracelets or brooches) are quite common, as are poorly-furnished graves; many others have relatively modest grave-goods e.g. iron or cannel-coal bracelets; warriors as indicated by the inclusion of armaments by contrast are rare, at about 2% of the total interments (Marion 2007, 106). This figure is somewhat lower than at Saint-Maur (6%), but it is likely that in the 19th century excavation there some of the poorer graves were overlooked. It seems possible to follow Marion in seeing here a contrast between aristocrats and their retinues on peripheral estates; and the emergence of

bigger centres with a decidedly different social make-up in the core of what was subsequently the *civitas* of the *Parisii*. Further changes in the 2nd century BC (increasing use of cremation; decline in numbers of warrior graves) seem overall to have been less significant.

In the 3rd century BC Upper Seine Basin, male weapons burials grew steadily (equaling female wealth) as the warrior assemblage became 25% of the masculine sample (Evans 2004). Further west, female warriors are depicted on the late 3rd/early 2nd centuries BC coinage in the west of France (Cordie *et al*. 2006, 18). In Britain, Stead's (2006) earliest (Group E) swords in mortuary contexts come from Rudston, East Yorkshire, with a *c*. 300 BC start date for those from male graves R146 and R174; probable male R24; and possible female R163: all E/W or W/E, extended/flexed; whilst early sword burials with insular rites (N-S crouched) are found at Garton Station 10, Grimthorpe and Wetwang Slack. Elsewhere, sword burials are not found until *c*. 250 BC.[6] Early extended sword burials are also known from further south along the east coast at 3rd century BC Shouldham in Norfolk – with, unusually, the sword placed across the chest – and Deal in Kent (Whimster 1981, 143-144).

By the early 2nd century BC, according to Evans' (2004) calculations, women's burial wealth had declined further in the Upper Seine Basin, whilst male burial wealth – having been relatively static since the transition from the first Iron Age – exceeded that of females for the first time. By this time, for his sample of cemeteries, the warrior assemblage represented no less than 46% of the masculine sample. Male personal ornamentation also increased: particularly the wearing of traditionally more feminine items such as bracelets and torcs (Evans 2004, 185). By 150 BC, social access to status in the Upper Seine Basin had returned to late Hallstatt levels (Fig. 3c); as a new, increasingly masculine, La Tène social system had

[6] Stead's (2006) earliest Group A swords instead come from riverine contexts.

formed; to the prevalence of weapons in male graves can be added the evidence of substantial quantities of weaponry recovered from certain of the Picardy sanctuary sites. Meanwhile in Britain, we have the tradition of Stead's (2006) Group D sword burials, with final 2nd century BC origins, running parallel with the insular female rite of inscribed bronze mirror deposition, early examples of which, such as Bryher (Scilly Isles) and Trelan Bahow (Cornwall), suggest late 2nd/early 1st century BC origins (Joy 2008, App. B), slightly later than the decline of female status in France.

The mortuary evidence from Early to Middle Iron Age Britain

For Britain, discussion of Early Iron Age mortuary traditions has been hampered by an apparent lack of evidence (Cunliffe 2005, 543-544). As more radiocarbon dates are obtained, however, this apparent absence has begun to dissipate, although discoveries remain at a low volume compared to the period following *c.* 400 BC (cf. Haselgrove and Pope 2007, 5-6). Some inhumations in settlements – as a continuation of Late Bronze Age rites – may yet prove to be Early Iron Age in date as in more recent syntheses, such as that by Moore (2006) for the Severn-Cotswolds, which reveals an equal number of male and female depositions from Early Iron Age settlements (Moore 2006, App. 3).

In Scotland, the Newbridge chariot dates to this period and in North Yorkshire, there are what appear to be Early Iron Age cist inhumations beneath cairns/barrows; interments were added to Bronze Age barrows in both northern England and Wessex; whilst some cave deposits also date to this period, such as the seven individuals from Slaughterford (Wiltshire), the one sexed individual being male (Moore 2006, App. 3), whilst new dating from the 'Thames river skulls' reveals two crania as Early Iron Age, one with male and one with female characteristics (Bradley and Schulting

2010).[7] Also worth mention are the 21 Early Iron Age inhumations from Dibble Farm in Somerset and the first formal Early Iron Age cemetery at Melton on the north bank of the Humber estuary, with an all-female population of N-S crouched inhumations, dating to the 8th-5th centuries BC (Morris 1988; Fenton-Thomas forthcoming). Teasing out the Early Iron Age data must now be our prime concern, demanding a synthesis of the grey literature and rigorous dating of new discoveries.

In the Middle Iron Age, after *c.* 350 BC, the eastern Scottish tradition is marked by further cist inhumations (*c.* 25 sites; Whimster 1981), as crouched inhumation Arras-type barrow cemeteries flourish in Yorkshire (*c.* 2000 burials) – although much of the more readily datable material is from *c.* 250-150 BC: notably La Tène C brooches, in association with pots and joints of meat. Elsewhere after *c.* 350 BC, cremations and cave deposits are found in Northumberland and West Yorkshire, with excarnation practices current in Wessex (cf. Whimster 1981). From the late 4th century BC, however, we have *c.* 200 inhumations from Wessex settlement contexts (pits, ditches, graves),[8] with formal cemeteries in southern Britain by the later 3rd century BC: notably Whimster's 'pre-Durotrigian' rite in Dorset from *c.* 250 BC; and crouched cist inhumations in the south-west.

Northern Britain

The Middle Iron Age Scottish cist inhumations reveal little evidence for status display bar the Burnmouth male, Berwickshire (Fig. 4) with two bronze spoons, a knife, and bones of pig/pork. Further south, the East Yorkshire barrow inhumations have much that suggests status, but little to indicate differentiation between the sexes. Slightly more women than men

[7] A third, with male characteristics, is of Middle Iron Age date.
[8] A number that will be much greater now, pending a review of the grey literature since Whimster's study.

have been identified (*c.* 90:80) in the Yorkshire assemblage, but proportions are too similar to suggest gender-based selection (data from I. Stead 1991).[9] No significant difference was found between the sexes regarding the treatment of the body on burial (Fig. 5a-d). Similarly, the provision of a barrow was not gendered, nor the presence of a coffin (Fig. 5e-f), whilst the proportion of unaccompanied to well-accompanied bodies is consistent for both (Fig. 5g). A slightly greater proportion of females were deposited with foodstuffs alone; a slightly greater proportion of males with brooches (Fig. 5h).

There is a slight preference for male bodies being oriented S-N and facing west, as an inversion of the dominant burial rite (N-S, facing east). We might interpret this as demonstrating less respect for tradition for these individuals, although this occasional inversion of the dominant rite may be more meaningful than this. Only detailed contextual analysis might help here. Certainly, small, circular barrows seem to be male. Of the five examples at Rudston, all were located in the northernmost clusters – perhaps suggesting a chronological element to their construction; two lacked a central grave (R168; R198), one covered a young craftworker (R141) – who produced contra-indications on sexing – and two covered similarly-aged young men (R176; R179). Circular barrows were also constructed at Kirkburn and Garton Station, beneath which six men were interred, five of whom had been speared. Clearly more males were singled out for special treatment: facing west, a 'spearing' rite, and the construction of circular barrows. None of this evidence, however, points unambiguously to status differentiation on the basis of sex alone.

In the Yorkshire burials, only two elements of the funerary ritual indicate sex-based differences in mortuary tradition: foodstuffs and burial costume.

[9]A trend confirmed by Giles' more extensive analysis which includes data from Wetwang Slack (2000, 140).

Regarding foodstuffs, at the Rudston-Burton Fleming cemeteries, women were three times as likely to have meat provided in the grave, usually a leg of mutton (Fig. 6a). In the Upper Seine Basin, the choice of meat was gendered at the start of the Early La Tène period: beef for women and mutton or pork for men (Evans 2004, 186), however the latter meats were appropriate for *either* sex in Yorkshire, although more commonly found with (older) adults (Giles 2000, 147). Unlike mutton, a number of those with status items contained pig/pork, including twelve chariot burials (Parker Pearson 1999, 56; Brown *et al.* 2007, table 13). As a result, the boar/warfare metaphor – as suggested by Parker Pearson (1999) – might be salient, with the inclusion of a cleft skull and forelimbs perhaps also implying feasting, as the missing hind quarters provide the choicest meat. There may, however, be a chronological element to the inclusion of pork (Giles 2000, 146).

Beyond chariot burials, others from Rudston with pork included four men with swords, the young craftworker (R141) and eleven others, mostly older women (five of the seven were over 35). This may indicate that elder women – whilst generally lacking an association with swords – could nevertheless be included in martial ideologies on death, if indeed that is what pork represents. Particularly interesting in this context are the five Rudston females with pork found in the same cemetery cluster as the ?female warrior (R163) (Fig. 7). This area also includes burials with a sword (R182), shield (R148) and dagger (R153), all of which are "skeletons where male and female characteristics were present in equal balance" (S. Stead 1991, 127). Given their proximity to sword-bearing R163 (whose poorly preserved skeleton was assessed as '?female' due to the lack of male characteristics: *ibid.*), it would be interesting to see whether in this particular sector of the Rudston cemetery these 'contra-indications' individuals might be masculine females, remembering that masculinity is a quality not restricted to men (cf. Halberstam 1998).

Of the 47 bodies in Stead's (1991) dataset, where the *position of foodstuffs* could be ascertained, roughly one in three of both men and women had them positioned close to the head (Fig. 6b). Beyond this, 40% of men had them positioned at the knees and feet (compared to 15% of women) and 30% of women at the shoulders/chest (compared to 10% of men). The latter might be seen as an extension of placement near the head, with an upper body position as the more usual rite for either sex. Certainly, some of the Rudston corpses imply that mourners positioned the body expressly to convey the corpse's interaction with foodstuffs – such as R106 where the pot was recovered in the arms of the deceased young woman who was turned towards it, as if imitating consumption. For at least some individuals, where foodstuffs were placed in the grave was dependant on the sex of the deceased; a topic which deserves detailed contextual analysis, moving us away from comparatively crude structuralist interpretations, which relegated Iron Age women to the status of servants (cf. Parker Pearson 1999, 53).

No distinction is found between the sexes regarding the *relative provision of status goods* (Fig. 5g). Of Stead's (1991) 290 burials, 54 (19%) were status burials – those interred with items beyond the usual pot, brooch, mutton. Of these 54, eight had contra-indications, 21 were male, and 19 female: a relatively equal number, and not disproportionate to the total numbers of sexed females and males in the dataset. Including examples from Whimster (1981) and more recent chariot burials, the Yorkshire dataset includes 98 status graves, defined as those containing items found with only a small minority of the population i.e. five mirrors, 20 chariots, 29 with jewellery (beyond brooches), 36 with pig/pork, and 30 with martial equipment.[10] Our sexed data includes: 39 unknown, six with contra-indications, 25 status males, and 28 status females: again

[10] Some burials having more than one type of item.

remarkably equal numbers of each sex (Table 1). In light of comments about wealthy women as wives of powerful males, there is little obvious evidence for wealthy partnerships in the Yorkshire material, with the graves of wealthy males and females often separated spatially, and sometimes occurring in gendered clusters.

	Masculine	***Feminine***	***M or F***	
Sex	*Martial, Vehicle, Pork*	*Jewellery*	*Mirror*	***Total***
Male	24	1	-	**25**
Female	12	12	4	**28**
Contra-indications	4	2	-	**6**
Unknown	24	14	1	**39**
Total	**64**	**29**	**5**	**98**

Table 1: Towards understanding gender identities from 98 'status' burials in Middle Iron Age Yorkshire (NB. 4 mirror burials – 3 with masculine associations; 1 potentially with feminine – out of necessity belong to more than one category).

Where we do find some distinction between the sexes is in the *type of status artefact*. Interestingly, this does not include the well-known *vehicle burials*. Of the 21 known, 12 have been sexed: nine male and three female; with eight of these excavated in the last forty years. These include the early ridge-top example of Wetwang Village: a mature woman with coral-decorated horse gear, iron mirror with tiny blue-bead tassel, and pig/pork on her torso; and the young Wetwang Slack woman in the valley below with vehicle, 'bean-tin', mirror, and two smaller, flanking barrows – both young adult males with vehicle, sword and shield (Hill 2002; Dent 1985). One kilometre east are three male vehicle burials from Garton Slack, Garton Station and Kirkburn, each with the cleft skull and/or forelimbs of a pig (Brewster 1971; I. Stead 1991). In West Yorkshire, the Ferrybridge vehicle burial is male; and older East Yorkshire examples include two males and one female from Arras and a male from Hunmanby (cf. Brown *et al.* 2007, table 13). Whilst Yorkshire vehicles are associated

with weaponry (five instances) and the consumption of pork (eight cases), both perhaps suggesting a martial context, some women were nonetheless accorded this rite.

Beyond vehicles, and with all the difficulties of dating acknowledged, we know of 30 burials associated with martial equipment in Middle Iron Age Yorkshire: four of unknown sex, two with contra-indications; 22 males; and two females.[11] Most contain a sword and/or shield, with spears only rarely deposited as grave-goods (cf. Hunter 2005). However 14 corpses had been 'speared' as part of the burial ritual, the latter a typically male rite, although a female example does exist from Wetwang Slack (Dent 1983, 125). Examination of the sexing of bodies associated with martial equipment indicates that just over two-thirds are sexed male (Fig. 8).[12] Most reliably associated with males is the sword and shield combination (six examples), although the female example (R163) suggests that this combination was not *exclusively* associated with males. Least reliably male are the lone sword burials where six of the 12 are of unknown sex, including R182, which lacks securely male characteristics. Three of the seven with only shields were of unknown sex, including R148 who had some male characteristics but 'very slight' limbs (S. Stead 1991, 127). One of the two daggers was found with contra-indications individual R153.

In the late 4th century BC – with the decline of elite graves in France – we begin to find iron *mirror burials* in East Yorkshire (Joy, this volume).[13] There are currently five examples – four excavated and sexed female under modern conditions – of which three were deposited with a vehicle/pork (Arras Lady's; Wetwang Slack CB2; Wetwang Village). One was perhaps

[11] Possible female R163, with sword and shield, and a speared female at Wetwang Slack.
[12] Not, however, always to modern standards.
[13] According to Jope (2000, 137), Yorkshire's iron mirrors have possible parallels in temperate Europe, but these do not seem close. Equally, body position in mirror burials is generally insular (N-S; contracted/crouched); though an element of continental influence may exist with the extended inhumation of Arras Lady's Barrow.

associated with jewellery (Arras), and one was deposited alone (Garton Slack 11). Key here is that of the four mirror burials definitely lacking an association with jewellery, three were deposited with a vehicle/pork.[14] It may also be significant that R163, the ?female warrior, also lacked jewellery as did the ten females buried with pork. The suggestion is that jewellery and vehicles/weapons/pork were not compatible identities: with one exclusively feminine, the other more generally masculine. Although the evidence remains ambiguous, if the mirror was found alongside jewellery at Arras, this may present them as a more flexible symbol of female status – i.e. ultimately more feminine – than weaponry or vehicles/pork. Women then were not excluded from more masculine identities, with mirrors in particular playing an associated, and exclusively female, role.

Twenty-eight individual graves in total produced jewellery, consisting of beads – generally blue glass but also jet; bronze or shale bracelets; bronze, amber, gold or shale finger-rings (Whimster 1981). Whilst mirrors do seem to have exclusively female associations, jewellery burials are no more reliably sexed as female than our burials with martial equipment are male[15]. Two contra-indications individuals had jewellery: R2, with some female characteristics but large limbs, had a glass bead and shale bracelet; BF19 an iron ring, perhaps worn around the neck, and glass bead fragment, whilst the martial assemblage from Grimthorpe included a ?chalk bead and 4 bronze pins and the Garton Station 7 male had a bronze toe-ring.

It is important to note that we are not only beginning to recognize more securely both temporal and regional variation across Britain in the funerary record of the Middle Iron Age, but variation too in some instances *between*

[14]Wetwang Slack CB2 does have two iron pins, but these are unusual amongst female jewellery assemblages and are more akin to the decorated pin from the martial burial at Grimthorpe.
[15] Particularly because many examples are from the old excavations at Arras.

cemeteries at the *local* scale. In East Yorkshire, for example, Burton Fleming cluster 1-22 held at its centre three bracelet-wearing women, each with an extra large barrow (I. Stead 1991, fig. 14) (Fig. 7); at Garton Station all five of the status burials were male; whilst Kirkburn – with two male warriors, one jewellery-owning female, and another with pig/pork – was more mixed. To what extent this patterning also has a chronological dimension remains to be seen. Even *within* a cemetery, such as Rudston, there are gendered burial clusters and it may have been considered appropriate for some communities using the Yorkshire burial grounds to bury their dead in this way (as had happened earlier at Les Jogasses) – such as that at Rudston including the ?female warrior R163 as well as other potentially female martial associations, considered above.

Southern Britain

Unlike Yorkshire, Middle Iron Age Wessex seems to consist of markedly traditional communities, perhaps evidenced by the long survival of excarnation rites. Status burials are consequently rare, although a man in Winchester was deposited with an iron knife on one side and an iron sickle on the other; whilst a woman at Ventnor (Isle of Wight) had a bronze bracelet (Whimster 1981). Analyses of Wessex settlement inhumations found that, as in Yorkshire, slightly more women were buried than men, but that no gender distinction existed in body positioning or choice of context, and grave-goods – whilst rare in such contexts – were found with both sexes (cf. Whimster 1981, fig. 5; fig. 9; Hill 1995, 56). Despite a slight preference for the deposition of men over women in settlement ditches, age was the deciding factor, with infants (but also the elderly) most likely to be selected (Whimster 1981, fig. 11; Lally 2008).

Five accompanied burials of varying status are known from what may be Middle Iron Age pit contexts at Wessex hillforts: three men and a child were associated with a loomweight and spindlewhorl at Casterley Camp,

Wiltshire; a 20-30 year-old woman with shale bracelet, loomweight and 117 sling-stones from Maiden Castle, Dorset; and a young woman at Bury Hill, Hampshire with a small iron ferrule (Whimster 1981, 224; 209; 233). A female interment was apparently secondary to a primary pit deposit of spearhead, knife, shale bracelet and spiral finger-ring at Hod Hill, Dorset – mixing typically masculine and feminine items (ibid., 208). In the 'pre-Durotrigian' inhumations of Maiden Castle, women lived longer than men, with an average age at death of 35 compared to 29 (Whimster 1981, fig. 14), whilst recent bioarchaeological work found that almost one in five women (18%: nine individuals) in Later Iron Age Dorset had peri-mortem osteological evidence suggestive of assault, some sustaining the same injuries as men and perhaps suggesting a role as combatants (cf. Redfern 2008).[16]

In Dorset, it seems that both sexes were selected as foundation deposits beneath hillfort ramparts, as at Hod Hill and Maiden Castle (Whimster 1981, 29). Further west, however, this rite may have been reserved for men e.g. at Sutton Walls (Herefordshire) and South Cadbury in Somerset (*ibid.*). Similarly, at Worlebury hillfort (Somerset) of the three sexed individuals deposited in pits all were male, whilst the 'woodworker' from Ham Hill – with iron torc, chisel and adze – was of unknown sex (Moore 2006, App. 3; Whimster 1981, 239). Nevertheless, at Glastonbury, of the five sexed individuals, three were female (Moore 2006, App. 3). In hillfort contexts further north, however, both sexes have been identified, including a female pit deposition at Conderton Camp (Worcestershire), and the disarticulated remains of a man and woman in the ditch of the outer annexe at Llanmelin in Monmouthshire (*ibid.*), On the basis of current evidence, we have a good degree of regional variation in the south.

[16] These were not consistent with clinical data on domestic violence.

Further west, two unsexed inhumations found at Old Castle (formerly Ogmore) Down (Glamorgan), had daggers and 4th-3rd century BC northern Italian helmets, perhaps suggesting a non-native identity (Savory 1976). By the 3rd century BC, south-west England saw cist inhumations in small cemeteries where unfortunately gender information is poor, most having been discovered in the 19th century. The Harlyn Bay graves produced jewellery, spindlewhorls, slate needles and knives, but no other typically male goods. At Trethellan Farm, of the two potentially Middle Iron Age graves – G2184 and G3018 dating to *c.* 250-200 BC on the basis of brooch typologies – only the former was sexed (male) and provided with only a brooch (Nowakowski 1991; pers. comm.). Like Wessex, no incoming mortuary traditions are apparent in south-west England, as rites remain insular (crouched and oriented N-S).[17] With no status or gender display, we might have evidence here for more egalitarian societies.

In south-east England, of the inhumations at Mill Hill cemetery in Deal, Kent, just seven are demonstrably Middle Iron Age in date, of these five could be sexed, and three had status items. These include G112, an extended inhumation with sword, broken shield, helmet/crown, and brooch: considered male but with the 'feminine characteristics' of small and gracile bones (Anderson 1995, 116). From the radiocarbon date of 350-160 BC this martial burial is approximately contemporary with that of the female extended inhumation spoon burial (360-200 BC) (Stead 1995, 107; D. Garrow pers. comm.).[18] The third was a female (G47) with La Tène C brooch and small dog (Parfitt 1995). Recent isotope work at Mill Hill revealed the spoon burial (X2) as having high nitrogen and carbon values, suggesting a high protein diet, whilst G47 had low nitrogen and high carbon levels; both are anomalous and appear to suggest non-local origins. Whilst

[17] This even despite the Harlyn Bay disc-footed brooches which may suggest links to northern Spain (Whimster 1981, 65-67).
[18] Although both might be considered late in these ranges, with the traditionally accepted La Tène C dates perhaps still more valid in each case.

the martial burial had very low carbon values these were less anomalous, suggesting the deceased as 'more local' in relative terms (Green 2008).

Other status individuals from south-east England include a 3rd-e.2nd century BC extended inhumation of a ?male with short, anthropoid sword from Shouldham, Norfolk; and a ?male (originally thought female) from Newnham Croft, Cambridge, with 3 brooches – one La Tène C and coral-decorated – and a beautifully-decorated bronze armlet (Whimster 1981). On current evidence, status in the Middle Iron Age of south-east England was again, like further up the coast, largely shared between the sexes; with again hints that some of these status individuals may have continental affiliations. From this assessment of the mortuary evidence for Middle Iron Age Britain, there seems little to indicate that high status was a predominantly male concern.

Gendered artefacts and practice in Iron Age societies

The selection of funerary evidence rehearsed above from temperate Europe west of the Rhine over some four centuries is sufficient to demonstrate that few items of material culture recovered from graves are, taking a long enough time perspective, uniquely attributable to one or other gender. This is true for particularly high-status items – imported copper-alloy vessels from Etruria or Magna Graecia, ornate four-wheeled wagons, drinking, banqueting and washing equipment, gold and other fine jewellery – but it is also often the case for more modest equipment too. Torcs – of gold, bronze, iron – often considered of particular significance, are a status item that are, at different times and places, appropriate for both sexes.

Dominantly male items include weapons (usually daggers and swords of a variety of blade lengths, and spears) and razors (Arnold 1991, 370; Evans

2004, 217). Depending on context and date, offensive weapons are present in very variable percentages of male burials; they are however not gender-defining, in the sense that they are never omnipresent in male inhumations, and may be considered more a mark of (masculine) status rather than occupation. Feminine items include jewellery – such as amber and glass beads – and mirrors; the latter considered a strictly female status item, although extremely rare at this period in temperate Europe (Arnold 1991; Champion 1995). Then there are exceptions such as the apparently female Tinqueux 12 and Rudston 163, each with sword, which suggest that gender rules were not always strictly adhered to (Evans 2004, 37).

Many costume items and pieces of jewellery were not gendered, at least taking a broader chronological perspective: such as bracelets, ear-rings, finger-rings, pins, amulets, fibulae, belt fittings and knives. Anklets – which appear strictly female – may be one exception to this rule. How jewellery was worn with the burial costume was, however, apparently subject to local rules, including, but not limited to, gender-based ones (Champion 1995). Women generally tend to have a greater *quantity* of jewellery, especially *pairs* of bracelets or anklets and fibulae. Superimposed on such differences are regional traditions: well-illustrated for example in female jewellery from 4th century BC Switzerland (Müller and Lüscher 2004, fig. 101). Similarly, in Evans' study area of eastern France, he sees hair ornaments as a female item, and suggests that finger-rings became so during La Tène B (Evans 2004, fig. 8.29).

The simple presence of weapons did not always represent *high status*, being found in some areas and periods in one fifth or more of male graves. Interestingly, beyond razors, there is no artefact-type that is both *exclusively* high status and gendered male – although certain individual weapon types appear so for particular periods (e.g. Hallstatt D daggers); whilst there are items that are gendered 'status female', namely the British

mirrors. This may reflect a need in some regions to single out female authority for special attention through materiality; and that, whilst for men the badge of masculinity (weaponry) was enough, women in authority held different items, in some instances denoting political contact abroad, as with amber (north to the Baltic). Thus, whilst status itself was not rigidly gendered, status graves do reflect social attitudes towards gender with men and women distinguished in death by their burial costumes: a masculinity concerned with inter-personal combat; and a femininity concerned with acquiring or receiving exotic items from abroad, perhaps through gift exchange. More generally, a status concern with travel and drinking was without gender.

We must not lose sight of the fact that the vast majority of Iron Age burial traditions were without evidence for gender. In Britain, the Early Iron Age practice of excarnation is one that ultimately works to reduce the survival of individual identity, at least for the archaeologist. Thus, despite some new data now coming to light, it remains impossible to use funerary data to pronounce meaningfully on the issues of gender and status before the Middle Iron Age. Even then, Middle Iron Age burials are also predominantly non-gendered. Treatment of the body (body position, orientation) and burial context (graves, pits, ditches) are generally ungendered in the Scottish, Yorkshire and southern English traditions (cf. Whimster 1981). At this time too, the relative provision of grave-goods, barrows and even of coffins, are all found to be unrelated to the sex of the person interred (ibid.). From the osteology, a supposed link between squatting facets and prehistoric women – and by extension the interpretation that women were engaged in querning activity – is not demonstrated for the Iron Age: of the 13 with the complaint at Mill Hill in Deal, Kent, 62% were male (Anderson 1995, table 29).

Where coherent mortuary practices can be recognized, age was perhaps a more significant structuring principle than sex in the Middle Iron Age of Britain. Certainly, grave-good items such as ceramic vessels – perhaps for the provision of alcohol – and foodstuffs are present in both male and female graves in East Yorkshire with pig/pork, perhaps redolent of feasting, as appropriate for either sex. Chariots, horse gear and martial equipment were predominantly, although not exclusively, male with vehicle fittings equally 'lavish' in male and female graves (Giles 2000, 146). Regarding burial costume, certain jewellery items – arguably those of lesser status – e.g. brooches, bronze toe-rings, worked-bone finger-rings, and ear-rings are found with both sexes (*ibid.*, 140-141). In general then, Middle Iron Age burial traditions, including the deposition context, body position, and grave side ritual, do not seem to have been marked by strongly gendered traditions.

Remembering, of course, that *burial identities* do not necessarily relate to the deceased's 'occupation' in life, there is also little evidence for the gendering of different activity types. Of two loomweight associations in Wessex, whilst one (Maiden Castle) was female, the other (Casterley Camp), also with spindlewhorl, was male and associations with wood or leather-working tools (R141; Ham Hill) are of unknown sex, whilst Giles (2000, 143) found bone awl/points with both sexes. Spindlewhorls, however, are usually found with women, and may suggest a female association with spinning. Found in the neck-lower torso region, however, they may have been worn as pendants (Giles 2000, 143) and, having been accorded this special status, might be seen as inherited items. Knives were, in three of six cases, found with males. Similarly, the one association with smithing equipment (R154) – and R87 with hammer-head – were both young males (aged 17-25), although this remains admittedly slim evidence for suggesting metalworking as an exclusively male activity.

Where then *do* we find clear differences between the sexes in Middle Iron Age Britain? From Whimster's (1981) study, it might be that slightly more women were buried than men and that females also lived longer. One clear difference is that where there was unusual treatment of the body in East Yorkshire: facing west (as opposed to the dominant rite of east) or being speared, this was more frequently acted out on males; similarly the provision of circular (as opposed to the more normal square) barrows, or the placement of foodstuffs near the feet (as opposed to the upper body). Minority mortuary rites that ran contrary to the norm did tend to be reserved for men, which may suggest a subversive or asocial element as more common amongst that sex.[19] Interestingly, proportionately more women were provided with joints of meat, at a ratio of 3:1, revealing perhaps that a greater conformity to prevailing traditions was observed for the female dead.

High-status costumed burials, however, were increasingly gender-defined, with weaponry as typically masculine (and associated with youth); and exotic jewellery (amber, glass, jet, and gold), mirrors, and toilet equipment (tweezers and nail cleaners) as typically feminine. In addition to the more *obviously* 'exotic' items, Giles' analysis revealed bracelets (of shale, bronze, iron) as typically female, whilst shale and iron finger-rings held male and female associations respectively (Giles 2000, 140-141).[20] Of particular note are the twelve glass bead necklace burials at Wetwang Slack – spaced equidistantly and attracting later clusters of burials, giving them the appearance of 'founder' burials (*ibid.*, 151), similar to the three bracelet-wearing women at Burton Fleming (Fig. 7). In summary, Table 2 attempts to synthesize the gendered associations of Middle Iron Age artefacts as we currently understand them in Britain.

[19]Giles discusses the strong association between martial equipment and young men (aged 16-25) as linked to the quality of aggression in young male adulthood (2000, 142).
[20]Whilst a bronze bracelet was deposited with a man at Newnham Croft, Cambridge and the sexing of those with shale items can be difficult (e.g. R2, R59), the peculiarly female Yorkshire association with iron bracelets and finger-rings is an interesting one.

	Martial Equipment						Status Jewellery							Jewellery							Crafts					Ritual					Food		
	Chariot/trap	Horse gear	Sword	Dagger	Shield	Spear	Glass beads	Torc	Amber, jet beads, gold	Bronze bracelet	Anklet	Toilet equipment	Ornament/pendant	Brooch	Bronze toe-ring	Ear-ring	Worked-bone finger-ring	Shale finger-ring	Bronze or iron finger-ring	Shale or iron bracelet	Smithing tools	Spindlewhorl	Loomweight	Leatherworking tools	Woodworking tools	Speared corpse	Mirror	Spoons	Sickle	Knife	Pig/pork	Mutton	Ceramic vessel
Unisex	•	•		?										•	•	•	•						•	?	?			•			•	•	•
Male			•		•	•				*								•			*	*				•			*	•			
Female			*		*		•	?	•	•	*	•	?						•	•		•				*	•						

Table 2: Towards an understanding of gendered artefacts in Middle Iron Age Britain (* rare example; ? unknown).

Gendering Iron Age identities: craft, martial, ritual and status

Figure 8 reveals how Iron Age 'status items' may have been gendered in Britain. Certain items, such as ceramic vessels and jewellery (brooches, finger- and toe-rings), were it seems without gender (Giles 2000). Craft items might indicate some gendering in Yorkshire: with two examples of a female burial identity associated with spinning, or with inherited whorls, and one example of smithing as male. If the elder woman of Rudston 145 held the status of artisan/craftworker it was, however, independent of other categories, unlike the young male smith at Rudston 154 who was also buried with sword and shield, whilst spindlewhorls are never found with weaponry. A young craftworker from Rudston 141 – with awl, knife, file, and tine – and a woodworker from Ham Hill were of unknown sex,with weaving, leatherworking and woodworking having no clear gender associations.

Ritual identities might be suggested for the Winchester man with sickle and knife, as well as for spoon burials (cf. Fitzpatrick 2007). The latter was not

gendered: with females at Deal and Pogny – the former 40-50 years old – and a male at Burnmouth who also had a knife. The inclusion of a knife with both Winchester and Burnmouth males is interesting. A third knife is found with a man at Burton Fleming 63, along with a spear. The latter is unusual and the only example of a spear without a sword (of which there are only two: R24 and R27). More usually spears were reserved for a martial grave-side ritual involving the spearing of the corpse, for which we currently have 14 examples in East Yorkshire, one of them female. The suggestion then is that the knife had ritual associations; perhaps involving the butchery of animals – as vehicle and martial burials and other, largely female, examples saw the inclusion of a cleft skull and forelimbs of a pig.

High-status female identity – in addition to that manifested by status jewellery or a martial identity (see below) – is represented by the iron mirror; and certainly the Yorkshire mirrors came from unusually large barrows (Joy, this volume). In Greece and Etruria, mirrors are considered an artefact of the female nobility and were decorated with (often violent) scenes (Spivey 1991). The mirror, as a high-status item, has recently been linked to the art of prophecy (cf. Giles and Joy 2007; Giles 2008) and with handles that reference horse bits, these early iron mirrors seem to represent an exclusively female high-status role to do with travel/combat/ritual.[21] The referencing of such roles emerges earlier than masculine martial identities, in essence only visible with swords in the decades after 300 BC. Interestingly, the mirror from Wetwang Slack CB2 was positioned behind the head, handle up, as if mimicking the usual position of the sword (Giles 200, 146). In addition, certain design and decorative elements of the later bronze La Tène mirrors – such as inscribed curvilinear design and the use of red 'enamel' – directly parallel

[21]Important here are two female associations with wheel-shaped items: the coral decorated pin from DG41 (Giles 2000, 159) and the wheel ornament from Arras D.1.18.7 (Whimster 1981).

those on swords (cf. Giles and Joy 2007, 21; Giles 2008) perhaps indicating a role for mirrors in martial ideologies.

It is interesting to consider that the final deposition of a rare item in a funerary context may represent the time when the artefact, and the knowledge system it represented, was no longer socially viable: either lost gradually down the years, or perhaps more rapidly following migration to a related but different cultural group, such as the bronze torc and wheel ornament from Arras – items more common in France (Whimster 1981, 294). Deposition might then take place with the deceased person who held memories or had inherited stories of a time or place when the artefact and its use was culturally valued; subsequently the artefact's deposition with that individual was seen as particularly fitting by their descendents (or contemporary social group) who had perhaps moved on to (or already lived within) a different knowledge/belief system; so, with the artefact less culturally relevant, it was not passed on but instead deposited as a personal item.

When we consider the notion of 'warriors' we tend to envisage men.[22] However, the R3 woman with healed cuts to her face (Giles 2008), and R163 with sword and shield, might suggest a female role in combat at Rudston. In Dorset too, recent osteoarchaeological work found that one in five women in Later Iron Age Dorset were engaged in violence, potentially as active combatants (Redfern 2007). At Middle Iron Age Maiden Castle, a woman was deposited in a pit with 117 sling-stones and at Bury Hill, Hampshire the young woman with iron ferrule is worth further analysis. Whilst women may not normally have engaged in violence, there are exceptional cases demonstrating that martial ideologies were not

[22]However Female warriors were certainly common in the eastern European Iron Age. Hippocrates and Herodotus discuss the female warriors of Scythia – which has *c.* 40 female weapons burials – and Sauromatia, where *c.* 20 % of weapons burials are female. Similarly Ukraine and the Caucasus have a 'substantial number' of female weapons burials from the 5th century BC, with female warriors too in the Iron Age of southern Siberia (cf. Rolle 1989; Taylor 1996; Murphy 2003).

exclusively male. In France, whilst combat deposits such as Ribemont are male, women are represented in the sanctuary at Gournay and female warriors are regularly depicted on Gaulish coins (Craig *et al.* 2005, 173-174; Hunter 2005, 47). In the west, a female warrior with dagger/shield, is found on the late 3rd/early 2nd centuries BC Breton stater of the Riedones, with a female rider brandishing shield and spear/sword from Manche and Ille-et-Vilaine, by the mid 2nd century BC (Cordie *et al.* 2006, 18; Allen 1980, 72).

In Yorkshire, a martial identity seems usually to include the provision of a sword and/or shield as part of the burial costume. Other related themes might include the chariot, the rite of spearing the corpse, and the consumption/deposition of pork by the burial party. The latter elements, however, are also found in graves without martial equipment, 11 of them female. Whilst those elements involving martial equipment, notably the warrior costume and the rite of spearing the corpse are strongly male, the deposition of pig/pork may have been more appropriate for martial women. Nevertheless, warriors R3 and R163, the speared woman at Wetwang Slack, and the three women with chariots remind us that a more active martial role may not have been closed to women. Crucially, the limited sexing of individuals with martial items leaves room for the discovery of more females with martial equipment; whilst the sex of our assumed-male warriors might now be reassessed in light of modern methods.[23]

Whilst deposition of a vehicle and horse gear was appropriate for both sexes, of the ten sexed examples in England, the majority were men. Whether vehicles represent combat (as chariot) or travel (as cart/trap) is still under debate. Traditional interpretations saw them as chariots, linking the archaeology to the historical texts (cf. Fox 1958). Ian Stead, however,

[23]Of particular interest is the speared Grimthorpe warrior with full martial panoply, 4 pins and chalk bead.

chose the term 'cart' because of an apparent absence of weapons at that stage in Britain (1979, 20). By the early 1980s, Rowan Whimster argued that because vehicles were also deposited with women the rite must reflect 'general social rank and standing' rather than specific warrior prowess (1981, 106).[24] In fact, five chariots now have an association with martial equipment: Kirkburn 5 with mail coat; the two Wetwang Slack males, each with sword and shield; and the shields of Hunmanby and Arras Charioteer's. At five examples with a martial association, this is more than the four sexed males without.

Exclusively female status identity revolved around (exotic) jewellery. Exotic materials – jet from the east coast and blue glass from the west coast of Britain,[25] gold, amber from the Baltic – perhaps represent widespread kinship or political networks. They might also reference traditional Bronze Age themes. At Arras, less common items such as a bronze torc and anklet – originating perhaps from the Continent to the east – as well as toilet equipment, a miniature wheel ornament and socketed axe pendant, may perhaps also have been 'female' but the evidence is not clear. Further work might consider a chronological element to jewellery burials: specifically whether those buried with just one or two glass beads, might be the descendants of the Arras women with their bead strings of up to 100. Were beads passed down through the generations of an extended family?

Crucially, the jewellery burials provide evidence for widespread social networks in the Middle Iron Age. A number of high-status females in Britain seem to have Continental affiliations, particularly in the 4th and 3rd centuries BC, such as the extended inhumations of the women from Deal, those from Arras, and the Rudston warrior. Discovering whether women might have

[24]Spivey (1991) reports a similar problem in Etruscan studies, where male vehicle burials are readily seen as symbolising warrior status, whilst for female vehicle burials this transmutes to 'aristocratic' status.

[25]Middle Iron Age glass-making has only been attested at western wetland sites such as Glastonbury, Meare, Ballacagen Lough A and Ballanorris on the Isle of Man.

been moving to the east coast of Britain at this time is an interesting topic for further study. However we must, in the first instance, avoid jumping to the assumption that women with 'foreign' links reveal exogamous marriage systems, when other social mechanisms, such as political migration, might prove equally valid. Particularly interesting is that a number of men are found in the same areas at this time, with good candidates being the extended Rudston sword burials, and those from Shouldham (Norfolk) and Deal (Kent) in the south.

With status goods in *c.* 20% of Stead's (1991) sample of 290 East Yorkshire burials, it could be suggested that political authority lay with the group rather than specific individuals. Relatively common status items – present in *c.* 2-5% of the overall sample – were the provision of pig/pork, swords/daggers, jewellery, shields and craft identities (Table 3). More rare were chariots, mirrors and glass bead necklaces – the latter unrepresented in Stead's sample, but found at Arras Queen's, Cowlam, Garton and Wetwang Slack, as well as the exceptionally wealthy, Late Iron Age Birdlip (Gloucestershire) and Donaghadee (County Down) women in the west. In Yorkshire, there were only five individuals with three or more high-status elements (chariot, pig/pork, martial equipment/mirror): Wetwang Slack CB1; the Wetwang Village woman and Arras Lady; but particularly Kirkburn 5 with his mail coat and Wetwang Slack CB2 with her 'bean-tin'. Currently, Middle Iron Age East Yorkshire may provide our best archaeological evidence for social hierarchy; crucially for this paper, this is not something from which woman were excluded.

	%
Pig/pork	6.2
Swords/daggers	5.2
Jewellery	3.4
Shields	2.1
Craft identities	2.1
Vehicle	0.6

Mirror	0.3
Glass bead necklaces	-

Table 3 Percentage of status items in Stead (1991)'s sample of 290 burials.

Conclusions

In Britain, for most regions for most or all of the Middle Iron Age, mortuary evidence is ambiguous or indeed absent. What does survive, however, is certainly more varied than traditionally realized and a national trawl of grey literature is now overdue. A similar pattern exists across much of continental Europe: the 'default' tradition for many regions is to have few burials, with even the biggest data sets at around only ten thousand burials. Few indicate social hierarchy – but traditions displaying status indicators at different periods (e.g. Champagne, Ardennes, Berry, Yorkshire, Kent), while clearly the exception rather than the rule, are less geographically restricted than formerly appeared to be the case. A key factor everywhere is recognizing the presence of strong regionality. That encountered in mainland Britain is not dissimilar to many other areas of the western continent with, beyond Yorkshire, little evidence for social hierarchy in the mortuary evidence. It is important now is to achieve an increasingly detailed chronology of change through time.

From the British mortuary evidence, there were few signs of different rites between the sexes in mortuary traditions, with burial context, body treatment, provision of grave-goods etc. not gender-based. In much of the north and west the individual was not marked on death during these phases of the Iron Age. We also find a lack of status burials – and thus gendered status – in the traditional communities of Wessex as well as the Cornish and Lothian inhumation traditions, which might suggest more egalitarian societies in these regions. What few indications there are of 'status' items amongst south-western communities do however appear

more feminine in character. There is more evidence for variations in social status after *c.* 300 BC in eastern Britain, predominantly in East Yorkshire, where mortuary rites are largely centred on a martial ideology and have some affiliations to the Continent and where the number of status burials is relatively equal between the sexes. The shortage of child burials, however, makes it difficult to say anything meaningful about ascribed versus attained status without recourse to DNA and studies of inherited traits.

Neither sex was necessarily excluded from access to status and indications are that in those areas and periods where more social hierarchies are present, women were just as likely to achieve elevated status as men. The accumulating evidence suggests that there were women of high status in the study areas during the Middle Iron Age, although only at some periods and in some areas is that status readily manifested in the funerary record. Across the Channel, high status, and likely powerful, women are most archaeologically visible in final-Hallstatt-to-initial-La-Tène eastern temperate France, as far south as Switzerland. During the western continental Second Iron Age, however, an increasingly masculine social system, in some areas at least, is indicated by the rising proportions of male graves with swords or fuller weapon panoplies that characterize La Tène B and C. The eclipse of female status is however never total, and for example in some areas later in the early la Tène (LT B1/2) female burials with torcs or other status indicators continue.

In Middle Iron Age Britain, the earliest high status burials are distributed intermittently along the east coast. Perhaps earliest is the Newbridge chariot from Midlothian with its continental background perhaps in the Belgian Ardennes; then those with a potentially 'ritual' association: namely the iron mirror burials of the late 4th century BC and the bronze spoon

burials, for which a general later 3rd century BC date seems plausible.[26] Whilst there is no skeletal material at Newbridge, the mirrors are believed exclusively female, with spoon burials of either sex. Our first sword burials are also found along the east coast – i.e. Rudston and Shouldham – after *c.* 300 BC and the early nineteenth century finds at Old Castle/Ogmore Down, Glamorgan, hint at what remains to be discovered in the west (cf. Savory 1976).[27] Whatever this early activity around coastal Britain might suggest, it clearly involved high status individuals of both sexes.

We can envisage high status Iron Age identities to have occurred along a male-to-female spectrum of combat-to-contact. Masculine identity was associated with the material culture of armed combat, whilst status jewellery – with its references to social contact, be that kin-based social networks or political allegiances – was more exclusively female. Along this combat-contact spectrum lay evidence of other martial/ritual *ideologies*: the more usually male rite of corpse-spearing; with the inclusion of pork joints – suggesting perhaps graveside consumption – as evidenced relatively equally between the sexes. There are apparently few graves that might represent artisans, with as yet only one or two examples each of burials with toolkits for spinning, weaving, carpentry, leather-working, and smithing. Regarding gender, textile working has three female and one male association whilst the Rudston smith is male; and the most coherent set of evidence for ritual specialists are the male and female spoon burials; and

[26]Although the Burnmouth male from Berwickshire is thought to date to *c.* 200-1 cal BC (Fitzpatrick 2007, 294) and the only continental example at Pogny, Marne – a female with spoons found wrapped beneath a copper-alloy vessel – seems La Tène C/250-150 BC (Parfitt 1995, 105) – an earlier radiocarbon range of 360-200 BC has recently been achieved for spoon burial X2 at Mill Hill, Deal in Kent: the extended inhumation of an elderly woman (D. Garrow pers. comm.).

[27]If these were early helmeted warriors, the finest of the headgear might bear comparison with other exceptional equipment found around the periphery of the Celtic domain (cf Wells 2001, 69-70) as in the helmets from Canosa, Apulia and the cave from Agris, Charente, as well perhaps as the pony-cap represented by the Torrs *chanfrein* for Galloway.

perhaps also the exclusively female mirror burials.

The evidence from eastern England suggests that gender on death was relatively fluid for women in the Middle Iron Age. There were a number of female identities: most commonly based around exotic jewellery, but also martial (pig/pork, vehicles, weaponry) and ritual ideologies (mirrors and spoons). Some were mutually exclusive, for example women with vehicles/pork or weapons notably did not wear jewellery.[28] Crucially, however, some women were included within typically male identities, demonstrating that Middle Iron Age gender was relatively fluid and not strictly binary. On current evidence, however, the burial identity of status males was more typically fixed at that of warrior, even to the extent that the Rudston smith was also provided with martial equipment.

This formative attempt at a gendered analysis has revealed that sex was not a major structuring principle in British Middle Iron Age mortuary traditions, and that women were not excluded from high-status roles, including those involved in martial and ritual ideologies. Inevitably the strength of the evidence is very variable across time and space but rehearsal of some of the data from the nearer continent indicates similar variability, with the funerary evidence for prominent women on occasion manifestly stronger there. It is only our discipline that has, at times, written strong women out of history. If we ignore the evidence for women and only use that for a selection of the males, we create an incomplete picture of the Iron Age; if instead we attempt a fuller analysis of the available data, writing a gendered perspective of the past, a much more complete and interesting story should be attainable. The funerary record, incomplete as it is, nonetheless points to variable social statuses in Middle Iron Age Britain, perhaps especially in Yorkshire and along the east coast.

[28] Future research may reveal these to be chronologically distinct, or of different cultures.

New work in osteology, new thinking on sex and sexuality, the application of new analytical approaches to older skeletal material, and new data all have the potential to revise the views tentatively expressed above. Iron Age researchers can learn from perspectives developed elsewhere i.e. cemetery analyses in Early Medieval studies which consider genealogy and temporal depth based on the seriation of grave-goods, and correspondence analysis in combination with radiocarbon dating (cf. Hakenbeck 2006). There is potential too in new research which utilizes DNA and stable isotopes analysis although we must develop our interpretations regarding such methods (cf. Müller *et al.* 2008). The aim is the *reconstruction* of Iron Age societies from the archaeological data – an *archaeological* understanding of the Iron Age – without recourse to formal analogy with the present, or uncritical reliance on the textual evidence. Teasing out the subtleties of this from the data is a task that can only be achieved by striving for objectivity regarding the topic of gender, as the 'transvestite manoeuvre' of the 1980s slips not-so-gracefully into our disciplinary past.

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References

Adam, A.-M. (2007), 'Les importations méditerranénnes en Gaule interne aux IVe et IIIe siècles avant notre ère'. In C. Mennessier-Jouannet *et al.*, 255-261.

Allen, D.F. (1980), *The coins of the ancient Celts.* (Edinburgh: Edinburgh University Press).

Anderson, T. (1995), The human skeletons. In K. Parfitt *Iron Age burials from Mill Hill, Deal*, 114-144 (London: British Museum Press).

Arnold, B. (1991), The deposed princess of Vix: the need for an engendered prehistory. In D. Walde and N.D. Willows (eds) *The Archaeology of Gender: Proceedings of the twenty-second annual conference of the archaeological association of the University of Calgary*, 366-374 (Calgary: University of Calgary Archaeological Association).

Arnold, B. (1995), 'Honorary males' or women of substance? Gender, status and power in Iron Age Europe. *Journal of European Archaeology* 3(2), 153-168.

Arnold, B. (2005), 'Mobile men, sedentary women? Material culture as a marker of regional and supra-regional interaction in Iron Age Europe', In eds Dobrańska, H., Megaw, V. and Poleska, P. *Celts on the margin: studies in European Cultural Interaction VII C BC – I C AD: essays in honor of Zenon Woźniak*, 17-26 (Krakow: Institute of Archaeology and Ethnography of the Polish Academy of Sciences).

Arnold, B. and Wicker, N.L. (2001), *Gender and the archaeology of death* (New York: AltaMira).

Augier, L., Mennessier-Jouannet, C., Milcent, P.-Y., Orengo, L. and Riquier, S. (2007), 'La France centrale aux IVe-IIIe s. av. n. ère (Auvergne, Berry, Orléanais)', In C. Mennessier-Jouannet et al., 117-176.

Baray, L. (2000) ,'Évolution socio-économique et adaptations architecturales. Tumulus et concentration de pouvoir en Bourgogne de la seconde moitié du IX^{e} au milieu du V^{e} S. av. J.-C.', In Dedet *et al.*, 195-211.

Baray, L. (2004a), 'Du dépôt fastueux au dépôt modeste. L'idéologie funéraire aristocratique et la dynamique sociale aux VI^{e} et V^{e} s. av. J.-C. en Europe occidentale', In Baray 2004b, 65-77.

Baray, L. (ed.) (2004b), *Archéologie des pratiques funéraires: approches critiques*. Glux-en-Glenne (Nièvre: Coll Bibracte 9).

Baray, L., Chaume, B. and Millet, E. (2007), 'Culture matérielle et pratiques funéraires en Bourgogne du nord aux IVe et IIIe s. av. J.-C.', In Mennessier-Jouannet *et al.*, 187-225.

Bradley, R. and Schulting, R. (2010), *Trauma from the Thames: new dates on human cranial remains*. (Paper given at the Prehistoric Society's 'Bronze Age in the Upper Thames Valley' day conference, February 2010).

Brewster, T.C.M. (1971), The Garton Slack chariot burial, East Yorkshire. *Antiquity* 45 (No. 180), 289-292.

Brown, F., Howard-Davis, C., Brennand, M., Boyle, A., Evans, T., O'Connor, S., Spence, A., Heawood, R. and Lupton, A. (2007), *The Archaeology of the A1(M) Darrington to Dishforth DBFO Road Scheme* (Oxford: Lancaster Imprints).

Brun, P. (1987), *Princes et princesses de la Celtique* (Paris: Editions Errance).

Brun, P. (2004), Réflexion sur la polysémie des pratiques funéraires protohistoriques en Europe. In Baray, L. (dir) *Archéologie des pratiques funéraires. Approches critiques*, 55-64 (Glux-en-Glenne, France: Collection Bibracte 9).

Brun, P. and Ruby, P. (2008), *L'âge du Fer en France. Premières villes, premiers États celtiques* (Paris: La Découverte).

Buchsenschutz O. (2007), *Les Celtes de l'âge du Fer* (Paris: Armand Colin).

Carter, S. and Hunter, F. (2003), An Iron Age chariot burial from Scotland. *Antiquity* 77(3), 531-535.

Chadwick, N. (1970), *The Celts* (London: Penguin).

Champion, S. (1995), Jewellery and adornment. In M. Green (ed.) *The Celtic World*, 411-419 (London: Routledge).

Collis, J.R. (1981), A theoretical study of hillforts. In G. Guilbert (ed.) *Hill-fort Studies*: papers presented to *A.H.A. Hogg*, 66-77 (Leicester: Leicester University Press).

Collis, J. (2001), Coral, amber and cockle shells: Trade in the middle La Tène period. *PAST* 38 (August). http://www.ucl.ac.uk/prehistoric/past.

Cordie, R., Guichard, V., Sankot, P. and Teegen, W.-R. (2006), *Trésors des Femmes: Enquête archaéologique sur les femmes celtes du VI^e avant au I^er siècle après J.-C.* Glux-en-Glenne (Nièvre: Musée de Bibracte).

Craig, C.R., Knüsel, C.J. and Carr, G.C. (2005), Fragmentation, mutilation and dismemberment: an interpretation of human remains on Iron Age sites. In M. Parker-Pearson and I. J. N. Thorpe (ed.) *Violence, Warfare, and Slavery:* BAR (International Series) 1374, 165-180 (Oxford: Archaeopress).

Cunliffe, B. (2005), *Iron Age Communities in Britain*, 4th edition. (London: Routledge).

Cunliffe, B. (1995), *Iron Age Britain* (London: Batsford).

Dedet, B., Gruat, P., Marchand, G., Py, M. and Schwaller, M. (eds) (2000), *Archéologie de la mort, archéologie de la tombe au Premier Âge du Fer.* (= Actes XXI Coll Assoc franç Et Ages Fer : Thème spécialisé (Conques-Montrozier 1997; = Monographies d' Archéologie Méditerranéenne 5).

Delor, J.-P. and Rolley, C. (1999), La nécropole de Gurgy "la Picardie", Yonne. In Villes and Bataille-Melkon, 341-359.

Demoule, J.-P. (1999), *Chronologie et société dans les nécropoles celtiques de la culture Aisne-Marne du VI^e au III^e siècle avant notre ère* (Amiens : Revue archéologique de Picardie numéro spécial 15).

Dent, J.S. (1983), Weapons, wounds and war in the Iron Age. *Archaeological Journal* 140, 120-128.

Dent, J.S. (1985), Three cart burials from Wetwang, Yorkshire. *Antiquity* 59 (no. 226), 85-92.

Diepeveen-Jansen, M. (2001), *People, ideas and goods. New perspectives on 'Celtic barbarians' in western and central Europe (500-250 BC)* (Amsterdam: Amsterdam University Press, Amsterdam Archaeological Studies 7).

Echt, R. (1999), *Das Fürstinnengrab von Reinheim : Studien zur Kulturgeschichte der Früh-La-Tenè-Zeit*. Bonn: R. Habelt. (= Saarbrücker Beiträge zur Altertumskunde 69).

Ehrenberg, M. (1989), *Women in Prehistory* (London: British Museum Press).

Evans, T.L. (2004) *Quantitative Identities: A statistical summary and analysis of Iron Age cemeteries in North-Eastern France 600-130 BC*. Oxford: Archaeopress (= Brit Archaeol Rep (Internat Ser) 1226).

Fenton-Thomas, C. (forthcoming), *'Where Sky and Yorkshire and Water Meet': The Story of the Melton Landscape from Prehistory to the Present* (York: On-Site Archaeology).

Fitzpatrick, A.P. (2007), 'Druids: towards an archaeology'. In C. Gosden, H. Hamerow, P. De Jersey and G. Lock (eds) *Communities and connections: Essays in honour of Barry Cunliffe,* 287-313 (Oxford: Oxford University Press).

Flouest, J.L. and Stead, I.M. (1981), Fouille de sauvetage a Tinqueux (Marne), 1974. In A. Melkon, (ed.) *L'Age du Fer en France Septentrionale,* 151-176 (Reims: Mémoires de la Société Archéologique Champenoise 2).

Fox, C. (1958), *Pattern and Purpose: A survey of early Celtic art in Britain* (Cardiff: National Museum of Wales).

Gilchrist, R. (1999), *Gender and Archaeology: contesting the past* (London: Routledge).

Giles, M. (2000), *'Open-weave, Close-knit': Archaeologies of identity in the later prehistoric landscape of East Yorkshire* (Unpublished PhD thesis, Department of Archaeology, University of Sheffield).

Giles, M. (2008), Seeing red: the aesthetics of martial objects in the British and Irish Iron Age. In D. Garrow, C. Gosden and J.D. Hill (eds) *Rethinking Celtic art*, 59-77 (Oxford: Oxbow).

Giles, M. and Joy, J. (2007), Mirrors in the British Iron Age: performance, revelation and power. In M. Anderson (ed.) *The book of the mirror: An interdisciplinary collection exploring the cultural story of the mirror* (Newcastle: Cambridge Scholars).

Green, S. (2008), *Diet and status at the Iron Age site of Mill Hill: carbon and nitrogen stable isotope evidence* (Unpublished BA dissertation, Department of Archaeology, University of Cambridge).

Hakenbeck, S. (2006), *Ethnic Identity in Early Medieval Cemeteries in Bavaria* (Unpublished PhD thesis. Department of Archaeology, University of Cambridge).

Halberstam, J. (1998), *Female masculinity* (London: Duke University Press).

Haselgrove, C.C. and Pope, R.E. (2007), Characterising the Earlier Iron Age. In C.C. Haselgrove and R.E. Pope (eds) *The Earlier Iron Age in Britain and the near Continent*, 1-23 (Oxford: Oxbow).

Hill, J.D. (1989), Rethinking the Iron Age. *Scottish Archaeological Review* 6, 16-24.

Hill, J.D. (2002), Wetwang chariot burial. *Current Archaeology* 178, 410-412.

Hill, J. D. (2006), Are we any closer to understanding how later Iron Age societies worked (or did not work)? In C. Haselgrove (dir.) *Celtes et Gaulois, l'Archéologie face à l'histoire 4: les mutations de la fin de l'âge du fer*, 169-179 (Glux-en-Glenne: Bibracte 12/4).

Hinton, P. (1986), An analysis of burial rites at Münsingen-Rain: An approach to the study of Iron Age society. Actes VIII Coll Assoc Franç Etud Ages Fer, 351-368 (Bordeaux: Revue Aquitania Supplément 1).

Hodson, F. R. (1990) *Hallstatt, the Ramsauer graves : quantification and analysis.* = Monographien den Römisch-Germanisches Zentralmuseum Mainz. Forschungsinstitut für Vor- und Frühgeschichte 16. (Bonn: R Habelt).

Hunter, F. (2005), The image of the warrior in the British Iron Age: coin iconography in context. In C. Haselgrove and D. Wigg-Wolf (eds) *Iron Age Coinage and Ritual Practices*. Studien zu Fundmünzen der Antike (SFMA) band 20, 43-68 (Mainz Am Rhein: Verlag Philipp Von Zabern).

James, S. (1993), *Exploring the world of the Celts* (London: Thames and Hudson).

Joyce, R.A. (2008), *Ancient bodies, ancient lives: sex, gender and archaeology* (London: Thames and Hudson).

Jope, E.M. (2000), *Early Celtic in the British Isles* (Oxford: Oxford University Press). 2 vols.

Joy, J. (2008), *Reflections on the Iron Age: biographies of mirrors* (Unpublished PhD thesis, University of Southampton).

Kaenel, G. (1990), *Recherches sur la période de la Tène en Suisse occidentale: anayse des sépultures* (Lausanne: Cahiers d'Archéologie Romande 50).

Karl, R. and Leskovar, J. *herausgegeben von* (2007), *Interpretierte Eisenzeiten. Fallstudien, Methoden, Theorie*. Linz: Studien zur Kulturgeschichte von Oberösterreich 19 (= Tagungsbeiträge der 2. Linzer Gespräche zur interpretative Eisenzeitarchäologie).

Knüsel, C.J. (2002) More Circe than Cassandra: the Princess of Vix in ritualised social context. *European Journal of Archaeology* 5, 275-308.

Lally, M. (2008), *Iron Age infant inhumation* (Unpublished PhD thesis. Department of Archaeology, University of Southampton).

Marion, S. (2004), *Recherches sur l'âge du Fer en Ile-de-France.* 2 vols (Oxford : Brit Archaeol Rep Internat Ser 1231).

Marion, S. (2007), Les IVe et IIIe siècles avant notre ère en Île-de-France. In C. Mennessier-Jouannet *et al*, 91-115.

Mennessier-Jouannet, C., Adam, A.-M. and Milcent, P.-Y. (eds) (2007), *La Gaule dans son contexte européen aux IVe et IIIe s. av. n. è.* (= Actes XXVIIe coll internat de l'Assoc franç pour l'Etude de l'Âge du Fer, Clermont-Ferrand 2003) (Lattes: Monographies d'Archéologie Mediterranéenne).

Milcent, P.-Y. (2003), Statut et fonctions d'un personnage féminin hors norme. In Rolley, 312-366.

Milcent, P.-Y. (2004), *Le premier âge du Fer en France centrale*. 2 vols (Paris: Mém Société préhistorique française 34).

Moore, J. and Scott, E. (1997), *Invisible people and processes: writing gender and childhood into European Archaeology* (Leicester: Leicester University Press).

Moore, T.H. (2006), *Iron Age Societies in the Severn-Cotswolds: Developing narratives of social and landscape change*. BAR (BS) 421 (Oxford: Archaeopress).

Morris, E. (1988), The Iron Age occupation at Dibble Farm. *Proceedings of the Somerset Archaeology and Natural History Society* 132, 23-82.

Müller, F., Jud, P. and Alt, K. W. (2008), Artefacts, skulls and written sources: the social ranking of a Celtic family buried at Münsingen-Rain. *Antiquity* 82, 462-469.

Müller, F. and Lüscher, G. (2004), *Die Kelten in der Schweiz* (Stuttgart: Konrad Theiss).

Murphy, E.M. (2003), *Iron Age archaeology and trauma from Aymyrlyg, South Siberia*. BAR (IS) 1152 (Oxford: Archaeopress).

Musée de Bibracte (2004), *L'or blanc de Hallstatt* (Glux-en-Glenne: exhibition catalogue).

Nelson, S.M. (2006), *Handbook of gender in Archaeology* (New York: AltaMira).

Nowakowski, J.A. (1991), Trethellan Farm, Newquay: the excavation of a lowland Bronze Age settlement and Iron Age cemetery. *Cornish Archaeology* 30, 5-242.

Olivier, L. (2000), Sépultures d'agrégation et hiérarchisation funéraire dans le domaine hallstattien occidental (IX^{e} – VI^{e} s. av. J.-C.) In Dedet *et al.* 213-231.

Olivier, L. (2002a), Le tumulus à tombe à char de Marainville-sur-Madon (Vosges). In Olivier 2002c, 62-69.

Olivier, L. (2002b) La nécropole de tumulus de Diarville (Meurthe-et-Moselle). In Olivier 2002c, 69-98.

Olivier, L. (2002c), *Princesses celtes en Lorraine: Sion, trois millénaires d'archéologie d'un territoire* (Jarville-la-Malgrange: Musée de l'Histoire du Fer).

Pany, D. and Teschler-Nicola, M. (2007), Working in a salt mine – everyday life for the Hallstatt females? *Lunula* 15, 89-97.

Pare, C.F.E. (1992), *Wagons and wagon-graves of the Early Iron Age in Central Europe* (Oxford: Oxford University Committee for Archaeology Monograph 35).

Parfitt, K. (1995), *Iron Age burials from Mill Hill, Deal* (London: British Museum Press).

Parker Pearson, M. (1999), Food, sex and death: Cosmologies in the British Iron Age with particular reference to East Yorkshire. *Cambridge Archaeological Journal* 9(1), 43-69.

Pauli, L. (1972), *Untersuchungen zur Späthallstattkultur in Nordwürrtemberg: Analyse eines Kleinraums im Grenzbereich zweier Kulturen* (Hamburger Beiträge 2).

Piningre, J.-F., Courtaud, P., Duday, H., Ganard, V., Sellier, P. and Staniaszecki, L. (1996), *Nécropoles et société au premier âge du fer. Le tumulus de Courtesoult (Haute-Saône)* (Paris : Document d'Archéologie française 54).

Pion, P. and Guichard, V. (1993), Tombes et nécropoles en France et au Luxembourg entre le IIIème et le Ier siècles avant J-C. Essai d'inventaire. In D. Cliquet, M. Remy-Watte, V. Guichard and M. Vaginay (eds) *Les Celtes en Normandie*, 175-200. (= Actes XIV Coll Assoc franç Et Ages Fer (Evreux 1990; = Rev archéol Ouest suppl 6).

Pope, R.E. (2007), Ritual and the roundhouse: a critique of recent ideas on domestic space in later British prehistory. In C.C. Haselgrove and R.E. Pope (eds) *The Earlier Iron Age in Britain and the near Continent*, 204-228 (Oxford: Oxbow).

Redfern, R. (2008), A bioarchaeological analysis of violence in Iron Age females: a perspective from Dorset, England (fourth century BC to the first century AD). In O. Davis, N. Sharples and K. Waddington (eds) *Changing Perspectives on the First Millennium BC: Proceedings of the Iron Age Research Student Seminar 2006*, 139-160 (Oxford: Oxbow).

Rolle, R. (1989), *The World of the Scythians* (Berkeley: University of California Press).

Rolley, C. *sous la direction de* 2003 *La tombe princière de Vix* 2 vols. (Paris: A & J Picard).

Savory, H.N. (1976), *Guide catalogue of the Early Iron Age Collections* (Cardiff: National Museum).

Schönfelder, M. (2007), Considérations sur les élites celtiques des IVe-IIIe s. av. J.-C. In Mennessier-Jouannet et al., 291-299.

Spivey, N. (1991), The power of women in Etruscan society, 55-68. (London: Accordia Research Papers 2).

Stead, I.M. (1979), *The Arras Culture* (York: Yorkshire Philsophical Society).

Stead, I.M. (1986), A group of Iron Age barrows at Cowlam, North Humberside. *Yorkshire Archaeological Journal* 58, 5-15.

Stead, I.M. (1991), *Iron Age Cemeteries in East Yorkshire* (London: English Heritage).

Stead, S. (1991), The human bones. In I.M. Stead *Iron Age Cemeteries in East Yorkshire*, 126-139 (London: English Heritage).

Stead, I.M. (1995), The metalwork. In K. Parfitt (ed.) *Iron Age burials from Mill Hill, Deal*, 59-111 (London: British Museum Press).

Stead, I. (2006), *British Iron Age swords* (London: British Museum Press).

Stig Sørensen, M.-L. (2000), *Gender Archaeology* (Cambridge: Polity).

Stig Sørensen, M.-L. and Rebay, K. C. (2007), Changing social practices of death in later European prehistory. In Karl and Leskovar, 119-124.

Stöllner, T. (2007), Handwerk im Grab – Handwerker? Überlegungen zur Aussagekraft der Gerätebeigabe in eisenzeitlichen Gräbern. In Karl and Leskovar, 227-252.

Taylor, T. (1996), *The Prehistory of Sex: Four Million Years of Human Sexual Culture* (London: Fourth Estate).

Verger, S. (1995), De Vix à Weiskirchen: la transformation des rites funéraires aristocratiques en Gaule du Nord et de l'Est au Ve siècle avant J.-C., *Mélanges de l'Ecole française de Rome* (Antiquité) 107, 335-458.

Villes, A. and Bataille-Melkon, A. (eds) (1999), *Fastes des Celtes entre Champagne et Bourgogne aux VIIe-IIIe siècles avant J.C.*, Actes du Colloque de l'AFEAF tenu à Troyes 1995. (= Reims: Mémoire de la Société Archéologique Champenoise 15).

Wells, P. S. (2001), *Beyond Celts, Germans and Scythians* (London: Duckworth).

Whimster, R. (1981), *Burial practices in Iron Age Britain*. British Archaeological Reports (British Series) 90. 2 vols (Oxford: Archaeopress).

Wylie, A. (2002), *Thinking from Things: Essays in the Philosophy of Archaeology* (London: University of California Press).

Fig. 1 The generalized structure of a Celtic community (James 2003). Note how Iron Age women lack elevated status but are represented as peasant, mother, or family to the male nobility. Not also their exclusion from the arts. An over-reliance on male-authored Roman textual evidence, rather than the Iron Age archaeology, is a feature of traditional Iron Age studies (courtesy of S. James).

Fig. 2 Regional patterning of gendered late Hallstatt vehicle burials (after Baray 2000).

Fig. 3 Gendered analysis of burials in the Upper Seine Basin (after Evans 2004, 163; figs 8.64; 8.8; 8.17).

Fig. 4 Location of gendered MIA status burials and other key sites mentioned in the text.

Fig. 5 A gendered analysis of Stead (1991) revealing the many non-gendered aspects of Iron Age burial traditions in East Yorkshire.

Fig. 6 A gendered analysis of Stead (1991) revealing the gendered aspects of Iron Age burial traditions in East Yorkshire: burial costume and provision/placement of foodstuffs.

Fig. 7 The location of status burials at Rudston, East Yorkshire (after Stead 1991)

Fig. 8 A gendered analysis of grave-goods and burial costume in Middle Iron Age Britain (data from Whimster 1981; Stead 1991; Brown *et al.* 2007, Table 13).

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How many hillforts are there in Scotland?

Stratford Halliday and Ian Ralston

> 'Britain, with more than three thousand structures of notionally hillfort character, presents acute problems of definition' (Raftery 2004, 162).

Introduction

Barry Raftery's observation has a particular resonance in Scotland, where a significant proportion of these notional hillforts can be found. Classified as *Forts*, a term that has been long preferred north of the Border, they are defined in the RCAHMS on-line thesaurus as 'an enclosure, often located on a hilltop, bounded by one or more banks, ditches, ramparts or walls', terminology that is much closer to that in other west European languages, where the 'hill' element is not wrapped into descriptors such as *castro*, *enceinte*, *oppidum* or *Ringwall*. The problems of definition, however, are not simply about the characteristics of these monuments and their classification in monument records. As we shall see, they are embedded in the history of the study of hillforts in Scotland, played out in both national and local arenas, the latter illustrated here by case-studies in Berwickshire and Kintyre. We cannot offer a solution so much as air the issues and sketch some new approaches.

In contrast to Ireland, settlements have long been central to Scottish Iron Age studies. During the 'long Iron Age', a period spanning from the late Bronze Age through to the arrival of the Norse, many types have been described, some essentially local and others components of more widespread, even sub-continental, patterns. Forts, however, though amongst the most common and conspicuous categories, have not played such a central role in research programmes as that occupied by such idiosyncratically Scottish monument types as complex Atlantic roundhouses or broch towers. These have seemed more approachable in scale and more rewarding to dig.

Forts, as the RCAHMS definition implies, form a comparatively fuzzy data set, and this fuzziness has itself several dimensions—most importantly the existence of a myriad of enclosed sites classified as *Settlement*, *Earthwork* and *Enclosure*, terms which all suggest their exclusion from the *Fort* category. The distinctions are of course forcibly framed around subjective considerations of the defensive potential of their enclosing walls and ramparts, and therein lies part of the problem.

The history of the problem

Antiquarian interest in ancient enclosures can certainly be traced back to the eighteenth century, and includes a small selection of sites recorded for General William Roy (1793) and the initial interest in vitrified forts (e.g. Williams 1777). The first effort to collect data at a national level is marked by the *Statistical Account of Scotland* (Sinclair 1791–9), under way under the aegis of the improving landowner Sir John Sinclair in the last decade of the eighteenth century, but its texts tend to be confused and obscure, characteristics that hardly improved with the publication from 1845 of its successor, the *New Statistical Account*. In so far as it is possible to gain any national overview from these sources, this is provided by Daniel Wilson, whose chapter on 'Strongholds' in *Prehistoric annals of Scotland* manages to combine a general commentary on his meagre sources with more specific observations of forts like the Caterthuns in Angus and Tap o' Noth in Aberdeenshire (1851, 408–30; 1863, 85–115). The military equation of enclosure with fortification and defence was already well established from the eighteenth century onwards, and as often as not these works were attributed to invading people—Danes, Saxons and Romans.

As the nineteenth century progressed, general interest in Scotland's field antiquities began to evolve, and the preparation of the first edition of the OS 6in. and 25in. maps from the 1850s–70s created the first national record of the nation's monuments, each depicted to scale in its correct topographical position. Under the direction of Sir Henry James, the Ordnance Survey was also taking an active interest in the annotation of ancient sites appearing on its maps (Seymour 1980, 173–5). Despite this huge leap forwards, then as now Scottish monument types such as brochs tended to attract most of the archaeological attention.

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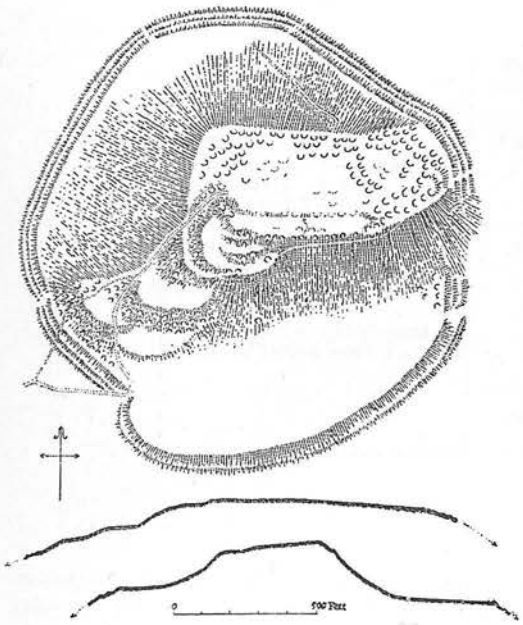


Fig. 58.—*Eildon Hill Fort Roxburghshire.*

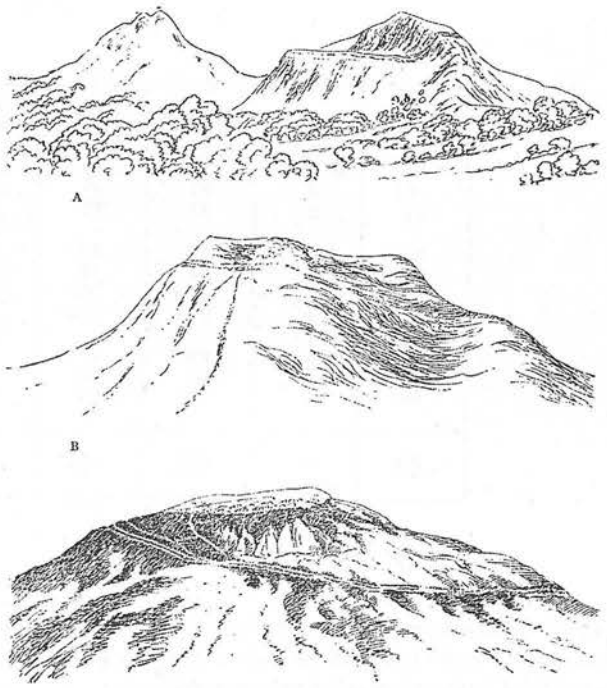


Fig. 59.—*Lines of Eildon Fort, A from S.E., B from N.E., C from N.W.*

Fig. 1—The major fort on Eildon Hill North (Scottish Borders) as illustrated by David Christison. His plans were generally modified from Ordnance Survey maps, as he explains in his introduction (1898, vii–viii).

Wilson had included them amongst his strongholds, but Joseph Anderson's *Scotland in pagan times: the Iron Age* (1883) devoted one chapter to broch architecture and another to their contents; hillforts were summarily dealt with alongside souterrains and lake-dwellings in the final chapter.

A few pioneers investigated hillforts, including excavations by such as James MacDonald at Tap o' Noth (1891) and the remarkable Christian Maclagan at Mither Tap o' Bennachie (1875), but it was only in the final decades of the nineteenth century that the first systematic review was undertaken. Contained in David Christison's *Early fortifications in Scotland* (1898), this belongs very firmly to the pre-First World War tradition of typological categorisation, comparable, for example, with Hadrian Allcroft's *Earthworks of England* (1908) and the classification of French sites under the auspices of the Société Préhistorique Française from 1903 (Buchsenschutz 1984, 11). Christison's survey was underpinned by twelve summers of fieldwork and drew extensively upon the Ordnance Survey depictions. His objective was to present a 'scientific archaeology' (1898, ix–x), and his general discussion of the problems of definition still has much to commend it as a model of good sense (*ibid.*, 111–15). In all, he collected information covering 905 sites (Fig. 1), and at the back of the volume is the first national distribution map of forts on mainland Scotland. Christison's classification was based essentially on size, as defined by their longest overall dimension, with 'very small' being those under 100ft (*c.* 30m), 'small' those up to 300ft, 'moderate' 300–600ft, and all examples greater than that considered as large (Table 1).

This systematic approach to classifying and cataloguing monuments by the likes of Christison and his contemporaries, such as Frederick Coles, was taken up in 1908 with the establishment of the Royal Commission on

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Table 1—Christison's size classification applied regionally (1898, 385).

	Very small.	Small.	Moderate.	Large.	Total.
Mainland of Argyle . .	81	72	10	1	164
Rest of Highland mainland .	7	22	11	2	42
North-east counties, Fife, and Lowland Perth . .	1	21	27	15	64
Ayr and Renfrew . . .	3	17	10	...	30
Galloway	13	80	11	...	104
Dumfries	2	128	62	1	193
Peebles and Upper Ward of Lanark	...	28	52	7	87
Lothian and Berwick coast .	...	20	30	7	57
Basin of Tweed below Peebles	1	57	89	17	164
	108	445	302	50	905

the Ancient and Historical Monuments of Scotland, initially staffed by Alexander Curle. County Inventories, initiated in 1908 in Berwickshire (RCAHMS 1909; 1915; see below), underpin elements of many Scottish distributions, and certainly played a part in the compilation of the next set of national distribution maps showing forts. These were produced by Gordon Childe, upon whose knee the young Barry Raftery once sat. Childe's syntheses of Scottish prehistory (1935; 1946) allowed him to set his fieldwork on hillforts, as opposed to the brochs and duns that made up his 'castle complex', into a much wider context, and he carried out a series of excavations, including those at Earn's Heugh on the Berwickshire coast, Castle Law in Midlothian, Finavon in Angus, and Rahoy in Argyll (Ralston 2009). His key map, 'Iron Age forts and refuges' (1935, map IV), extends Christison's distributions into the Western Isles and Orkney. Some of the sources on which he drew are readily identifiable—the publications of Erskine Beveridge, for example (1903; 1911). In a discussion entitled 'Castles', which included all the smaller drystone fortifications up and down the Atlantic coast, brochs are presented as the pinnacle of architectural achievement (Childe 1935, 197–206), but on the map he split this group, distinguishing brochs separately from an amalgamated category of *'Fort, or Castle'* covering the greater number of forts throughout Scotland. Childe also separated out some individual series of forts, including vitrified forts, already by then a well-known series, and three *'Gallic forts'* where excavation had revealed timber-lacing and thus apparent similarities to Caesar's description of a *murus gallicus* in central France (listed in Childe 1946, appendix XI, 134–6). Of particular interest are his *'Hill-top towns'*, the series of bigger sites exemplified by Traprain Law in East Lothian, which he equated with southern English hillforts (1935, 206–8). Largely confined to Scotland south of the Forth–Clyde isthmus, he included in this category Turin Hill and the White Caterthun in Angus, and the Barmekin of Echt in Aberdeenshire, as well as Drumadoon on Arran and probably Borrachaill Mor, near Port Ellen on Islay. With Childe's distinctly individual classification system, the density of forts already known on parts of the mainland is apparently matched by those shown on Tiree and North Uist (Childe 1935, map IV; Table 2). Few of these would now be classed as forts, and by 1940 Childe (1940) had begun to use the Gaelic word *dun* in a more limited sense than the generic and geographical usage that until then had seen it applied to any fortification, large or small, up and down the west coast (Childe 1940, 245). Here lie the seeds of the evolution of the term *dun* in the 1950s, led by Richard Feachem of the Royal Commission, to describe the smaller drystone forts that not only fell outside the broch category but in the west also generated a southern counterpoint to the northerly distribution of brochs (Maxwell 1969).

The baseline for modern approaches to Scotland's

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Table 2—Numbers of fort sites calculated from Childe's map IV (1935) for Scotland north of the Central Belt only.
NB: fort or castle includes duns but not galleried duns, brochs or vitrified forts.
NB: Shetland is not mapped at all.

	Fort or castle	Vitrified	Gallic	Hilltop town
Orkney	0	0	0	0
Lewis/Harris	c. 36	0	0	0
Lewis/Harris little islands	c. 15	0	0	0
N Uist	c. 60	0	0	0
Benbecula	11	0	0	0
S Uist	24	0	0	0
Barra etc	9	0	0	0
Coll & Tiree	c. 42	0	0	0
Islay	23	1	0	1
Jura	1	0	0	0
Mull	14	0	0	0
Skye	48	0	0	0
Rum & neighbours	3	0	0	0
Mainland N of Dornoch Firth	14	0	0	0
N Mainland D Firth to Morvern	18	9	0	0
Great Glen–Aberdeenshire Dee	30	1	1	1
Dee–Earn–Great Glen	c. 50	6	0	2
Argyll & mainland W of Clyde	c. 132	6	0	0
Bute & Cumbrae	12	3	0	0
Arran	11	1	0	1
Earn–Antonine Wall–Loch Long	38	1	2	0

hillforts lies in the 1940s and '50s, with the ground-breaking work of the Royal Commission in Roxburghshire (RCAHMS 1956) and the excavations of Childe's successor as Abercromby Professor at Edinburgh, Stuart Piggott, and his wife Peggy. In terms of survey, Kenneth Steer provided the point of departure with his recognition of the traces of palisade trenches on aerial photographs; for excavation, it was Peggy Piggott's interventions in Roxburgh forts, famously including Hownam Rings (Piggott 1948). It has become fashionable to point to the shortcomings of the model derived from those excavations, essentially the local application of the defensive sequence of fence (or palisade), wall and dump—hardly a classification device unique to Scotland and plainly not universally applicable, as Peter Hill's Broxmouth excavations were to demonstrate (Armit 1999). More importantly, the work in the Borders, culminating in Peeblesshire (RCAHMS 1967) and Lanarkshire (RCAHMS 1978), revealed the huge range of later Iron Age settlements that exist in the Southern Uplands. 'Fort', as it is expressed in Roxburghshire and Peeblesshire, tended to be reserved for enclosures with substantial or high ramparts occupying positions of natural strength, though Richard Feachem recognised both the difficulty of applying this classification and the unsatisfactory military connotation (1963, 100; 1965, 138). In his view, the majority of forts were at best defended villages, and he believed that the distinction between fort and settlement was slight.

Through the Marginal Lands Survey, Feachem probably saw more forts and duns than anyone before or since, forming the basis for his key paper on Scottish hillforts (1966) given to the Scottish Iron Age conference of 1962. That contribution marks the high tide of the post-War culture-historical approach, with the country's hillforts fitted—in Feachem's paper, and in Piggott's introductory essay (Piggott 1966)—into a national framework built round the enduring provinces of Solway-Clyde, Tyne-Forth, and so on. Feachem's piece also attempted to fit his data to the now less-familiar regions, the second-tier geographical areas of Piggott's northward extension of Hawkes's scheme for the southern British Iron Age. The volume was accompanied by an elegant new distribution map of Scottish forts drawn by Ian Scott (end piece), which was commissioned and overseen by the volume editor, Leo Rivet (Ian Scott, pers. comm.). Feachem's essay remains the most sustained and confident effort to detect local patterns and regionality in the forts and enclosed settlements of northern Britain. He claimed some 1,500 forts and major settlements north of Darlington, though the map, stopping southward at Hadrian's Wall, depicts fewer than 900 forts, and nearer 800 in Scotland (Table 3).

Since that time, this sort of approach has gone out of fashion, and A. H. A. Hogg's 1979 *Index* provides the last attempt in the pre-computerised era at a complete listing, in 1996 converted into a map by Gordon Thomas (Ralston 1996, fig. 1). As will emerge in the two case-studies, the contents of the *Index* are uneven and vary with the history of fieldwork of separate regions.

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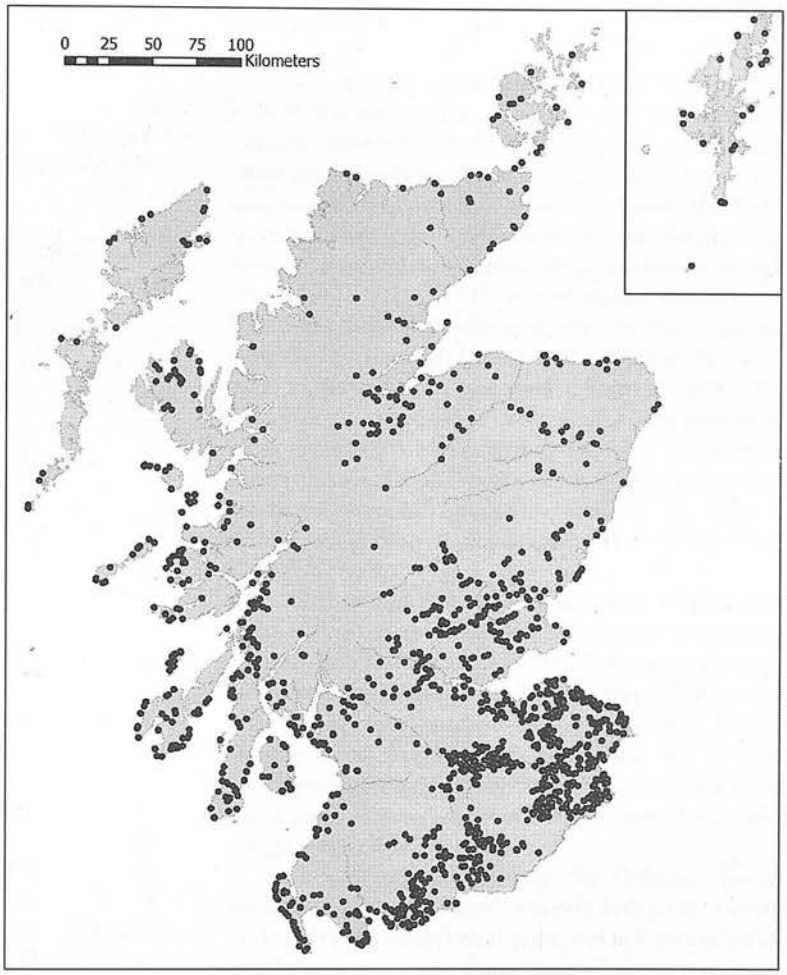


Fig. 2—A new distribution map of forts and promontory forts in Scotland based on data in the CANMORE database in November 2008 as assessed by Stratford Halliday. Drawn by Shelly Werner.

With the computerisation of monument records, national distributions are now available on the desktop at the press of a button. At the time of writing, CANMORE, the national on-line database, contains 1,476 records of forts, though with ruthless pruning of possible, and indeed impossible, records this reduces to 1,305, as compared with just over 800 in Scotland mapped by Ian Scott and the slightly lower number listed by Hogg (Fig. 2 and Table 3). This is a substantial increase, to some extent reflecting the work of the Ordnance Survey Archaeology Division prior to 1983, but mainly the impact of aerial photography since 1975. The explosion of new data required an addendum of twenty additional enclosures in the prehistoric and Roman County Inventory for Lanarkshire (RCAHMS 1978), and has brought about the most significant advance in our understanding of the changing landscapes and distributions of Iron Age enclosure in Scotland. The data are still underexploited, but in Berwickshire, for example, the number of earthwork enclosures of all types has tripled. The definition of a fort, however, has become even fuzzier. Multivallate enclosures on hilltops find their parallels in the earthwork record easily enough, but what of the series of multi-ditched earthworks in less defensible locations, matched by a wide spectrum of other enclosures, some broad-ditched, others narrow, backing onto cliffs or set on shallow slopes and terraces? The predominant impression,

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Table 3—Leo Rivet's data on forts, mapped by Ian Scott, by Ordnance Survey grid square, compared with information on forts in Scotland extracted from RCAHMS CANMORE 2008. Note that data for grid squares NT and NY are not directly comparable, since the English border is not included on the Scott map, where distributions are carried down to Hadrian's Wall.

	Ian Scott 1966		CANMORE 2008	
Grid square	Forts	Including vitrified	Forts	Change
HP	0	0	4	4
HU	4	0	16	12
HY	2	0	11	9
HZ	1	0	1	0
NB	4	0	13	9
NC	9	2	11	2
ND	3	0	17	14
NF	3	0	3	0
NG	14	2	36	22
NH	38	12	51	13
NJ	25	3	35	10
NK	0	0	2	2
NL	2	0	7	5
NM	25	6	83	58
NN	22	3	54	32
NO	44	7	96	52
NR	32	4	104	72
NS	62	11	111	49
NT	375	3	432	57
NW	6	0	10	4
NX	108	7	151	43
NY	64	0	57	-7
	843		**1305**	**462**

however, is that later prehistoric settlement enclosures still tend towards the smallness that has been a prevailing characteristic of the record since Christison assembled his data. Few new discoveries attain a size in excess of the 2ha/5 acre threshold, the relatively rare instances including the Hirsel in Berwickshire and Auchray in Angus. These factors of size—reflecting community rather than individual family units—and the scale and defensibility of lines of enclosure remain at the core of the Scottish problem, both at the national scale and in the two contrasting case-studies—Berwickshire and Kintyre—presented below.

Berwickshire

The first fleeting references to earthworks in the Berwickshire entries in the *Statistical* and *New Statistical Accounts* employ a military vocabulary of *encampments, camps* and *entrenchments*, but it is not possible to extract any real sense of the numbers of ancient earthworks that then survived. The agricultural revolution was already well advanced there and many earthworks, locally known as *rings* (*Stat. Acct.*, i (1791), 77), were evidently disappearing. Nevertheless, the first edition of the OS 6in. map for Berwickshire, surveyed 1855–8 and published 1857–62, shows no fewer than 64 earthworks and sites of earthworks, and, with the exceptions of the artillery fort at Eyemouth and a ringwork annotated *Intrenchments*, they are all styled *Camp*; it is only with the revision of the County Series at the end of the nineteenth century that this term was replaced with *Fort*, possibly responding to the ripples from Christison's work.

Christison had embarked on his study of forts and camps in Peeblesshire in 1885–6 (1887), though he does not appear to have surveyed those in Berwickshire until the early 1890s, describing about 55 in all (1895) (Fig. 3). Of the ten Berwickshire forts that he subsequently used in his illustrations, all bar one were multivallate, but he had certainly recognised that in the Border counties at least there was a series of lesser enclosures that he considered early villages (1898, 269–71).

Such a nicety was lost upon the Ordnance Survey surveyors, who depicted another twenty *Forts* on the second edition of the 6in. map, bringing the total in Berwickshire to 82. These form the core of the County Inventory prepared in 1908 by Curle (RCAHMS 1909). This has 64 entries under the heading of *Defensive Constructions*, including a motte and a ringwork, and the sites of another eighteen are simply listed. The introduction makes clear that these are essentially those earthworks appearing on the maps as *Forts* (RCAHMS 1909, x–xii), but with reference to the group around St Abb's Head and Coldingham Loch, Curle distinguished between small enclosures with a single 'unimportant' rampart and larger multivallate works.

The rapid evolution of the County Inventories led the Commissioners to reissue Berwickshire, its text radically revised and illustrated by plans drawn up by James Hewat Craw (RCAHMS 1915). Craw, whose home was in the county at West Foulden and whose father had assisted David Christison, combined an intimate knowledge of

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Fig. 3—Aerial view of the fort at Habchester, Berwickshire, in 2001 (RCAHMS SC 933205). This fort was already partially ploughed down when recorded by David Christison at the end of the Victorian era and plainly shows the impact of subsequent activities on the survival and detection of evidence for enclosure.

Berwickshire with a flourishing interest in its history and archaeology. The earthworks that had previously been only listed as sites were included amongst the other *Defensive Constructions*, furnished with full descriptions and in many cases plans, along with fifteen completely new entries for a total of 96. In this version, however, a classification was inserted at the beginning of each entry. All bar five were forts—*fort, hill fort, cliff fort* or *promontory fort*—and another two were designated as sites to give the total of 93 forts in the county subsequently cited by Craw (1921, 231), though this still included the ringwork, what was almost certainly a moated site and a curious motte-like mound. The introduction introduces a slightly different classification—(1) *Cliff or escarpment forts*; (2) *Promontory forts*; (3) *Contour forts*; (4) *Small enclosures with possibly a domestic character*; (5) *Brochs*; (6) *Motes*; and (7) *Large enclosures partially excavated in the interior*—which is applied slightly idiosyncratically in relation to both the classifications prefacing the individual entries and the characteristics of some of the earthworks described.

Craw continued his fieldwork in Berwickshire and by 1921 had found another thirteen. He also listed another 22 locations where earthworks had previously been reported and refined the classification. The basis of the latter system was much the same—(1) *Cliff, escarpment or crescentic forts*; (2) *Promontory forts*; and (3) *Contour forts*—but he broke his third category into three groups, namely *Summit forts*, *Hillside forts* and *Marsh forts*. It remained his view that to a greater or lesser extent all these enclosures were defensive, and he also applied the categories more systematically across the total of 106 forts he then knew of. One of them had been found by Robert Kinghorn, who subsequently reported

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another eight, increasing the total to 114 (1935). While Berwickshire was largely excluded from the post-war fieldwork programmes, in the early 1950s many of the earthworks in the county were visited during the Marginal Lands Survey, and it was then that the lesser enclosures, for example around Coldingham Loch, were designated as settlements.

The list of Berwickshire hillforts contained in Hogg's *Index* (1979) is largely cast in this post-war vein, but its contents are drawn from the revised edition of the Inventory (1915) and Craw's paper (1921). In all, it runs to 112 entries, 99 of which are taken from the Inventory. Sixteen are marked with an X to denote that their status had been downgraded, including the Coldingham Loch settlements, and a further seven are given a D, an unhelpful export of dun terminology from the west to signify the diminutive size of some enclosures; retaining the latter gives a total of 96 for the county.

At about the same time that the *Index* was published the Royal Commission embarked on yet another review of eastern Berwickshire, largely in response to the mass of new cropmark evidence. Cropmarks have revolutionised our understanding of the Berwickshire landscape and are currently the subject of an ambitious mapping programme. Work is not sufficiently advanced to quantify changes in the pattern of classified forts since 1979, but it is clear that while some have been downgraded, yet others have been discovered, some of them, as Craw foresaw, in places where there were sketchy antiquarian references to earthworks or suggestive place-names. At the time of writing, CANMORE contains 104 monuments carrying the classification of *Fort*, though only 49 were amongst those noted by Curle a century ago. No less than 44 of them have been photographed as cropmarks, including a number that were recorded as upstanding sites by Curle. More importantly, cropmarks have revealed 297 enclosures, of which 114 are currently classified as *Settlement*. Even the most cursory examination of this material shows that they come large and small, some with single narrow ditches or palisades, others with several ditches, and in some cases with ditches so broad that they must have posed an appreciable barrier.

Kintyre

Kintyre, lying on the opposite side of the country at the southern extremity of Argyll, provides a complete contrast to Berwickshire, on the one hand for its generally rugged topography, and on the other for the character of its archaeology. Here the known settlement record is dominated by relatively small drystone fortifications, though the summer of 2008 created conditions in which cropmarks revealed the ploughed-out ditches of a series of enclosures on the lower ground (David Cowley, pers. comm.); otherwise, only two of the known forts are defended with ditches (RCAHMS 1971, nos 161 and 166).

The *Statistical Accounts* have little to say about any fortifications, even the Rev. John Smith, a classically versed antiquary who devoted half his 50-page entry for the parish of Campbeltown to a real and imagined history of Argyll (vol. x (1794), 539); elsewhere it is only the vitrified fort at Carradale (Fig. 4) that elicits any commentary, albeit with reference to druids (*Stat. Acct.*, xii (1794), 485–6n). Any small drystone enclosure was a fort, and all 55 shown on the first edition OS 6in. maps, surveyed in 1866–9 and published 1869–73, are annotated as such. It may simply be that the *Dun*-names attributed to these structures in local lore—for example *Dun Fhinn*, Fingal's Fort—naturally translated into fort, though such names might equally signify no more than a hill.

The distribution identified in the 1860s by the Ordnance Survey prevailed until the fieldwork for the Royal Commission County Inventory covering Kintyre (RCAHMS 1971). Christison, who did not survey Kintyre, shows 50 symbols on his distribution map of forts (1898, 386), while Gordon Childe shows 45 (1935, 274–5, map 4) and Leo Rivet's map a total of 61 (1966, map in end folder). By this last publication, however, they were split between *Fort* and *Dun*, numbering seventeen and 44 respectively. The fieldwork for the County Inventory increased the number of forts to 22, and duns to 60, four of the latter overlying forts. The work by the Royal Commission may have refined the thinking that lay behind this terminology, but the arbitrary character of the division between forts and duns, and the way that it was applied, has proved unhelpful to other researchers, who have defined different categories, such as *Dun Enclosure* and *Dun House* (Harding 1984, 218–19; 2004), or *Atlantic Round-house* (Armit 1992, 16–21), the latter harking back to Childe's *Castle Complex*, albeit without the social connotations. Whatever system might be preferred, it is the Royal Commission's definition that here underpins the Hogg *Index*.

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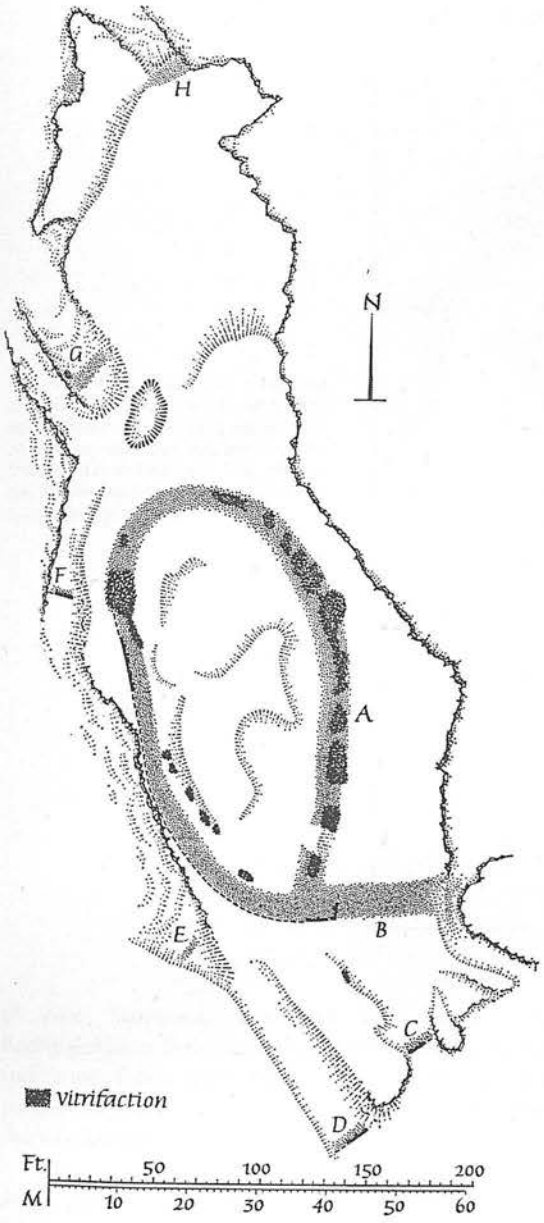


Fig. 4—The vitrified fort at Carradale Point, Kintyre, as planned by the Commission in 1960 and published in 1971 (RCAHMS 1971, 67, fig. 40).

Discussion

The stimulus to explore this subject stemmed from an overland trip from Edinburgh to Prague, covering a few thousand miles and a sample of European hillforts and *oppida*. What are the points of reference for the Scottish Iron Age to these huge and massively defended enclosures? For that matter, what are the points of reference with southern England, where the term hillfort carries connotations of enclosure and defence on scales that are rarely encountered in Scotland? But it is of course that sense of fortification that provides the running thread, albeit generally in much smaller units in the north of Britain than elsewhere in Europe (Ralston 2006). The discussion turned upon the distribution of hillforts as much as anything else, and whether the perception of the dense concentration in, for example, the Scottish Border counties was founded on any underlying truth, or whether the equivalent sites elsewhere were simply lost in other categories of settlements. Was like being compared with like? Would Little Woodbury, with a ditch 3.5m broad and 2m deep, be a fort or a settlement if relocated from Wiltshire to Roxburghshire? Hogg's *Index* (1979) was advanced variously as the prologue to a solution and the problem. There seems little point in deconstructing the *Index* in detail, which would risk an unwarranted attack upon its author; it was a work in progress, notes to be reviewed and refined, offered by way of assistance to fellow travellers, and cast in a world where classification promised order that might find some resonance in history. What has emerged clearly from the case-studies, however, is the variability of the information upon which the *Index* is based, juxtaposing concepts of forts from the late nineteenth century to the 1960s. The only saving grace is that every generation seems to have shared the belief that most ancient enclosures were constructed to provide a measure of security or even defence for their occupants.

This, perhaps, is the real nub of the problem: why enclosure (A. Harding *et al.* 2006)? To date, the distinction of fort, to resort to the Scottish terminology, has been based on an entirely subjective assessment of the strength of an enclosure's perimeter, which for Royal Commission investigators comes with a laying on of hands, an unspoken authority vested in a century of tradition. The classifications of a County Inventory had fairly strict definitions, though in every case these have been evolving ever since. Thus, the concept of *Homestead* as distinct from *Settlement* died in Eastern Dumfriesshire (RCAHMS 1997), and the separation

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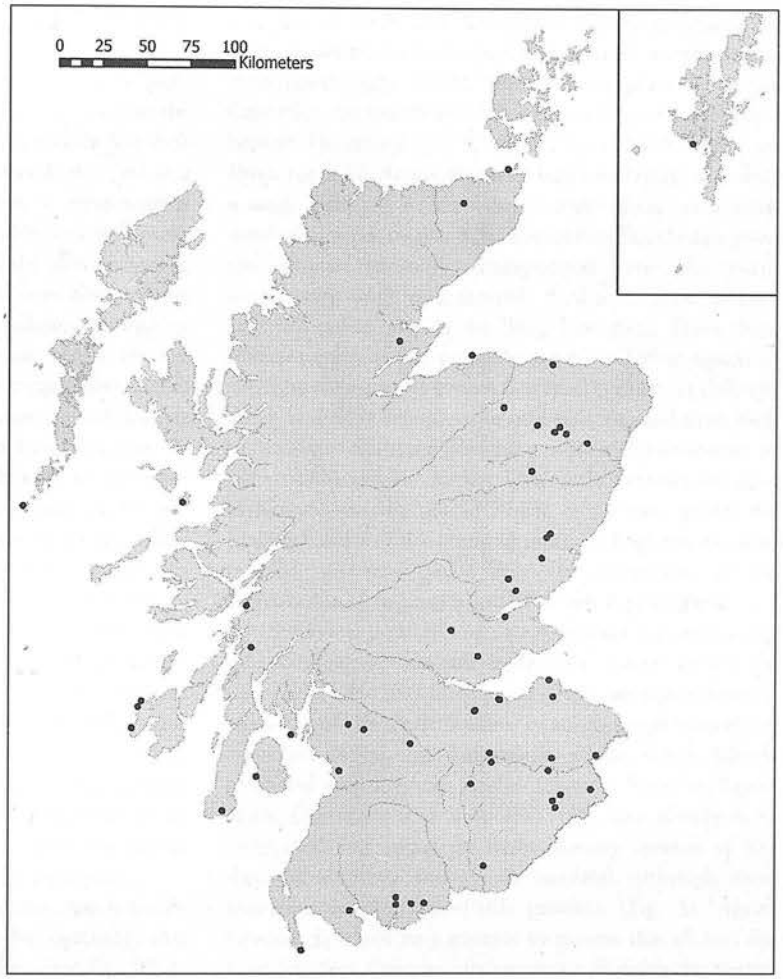


Fig. 5—The larger forts (occupying 2ha or more) of Scotland. This map represents the authors' current information and indicates that such sites are more common than appeared to either Childe in 1935 or Feachem in 1966, although they still form a small proportion of Scottish forts. Cartography: Shelly Werner.

of *Fort*, *Settlement*, *Earthwork* and *Enclosure* in Roxburghshire or Peeblesshire bears little relationship to the current use of these terms. And it is in this context that it is possible to identify with the less formal position that Feachem had already adopted by 1963.

The relative slightness of perimeters is a recurrent feature and has often led to schemes of enclosing works being considered unfinished (Feachem 1971). In most cases, however, the uneven scale of these enclosures at different parts of the circuit suggests calculated design, simply to be more imposing where the site was most visible, often near entranceways, as is the case of the outer works at Dunnideer, Aberdeenshire (RCAHMS 2007, fig. 6.27). At a grander scale, the wing-walls at either end of the vitrified fort on Knock Farril, Easter Ross, can be seen in the same light. This is not to deny that unfinished fortifications exist, indeed some are very convincing, so much as to see fort defences as 'works in progress'. Slightness does not inevitably compromise function, and even apparently feeble lines of enclosure, suitably garnished with timberwork, may have proved effective deterrents after a gruelling climb; witness the White Meldon, Peeblesshire, or for that matter Lady Blair Plantation in the same county, this latter designated *Settlement* and thus missing from Hogg's *Index*. In any case, Iron Age fortification lines were not designed to resist all-out war, as Ian Armit (2007) has recently argued anew, and

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many may have been invested with other symbolic attributes (Lock 2007).

Two millennia of erosion have also played their part. The sheer thickness of the wall foundations of some of the seemingly slighter enclosures, for example, implies that their perimeters originally stood several metres high. This is a lesson that can be seen at *Brigantium*, a reconstructed settlement in Redesdale, which entirely alters our perception of the character of such walls. Similarly, preconceptions about palisades in the Border counties have obscured the potential strength of another group of enclosures, conjuring up the impression of a wooden fence rather than a formidable timber stockade; some of these enclosures were as surely forts as any of their stone-built counterparts (Halliday 1995, 33–4). Leaving aside the sunken farmyards that are often found fronting clusters of roundhouses, an enclosure might better be construed with two basic roles: on the one hand to afford some measure of protection for its occupants, and on the other to project the status of those occupants in the expression of that protection. If so, then the definition of a fort in Scotland is a lost cause, a meaningless division in a continuum of enclosures where the scale of the perimeter works is a proportionate measure of wealth and status. It would be too simplistic to suggest that in the Iron Age every man's home was his fort, but at least this sort of concept places the construction of an enclosure in a social context and recognises that surrounding walls or ramparts could be constructed at most levels of society, even if at its lower levels it was no more than a wicker fence and an aspiration.

As an archaeological definition, however, this is hardly helpful, but it does serve to underline the regionality that emerged in Scotland during the first millennium BC. While small enclosures are found throughout the cropmark record (e.g. RCAHMS 1994), the greater number with ditches in excess of 2m in breadth probably lie in the south-east of Scotland and across into Dumfries and Galloway, exactly the areas in which there is the major proliferation of forts first mapped by Christison. Until such times as the cropmark data are fully analysed this is little more than an assertion, but contrast this with the concentration of unenclosed settlement remains and souterrains revealed in the same medium extending northwards from the Forth estuary. Forts and enclosures are reasonably numerous up to the southern edge of the Grampians, but north of the Forth the incidence of those usually accepted as forts falls away, leaving no more than a scatter that present a range of contrasting scales in size and strength. The White Caterthun and Finavon in Angus, and Tap o' Noth and Dunnideer in Aberdeenshire, for example, are relatively compact fortifications with massively constructed walls which, with the exception of White Caterthun, are heavily vitrified, whereas the outer enclosures beneath Dunsinane Hill, Perth, and Tap o' Noth, or that on Kinpurney Hill, Angus, are much larger enclosures with only a single rampart. At the other extreme there are a small number of much smaller defensive earthworks, though given the Roman masonry incorporated into the small promontory work at Inchtuthil, Perthshire, some at least may fall rather later in the 'long Iron Age'. These three different types of fort probably express different aspects of the cultural history of eastern Scotland, possibly at different times, and their definitions or explanations need share little in common with those pertaining to forts and enclosures in Berwickshire and the Borders, let alone to the forts and duns of Kintyre and the rest of Argyll, or for that matter the Maiden Castles of this world in southern England. As such, in their different guises they are expressions of the individuality of regional histories in Iron Age Scotland.

If there is possibly one exception that cuts across this rule it might be that size really does matter. By far the majority of the 1,305 forts mapped here are tiny enclosures, but what of the small number of much larger enclosures, Feachem's (1966, fig. 13) minor *oppida*, which Childe compared with southern English hillforts? Those on Tap o' Noth, Dunsinane and Kinpurney Hill have already been mentioned, but taking the fairly arbitrary division of 2ha they are scattered throughout Scotland, although most numerous in the Tyne–Forth province (Fig. 5). Again, however, it would be a mistake to assume that all had the same function. Compare the numerous platforms for timber roundhouses within the ramparts of Eildon Hill North or Tap o' Noth with the barren interior of Dun Mingulay, a 20ha promontory projecting westwards from the spectacular cliffs on the west coast of this small island at the southern end of the Western Isles; fully occupied, this would have far outstripped the carrying capacity of the island itself, and probably the neighbouring islands too.

Conclusion

Our terminology needs to be allowed to breathe, and we can perhaps begin to see that 'fort' as it has been applied to date in Scotland may mean different things in different places and at different times. It is no more than a subjective label that

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cuts obliquely across the settlement record of later prehistoric, and indeed early historic (Alcock 2003), Scotland. This is not to say that the term does not have its uses, but it cannot be allowed to constrain the interpretation of the wealth of evidence for settlement that exists throughout Scotland.

It is worth taking note, however, that a little over a hundred years of fieldwork and aerial reconnaissance since 1898 has not substantially altered the broad patterns of distribution established by Christison, and of the OS surveyors before him—at least for Scotland south of the Great Glen and for the Clyde estuary islands. Forts and enclosed settlements were thus early established to be major elements of some Iron Age landscapes and much less significant ones of others. That imbalance remains the case, as for some other areas of the British Isles, and indeed for temperate continental Europe. Iron Ages without hillforts are quite certainly possible, and the absolute numbers of forts in Scotland, and the distinction between forts and enclosures, should not, perhaps, unduly concern us.

References

Alcock, L. 2003 *Kings and warriors, craftsmen and priests.* Edinburgh. Society of Antiquaries of Scotland.

Allcroft, A.H. 1908 *Earthworks of England: prehistoric, Roman, Saxon, Danish, Norman, and mediaeval.* London. Macmillan.

Anderson, J. 1883 *Scotland in pagan times: the Iron Age.* Edinburgh. David Douglas.

Armit, I. 1992 *The later prehistory of the Western Isles of Scotland.* British Archaeological Reports, British Series 221. Oxford.

Armit, I. 1999 Life after Hownam. The Iron Age in south-east Scotland. In Bill Bevan (ed.), *Northern exposure: interpretative devolution and the Iron Ages in Britain,* 65–79. Leicester Archaeology Monographs 4. Leicester.

Armit, I. 2007 Hillforts at war: from Maiden Castle to Taniwaha Pā. *Proceedings of the Prehistoric Society* 73, 25–37.

Beveridge, E. 1903 *Coll and Tiree: their prehistoric forts and ecclesiastical antiquities; with notices of ancient remains on the Treshnish Isles.* Edinburgh. Privately published.

Beveridge, E. 1911 *North Uist: its archaeology and topography; with notes upon the early history of the Outer Hebrides.* Edinburgh. Privately published.

Buchsenschutz, O.E. 1984 *Structures d'habitats et fortifications de l'Age du Fer en France septentrionale.* Mémoires de la Société Préhistorique Française 18. Paris.

Childe, V.G. 1935 *The prehistory of Scotland.* London. Kegan Paul, Trench, Trubner.

Childe, V.G. 1940 *Prehistoric communities of the British Isles* (1st edn). London. Kegan Paul, Trench, Trubner.

Childe, V.G. 1946 *Scotland before the Scots.* London. Methuen.

Christison, D. 1887 The prehistoric forts of Peeblesshire. With plans and sketches. *Proceedings of the Society of Antiquaries of Scotland* 21 (1886–7), 13–83.

Christison, D. 1895 The forts of Selkirk, the Gala Water, the southern slopes of the Lammermoors, and the north of Roxburgh. *Proceedings of the Society of Antiquaries of Scotland* 29 (1894–5), 108–79.

Christison, D. 1898 *Early fortifications in Scotland: motes, camps, and forts.* Edinburgh and London. William Blackwood.

Craw, J.H. 1921 Notes on Berwickshire forts, with a description of those recently discovered. *Proceedings of the Society of Antiquaries of Scotland* 55 (1920–1), 231–55.

Feachem, R.W. 1963 *A guide to prehistoric Scotland.* London. Batsford.

Feachem, R.W. 1965 *The North Britons. The prehistory of a Border people.* London. Hutchinson.

Feachem, R.W. 1966 The hill-forts of northern Britain. In A. L. F. Rivet (ed.), *The Iron Age in northern Britain,* 59–87. Edinburgh University Press.

Feachem, R.W. 1971 Unfinished hill-forts. In D. Hill and M. Jesson (eds), *The Iron Age and its hill-forts; papers presented to Sir Mortimer Wheeler,* 19–39. Southampton University Monograph Series, 1. Southampton.

Halliday, S.P. 1995 The Borders in prehistory. In D. Omand (ed.), *The Borders book,* 21–37. Edinburgh. Birlinn.

Harding, A., Sievers, S. and Venclová, N. 2006 Introduction. In A. Harding, S. Sievers and N. Venclová (eds), *Enclosing the past. Inside and outside in prehistory,* ix–x. Sheffield. J. R. Collis.

Harding, D.W. 1984 The function and classification of brochs and duns. In R. Miket and C. Burgess (eds), *Between and beyond the walls: essays on the prehistory and history of north Britain in honour of George Jobey,* 206–20. Edinburgh. John Donald.

6-02-Halliday&Raalston.qxd 23/02/2010 23:03 Page 469

Harding, D.W. 2004 *The Iron Age in northern Britain. Celts and Romans, natives and invaders.* London. Routledge.

Hogg, A.H.A. 1979 *British hill-forts: an index.* British Archaeological Reports, British Series 62. Oxford.

Kinghorn, R. 1935 Unrecorded Berwickshire antiquities, being the Chalmers-Jervise Prize Essay for 1933. *Proceedings of the Society of Antiquaries of Scotland* **69** (1934–5), 157–67.

Lock, G. 2007 Wessex hillforts after Danebury: exploring boundaries. In C. Gosden, H. Hamerow, P. de Jersey and G. Lock (eds), *Communities and connections. Essays in honour of Barry Cunliffe*, 341–56. Oxford University Press.

MacDonald, J. 1891 *Place-names of Strathbogie, with notes historical, antiquarian and descriptive.* Aberdeen. D. Wyllie and Son.

Maclagan, C. 1875 *The hill forts, stone circles and other structural remains of ancient Scotland.* Edinburgh. Edmonston and Douglas.

Maxwell, G.S. 1969 Duns and forts—a note on some Iron Age monuments in the Atlantic Province. *Scottish Archaeological Forum* **1**, 41–52.

Piggott, C.M. 1948 The excavations at Hownam Rings, Roxburghshire, 1948. *Proceedings of the Society of Antiquaries of Scotland* **82** (1947–8), 193–225.

Piggott, S. 1966 A scheme for the Scottish Iron Age. In A. L. F. Rivet (ed.), *The Iron Age in northern Britain*, 1–15. Edinburgh University Press.

Raftery, B. 2004 Hillforts. In P. Bogucki and P. J. Crabtree (eds), *Ancient Europe 8000 BC–AD 1000. Encyclopedia of the barbarian world*, vol. 2, 160–4. New York. Charles Scribner's Sons.

Ralston, I. 1996 Recent work on the Iron Age settlement record in Scotland. In T. C. Champion and J. R. Collis (eds), *The Iron Age in Britain and Ireland: recent trends*, 133–53. Department of Archaeology and Prehistory, University of Sheffield.

Ralston, I. 2006 *Celtic fortifications.* Stroud. Tempus.

Ralston, I. 2009 Gordon Childe and Scottish archaeology: the Edinburgh years, 1927–1946. *European Journal of Archaeology* **12** (1–3), 1–43.

RCAHMS 1909 Royal Commission on the Ancient and Historical Monuments and Constructions of Scotland, *First report and inventory of monuments and constructions in the county of Berwick.* Edinburgh. HMSO.

RCAHMS 1915 Royal Commission on the Ancient and Historical Monuments and Constructions of Scotland, *Sixth report and inventory of monuments and constructions in the county of Berwick* (rev. edn). Edinburgh. HMSO.

RCAHMS 1956 Royal Commission on the Ancient and Historical Monuments of Scotland, *An inventory of the ancient and historical monuments of Roxburghshire* (2 vols). Edinburgh. HMSO.

RCAHMS 1967 Royal Commission on the Ancient and Historical Monuments of Scotland, *Peeblesshire, an inventory of the ancient monuments* (2 vols). Edinburgh. HMSO.

RCAHMS 1971 Royal Commission on the Ancient and Historical Monuments of Scotland, *Argyll, an inventory of the ancient monuments. Volume 1, Kintyre.* Edinburgh. HMSO.

RCAHMS 1978 Royal Commission on the Ancient and Historical Monuments of Scotland, *Lanarkshire: an inventory of the prehistoric and Roman monuments.* Edinburgh. HMSO.

RCAHMS 1994 Royal Commission on the Ancient and Historical Monuments of Scotland, *South-east Perth: an archaeological landscape.* Edinburgh. HMSO.

RCAHMS 1997 Royal Commission on the Ancient and Historical Monuments of Scotland, *Eastern Dumfriesshire: an archaeological landscape.* Edinburgh. HMSO.

RCAHMS 2007 Royal Commission on the Ancient and Historical Monuments of Scotland, *In the shadow of Bennachie.* Edinburgh. Society of Antiquaries of Scotland.

Rivet, A.L.F. (ed.) 1966 *The Iron Age in northern Britain.* Edinburgh University Press.

Roy, W. 1793 *The military antiquities of the Romans in Britain.* London. Society of Antiquaries.

Seymour, W.A. (ed.) 1980 *A history of the Ordnance Survey.* Southampton. Dawson.

Sinclair, J. (ed.) 1791–9 *The Statistical Account of Scotland.* Edinburgh.

Williams, J. 1777 *An account of some remarkable ancient ruins lately found in the Highlands and northern parts of Scotland.* Edinburgh. William Creech.

Wilson, D. 1851 *The archaeology and prehistoric annals of Scotland.* Edinburgh. Sutherland and Knox.

Wilson, D. 1863 *The archaeology and prehistoric annals of Scotland* (2nd edn). Edinburgh. Sutherland and Knox.

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Gordon Childe and Scottish archaeology: The Edinburgh years 1927–1946

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Abstract: This article considers Childe's career in Scotland, where he was Abercromby Professor of Prehistoric Archaeology at Edinburgh University 1927–1946, and assesses his impact on Scottish archaeology and the Scottish archaeological community. Matters discussed include his development of teaching programmes and resources within the university, and his association with the Edinburgh League of Prehistorians. His excavation and fieldwork at Skara Brae and elsewhere, and his publications during this span, are considered. Childe's collaborations with the Royal Commission on the Ancient and Historical Monuments of Scotland and the National Museum, especially during the Second World War, are reviewed. The archaeological achievements of some of his Edinburgh students are briefly summarized.

Keywords: Abercromby Professor, Edinburgh League of Prehistorians, Edinburgh University, Scotland, Scottish archaeology, Vere Gordon Childe

Introduction

Vere Gordon Childe was the first Abercromby Professor of Prehistoric Archaeology in the University of Edinburgh. He held the post from October 1927 until his move to the Institute of Archaeology, University of London, in 1946. This span, of some 19 years, was the longest he spent in any post, although – beyond consideration of his key intellectual achievements during this period – his career within Scotland has attracted relatively little attention from his biographers and critics.

The focus here will be on his impact within Scotland, both in and beyond Edinburgh University; and on reviewing his archaeological activities in the country – one of only two (the other being Northern Ireland) in which he directed fieldwork. To do so will require a brief consideration of Scottish archaeology before Childe, sometimes painted as having been in a rather bleak condition. Thereafter, his Edinburgh career will be reviewed in three chronological segments:

- His appointment and the initial period (approximately 1927–1931).
- The 'short' 1930s from c.1931 to the outbreak of the Second World War.
- The war years until his move to the Institute of Archaeology in London.

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Alongside his other international achievements, Childe was the principal twentieth-century synthesizer of Scottish prehistoric archaeology (Childe 1935a, 1946a) and some comments on his significance in this field will also be offered.

Childe's 'Edinburgh period' of course figures, more or less prominently, in previous reviews of his life and academic contribution. A little surprisingly, since it had its origins as an Edinburgh University PhD thesis, a Scottish dimension is almost entirely absent from McNairn's (1980) study of Childe's methods and theoretical stance. In two near-contemporary treatments, however, the Edinburgh period and his contributions to Scottish archaeology figure more prominently. Trigger's intellectual biography (1980) devotes a chapter to Scottish archaeology, and ideas and actions from his Edinburgh period occur throughout the remainder of this treatment. Green (1981) provides a substantial chapter on his tenure as Abercromby Professor, and a briefer one on his publications during those years. Both of these represent outsiders' perspectives on Scotland and its archaeology, and display their indebtedness to Piggott's (1958a) uncharacteristically uncharitable obituary, of which more later. Four other published contributions offer rather different perspectives. Two, of which one was by a near contemporary in the Scottish archaeological establishment, were published in Bell's edited volume of 1981. In both these articles (Graham 1981; Stevenson 1981), Childe appears, a little more than incidentally, in reviews focused on other issues. It is perhaps unfortunate that these were published so close in date to the biographies cited earlier, for none was able to assimilate the conclusions of the others. The latter was by one of Childe's students and friends,[1] and, on his return from military service, a colleague – Robert Stevenson, Keeper of the National Museum of Antiquities in Edinburgh. The other two pieces are by students of Childe: Stewart Cruden (in his later career Principal Inspector of Ancient Monuments for Scotland; Breeze 1984) contributed a sympathetic memorial piece to the *Proceedings of the Society of Antiquaries of Scotland*, (Cruden 1957); whereas, writing a reminiscence from his retirement home on Malta, Howard Kilbride-Jones (1994) reviewed his student days under Childe's aegis in Edinburgh and on excavation in Scotland. Childe's only Edinburgh doctoral student, Margaret E. Crichton Mitchell, latterly Margaret Stewart (Mrs John A. Stewart), seems not to have discussed her mentor much,[2] at least not with anyone the writer has yet traced. In such circumstances, it is perhaps unsurprising that the assessment by Stuart Piggott (1958a) – his successor as Abercromby Professor at Edinburgh – has been so influential.

It may also be argued that the direct legacy of Childe's tenure of the Abercromby Chair is less than conspicuous within Edinburgh University. The rooms which housed the 'Department' for most of this period (from the 1929/1930 session) – essentially Childe himself, the library, and the teaching collection he built up – in 14–16 Chambers Street, were still in use in the early 1950s and were described unflatteringly by Cruden (1957), and referred to by Piggott (1958a:307) as a 'cramped and repulsive slum'. They are now entirely remodelled, forming part of the University Finance Office. These rooms had been rather grandly termed the 'Prehistoric Archaeology Museum and Library' in the *Edinburgh University Calendar* from 1939. The 'League of Prehistorians', based in Childe's 'Department', which acted as a focus

for student and graduate involvement in Scottish archaeology, went into abeyance at the beginning of the Second World War, and was only very briefly revived thereafter. The League is discussed more fully at the end of this article (see Appendix).

The Class Library (a significant component of library provision in the inter-war years) assembled by Childe and maintained by his successors, notably when Piggott occupied the Abercromby Chair (1946–1977), has recently (2006) been dismantled by the University, and many titles sold off. Including donations from the Abercromby Professors, their colleagues, former students and others, the works on its shelves encapsulated the developing study of Prehistoric Archaeology at Edinburgh, in a way that volumes dispersed through a central university library system simply cannot achieve. Relatively few unpublished papers by, or relating to Childe seem to survive, but include some in Edinburgh University Library Special Collections and notebooks in the Royal Commission on the Ancient and Historical Monuments of Scotland (hereafter RCAHMS), to which reference is made later, as well as the mark-book for First 'Ordinary'/Year Archaeology and the Honours cohort since the first teaching session (1927–1928), and the Minute-book of the League of Prehistorians, both (December 2008) in the University Archaeology Building. The 'Department Museum', now rebadged as the 'Childe Teaching Collection', is, however, still in existence within one of the buildings currently occupied by the University's amalgamated School of History, Classics and Archaeology.

In terms of people, it is true that during his tenure of the Edinburgh Chair, Childe produced relatively few students who continued in archaeology, albeit not as few as Piggott's obituary again implies (1958a); some are considered later in this essay. It may also be argued that the *Festschrift* produced for Childe as a volume of the *Proceedings of the Prehistoric Society* in 1955 unfortunately rather cemented the view of the slightness of Childe's legacy in the north, as only one article in it was from, and/or on, Scotland (Stevenson 1955). Lastly, and sad to report, the Abercromby Chair, held with such distinction by Childe, is currently vacant (March 2009), following the retiral of the third incumbent, Professor Dennis Harding.

What can now be gleaned of Childe's role in, and influence on, Scottish archaeology in and beyond the University?

Scottish archaeology before Childe

Scottish archaeology in the earlier twentieth century has been portrayed, not least through the influential statements of Piggott (1958a), as having been rather inward-looking and both backward and moribund. Symptomatic of this are the often-rehearsed stories of Lord Abercromby's changing priorities in supporting the development of Scottish archaeology. Abercromby, best remembered for his contributions to Bronze Age pottery studies (1912), is said to have been dismayed at the low quality of the fieldwork overseen by Dr David Christison on behalf of the Society of Antiquaries of Scotland, notably at the key Early Historic hill-fort of Dunadd (Argyll: now see Lane and Campbell 2000), which Abercromby had himself financed. He was also apparently disenchanted by the Society's refusal to countenance St George Grey – considered by Abercromby the best English excavator of his

generation – practising his craft in Scotland (Piggott, pers. comm.). All this apparently led Abercromby to decide to endow a Chair at Edinburgh University rather than continuing to bankroll the Society's fieldwork endeavours. Thus it was that the university was approached by Abercromby's legal agents in 1916, and the terms of the Chair drawn up (quoted by Green 1981; and Bradley 2004; also see Harding 2008), so that – it is maintained – none amongst the contemporary Scottish archaeologists could fulfil them.[3]

This perspective certainly requires to be nuanced. Abercromby's problematic relationship with the Society of Antiquaries of Scotland in the middle years of Edward VII's reign and his resignation from its secretaryship in 1905 (Harding 2008), did not preclude him from accepting its presidency in 1913 and retaining it until the end of the Great War – after which he remained a Fellow, which assuredly suggests that the scars of any rift had by then healed over. Elsewhere in the ancient Scottish universities, at Aberdeen, the new Burnett-Fletcher Chair was labelled as 'of History and Archaeology' from 1903. Further, Abercromby's endowment of the Edinburgh professorship was perhaps less innovative even within that institution than it has been portrayed, since, some years earlier, another post in Prehistoric Archaeology had been set up in the University with external financial support from another Fellow of the Scottish Antiquaries. This was due to a distinguished Edinburgh medical graduate, Dr Robert Munro, of Largs, Ayrshire, well known for his archaeological work, in particular on crannogs (Munro 1882). The Munro Lectureship in Prehistoric Archaeology and Anthropology was established in session 1910/11, from which date it appears annually in the *Edinburgh University Calendar*. This lectureship attracted some eminent speakers: in February 1921, for example, a course of 10 lectures was given by the Abbé Breuil on the subject of 'Palaeolithic and Neolithic Art'. These – the 10th dealt with cup-and-ring marks primarily in Ireland and Scotland – were duly reported in *The Scotsman* newspaper. Munro's synthesis of Scottish archaeology, published at the end of the nineteenth century (1899), and building on the achievements of others (for example Joseph Anderson's volumes derived from his successive series of Rhind lectures, e.g. Anderson 1883) certainly displays a willingness to look beyond these shores. Perhaps also indicative of the Society of Antiquaries of Scotland's internationalism is the list of its Honorary Members – including Joseph Déchelette, Oscar Montelius and Sophus Müller – in the years around the First World War.[4] And, as Sharples has graphically demonstrated (1996:fig. 2), the Fellowship of the Society of Antiquaries of Scotland almost doubled between the end of the Great War and 1931, before gently declining through the 1930s (when the affiliated but separate League of Prehistorians was active), and more radically during the years of the Second World War. This useful barometer of the scale of the Scottish archaeological community (of course predominantly amateur) rather compounds the view that the Scotland to which Childe migrated in the late 1920s was in a less parlous archaeological condition than has been intimated. Champion (1996:128) too noted the relative health of Scottish archaeology in the early twentieth century, contrasting it with that being conducted in other component parts of the United Kingdom.

Lord Abercromby's will and subsequent arrangements; and the initial period of Childe's tenure of the Abercromby Chair

In 1916, Lord Abercromby arranged that, following his death, the sum of £17,000 would be made available to the University to endow a Chair in Prehistoric Archaeology. It seems worth clarifying some of the issues associated with this sum, since they have given rise to a number of speculations which the present writer believes to be overstated, if not incorrect. Firstly it is true that the University, in straightened circumstances at the end of the war, borrowed £5000 against this promised sum in 1918,[5] but, as was agreed between the University's law agent and Abercromby's solicitors, this money was repaid in full by the University in 1927, when Childe took up the named Chair. Although it has been suggested that the capital did not produce enough revenue to finance the salary of the post in the medium term, it is worth remarking that the sum Abercromby provided was close to, if marginally lower than, the standard sum given to endow a Chair at Edinburgh University at that time.[6] Comparisons are difficult, however, for not all endowments (e.g. that of the Edinburgh Chair of Commerce, set up in 1925) were meant to fund appointments with tenure for the life of the appointee.

It has been remarked too that the provisions of the Abercromby Professorship, as enunciated by the University Court, indicated at the outset that the appointee was only expected to teach and be resident in Edinburgh for two terms, rather than the standard three. This arrangement carried no suggestion, however, as has sometimes been implied, that the Professorship was only a part-time appointment, nor that there was insufficient money to fund the Chair full-time. Rather, it was anticipated that the incumbent would need periods away from the city and the University in order to fulfil the wide-ranging (geographically and intellectually) brief required of the post-holder as stipulated in Abercromby's testament. The initial salary of the post in 1927 was £700 per annum; and for much of Childe's period in office he was also appointed as Munro Lecturer on an annual but recurrent basis, a position (latterly in the Faculty of Science) which carried an additional salary of £200 per annum plus expenses (discussed further later).[7] A sum of this order for a bachelor in late 1920s' Edinburgh was hardly derisory, and it thus seems difficult to sustain Roger Mercer's argument (Bradley 2004:7) that Childe felt the need to excavate to supplement his income. He did, however – unsurprisingly as an Arts professor – earn less than the best-salaried professors in other Faculties at Edinburgh University had been awarded by the early years of the twentieth century; and by the 1920s the main Faculty of Arts Chair-holders were also earning £1000 or more annually (Anderson, pers. comm.; and 2003:171).

It has been suggested, moreover, that subsequent moves, to which Childe was party in Edinburgh University, contributed to a certain stringency in regard to the financial arrangements concerning the Abercromby Chair (cf. Harding 2008). It seems worth dealing with these too before embarking on Childe's career proper. By the early 1930s, it was decided by a group of senior academics, including Childe, that the University should also teach anthropology (to prepare students for Imperial Service, rather than, it would seem, in emulation of the Cambridge 'Archaeology and Anthropology' model), and a syllabus was drawn up. The Carnegie Trust, then

a major funder of the University, in its settlement for the quinquennium 1935/1940, allocated a further endowment of £7500 for the Chair of Prehistoric Archaeology and £8500 for a lectureship in Ethnology/Social Anthropology. An initial plan, advocated by the Committee on Ethnology/Social Anthropology within the University, to supplement the Carnegie money for Anthropology by redeploying the Munro legacy was refused by his descendants, but after further negotiation (and despite the initial disapproval of Senatus) in 1937 the whole Carnegie sum (including the moneys just noted as being earmarked for Prehistoric Archaeology) was finally allocated by the Senatus to a lectureship in Anthropology at Childe's suggestion and with Carnegie Trust agreement (cf. Harding 2008).[8] The new lectureship in Anthropology was not filled until 1945, but any suggestion that Childe had somehow been outmanoeuvred within the University and Prehistoric Archaeology done down can readily be countered. By 1939, funding had been found for, and an appointment made to, a lectureship in Prehistoric Archaeology within the university – in effect an assistant for Childe. This appointment was initially part-time, but at lecturer, although subsequently at assistant lecturer, level. In 1945, a *Report of the Committee for Anthropology* recommended the filling of the anthropological post 'in view of a probable early demand by post-war students (including Colonial Office probationers and prospective missionaries) for anthropological training'. The path for this had been cleared, it reported, because of the endowment of the Abercromby Chair of Archaeology which had made it independent of the Munro Lectureship, and by the 'new scheme' for the Munro Lectureship itself. It thus appears that the view that the development of Anthropology somehow choked off Prehistoric Archaeology at Edinburgh has little or no foundation in the immediate aftermath of the Second World War.

By the time, following Lord Abercromby's death, that the University decided to fill the Abercromby Chair, there were approaching 20 Chairs in the then Faculty of Arts at Edinburgh. The initial six dated back to its foundation in 1583, but expansion was slow thereafter until mid-Victorian times (Table 1), with the eighteenth century, for instance, seeing a solitary new creation – the Chair of Rhetoric and English Literature.

Table 1. *Foundation dates of established Chairs in the Faculty of Arts, Edinburgh University, 1862–1931 (source: Edinburgh University Calendars)*

1862	Sanskrit / Comparative Philology
1871	Commercial and Political Economy
1876	Theory etc of Education
1879	Fine Art (Watson Gordon)
1882	Celtic Languages, Literatures, History and Antiquities
1893	History
1901	Ancient History and Palaeography (Sir William Fraser)
1918	French
1919	German; and Accounts/Business Method
1922	Natural Philosophy
1925	Prehistoric Archaeology (Abercromby); Organization of Industry and Commerce
1931	Geography; Psychology

The years following the First World War were a time of optimism within the University (Anderson 2003), marked *inter alia* by the establishment of the additional Chairs listed in Table 1, but also by the setting up of new arrangements for university funding, with a proportion (about 36%; Anderson 2003) now coming from central government via the newly-established University Grants Committee. Whilst Prehistoric Archaeology as an undergraduate subject was a novelty in 1927–1928, other branches of archaeology had previously had some representation – and indeed continued to do so – in the remits or interests of the Chairs of Fine Art, Greek, and Celtic. In reality, the professors of Celtic seem to have focused on language and literature and not to have taught history or 'antiquities', but aspects of archaeology made an appearance in the teaching of the other two subjects and, by the early 1930s, the university also had a lecturer in Classical Archaeology.

In terms of translating Abercromby's wishes into a job specification, the *Report of the Special Committee of Senatus on the Abercromby Chair of Archaeology* (12 May 1926) is of critical importance. Here it was expressly stated that 'the Professor should not be required to deliver lectures nor to reside in Edinburgh during the summer term', and equally recommended that 'the Professor may be appointed to the Munro Lectureship and draw the salary thereof'. In contrast to the position taken in 1946 over the appointment of Childe's successor, the Chair ('funded by the late Lord Abercromby to promote the study of Prehistoric Archaeology') was advertised publicly in October 1926.[9] The Committee reported to Senatus on 3 March1927 that there had been six applicants, and Childe, then lecturing on 'Prehistoric and early Man' at the London School of Economics (in place of Charles Seligman, Professor of Ethnology), as well as being Librarian of the Royal Anthropological Institute, was offered the position.

The University at which Childe arrived in 1927 was already a substantial institution, with some 55 professors, approaching 200 other academic staff graded as lecturer or above, 4300 students and a library of some 300,000 volumes. Nor, as is again sometimes suggested, was the appointment of a non-Scot to an Edinburgh Chair at all unusual by this date. Even in the previous generation of appointments, those made over the 30 years or so before the First World War to the Arts, Science and Music Faculties (in Law and Medicine other factors were relevant), the majority of new professors were not Scots, nor necessarily educated at a Scottish university, but 'anglicization' was tempered by incomers from Ireland, Wales, the British Empire (especially Canada) and two from Germany (Anderson 1987: 45, 2003:171). By the 1920s, indeed, the majority of appointees to Chairs in the Faculties of Arts in all four ancient Scottish universities were not Scots-born (Anderson 1987). Childe's appointment was within the Faculty of Arts, where his archaeology courses were first established in History and Law.[10] In the Faculty, Professor Gerald Baldwin Brown was already teaching; and courses in classical archaeology were also offered. Arts was, with Medicine, one of the two biggest Faculties, and in terms of student recruitment three times the size of Science. In the Arts Faculty in 1928–1929, perhaps surprisingly, full-time female students outnumbered males: 1051 to 1004.

CHILDE'S TEACHING PROGRAMME

Childe established the 'Ordinary' (i.e. First Year) course in the autumn of 1927. The class fee for students, of 6 guineas (£6 6s), was substantial at the time given that it would then have represented several weeks' wages for a working man (the availability of a range of bursaries meant that access to the University was less exclusive than it might otherwise have been). This fee, however, no longer went directly to the professor; the direct link between class size and professorial income, a feature during the Victorian growth of the institution, had been abandoned in the 1890s (Anderson 2003).

The Ordinary Class consisted of at least 75 lectures, delivered at the rate of five each teaching week; and all by Childe. The basic scope of the syllabus remained essentially unchanged throughout Childe's tenure. It dealt:

> ... with the development of culture as revealed by the handiwork of early 'men' from man's first appearance down to the beginnings of the historical period. The products of human activity characteristic of the several chronological phases and cultural groups will be examined in relation to their climatic and geographical context, with the aid of parallels drawn from modern primitive peoples, the archaeological remains being always treated as concrete embodiments of man's progress in culture. (*Edinburgh University Calendar*)

The field covered was to be '... the Palaeolithic period everywhere, the earliest civilisations of the Ancient East (origins of agriculture, domestic animals and metallurgy), and the Neolithic and Metal Ages of Europe *with special reference to Scotland*' (my italics). In 1927/1928 it is worth remarking that the Scottish archaeological literature initially recommended by Childe to his Ordinary Class was Anderson's *Scotland in Pagan Times* (first given as *Rhind Lectures* to the Society of Antiquaries of Scotland in the early 1880s) and Robert Munro's *Prehistoric Scotland* – studies already more than a generation old. The only substantive addition to the syllabus was made in the 1935/1936 session, reflecting the development of the 'Departmental Museum'; thereafter the *Calendar* stipulated that 'students are expected to have a thorough knowledge of the Old Stone Age types represented in the Department's collections, and the types of later periods as represented in the same collection or in the Scottish National Museum'. In the first years of Childe's tenure, student numbers were relatively healthy, but a decision by the Faculty of Arts (13 February 1930) that 'students should not be allowed to take the class of Prehistoric Archaeology in their First Year' meant that, along with other factors affecting recruitment during the 1930s, thereafter the class size declined considerably.

An Honours course was added the following session (1928/1929). This was one of the optional courses (option k) for the History syllabus. There was not a full Honours syllabus in Archaeology at this time, when most students still only completed the three-year 'MA Ordinary' degree, eschewing the extra specialization that thereafter became fashionable. The *University Calendar* entry for the Honours course makes plain the character of Childe's Honours (i.e. senior undergraduate) teaching:

> It is designed for those who wish to undertake regular research and aims at giving them training in methods. A special period or group of phenomena will be selected for intensive study, and the methods and assumptions of the science will be illustrated and criticised in relation to the concrete topic. Students will learn to use original sources in contact with actual remains or models, the class taking the form of a seminar whose members will contribute original work.

It is noteworthy that the term 'seminar' is employed to describe the Honours Class. This term was unusual then, and is used in the foregoing passage in the original German sense of a research-oriented group (Anderson, pers. comm.). Childe's next innovation was to develop the archaeological components of a BSc syllabus in Physical Anthropology and Prehistoric Archaeology, and this gained Faculty of Science approval in the early summer of 1933 (*pace* Harding 2008, who states that the first students at Edinburgh studied for the BSc degree). The Ordinary BSc Class mirrored the main components of the Arts syllabus, notably the five 5 p.m. lectures each weekday during the two teaching terms, but additionally two hours of practical work were scheduled each week, to include:

(a) practical study of specimens including preparation of scale drawings
(b) manufacture of pots by hand from selected clays and the making 'of other products of primitive industry by processes supposed to have been employed by prehistoric man'.

From the outset, and in spite of the 'two terms only' requirement mentioned earlier, there were compulsory classes during the third term for the BSc Class. These consisted of elementary field surveying, including 3–4 hours of class instruction per week and the same of fieldwork. The commitment of the Abercromby Professor to be in residence for two terms only had thus been extended; and from 1938 the Arts course too required both students and teacher to be present for all three terms. In this session Childe was admitted as a member of the Faculty of Science, reflecting the fact that the aforementioned BSc course now had undergraduate takers, a decade after the Arts Faculty teaching had begun.

Two further courses were envisaged. Alongside three lectures a week for two terms, Second Year was to consist of practical work on the preparation of distribution maps, detailed study of a class of objects and two weeks of compulsory excavation experience. A Third Level course, including intensive survey of a local area, was also planned. This course was to be built around tutorial instruction and readings. The BSc syllabus in Prehistoric Archaeology won Faculty of Science approval in May 1933.

It is perhaps Childe's choice of special subject for the Honours Class that best demonstrates his efforts to integrate the teaching of Scottish archaeology into his programme of research, most notably as represented by his commitment to fieldwork, considered further later. Over the period of his tenure, the advertised topics for the first 10 sessions were exclusively Scottish, corresponding to his main period

Table 2. *The advertised special subject for the Honours Class in Archaeology during Childe's tenure of the Abercromby Chair (source:* Edinburgh University Calendars*)*

1928/29	The long and chambered cairns of Scotland and their contents in relation to cognate structures elsewhere
1929/30	As 1928/29
1930/31	Early Bronze Age with special reference to Scotland
1931/32	As 1930/31
1932/33	Early Iron Age with special reference to Scotland
1933/34	As 1932/33
1934/35	As 1932/33
1935/36	As 1932/33
1936/37	As 1932/33
1937/38	The Early Bronze Age in Scotland
1938/39	The Stone Age in Syria-Palestine
1939/40	Neolithic economy in NW Europe
1940/41	As 1939/40
1941/42	Prehistoric Syria
1942/43	The transition from savagery to barbarism
1943/44	The coming of Iron
1944/45	As 1943/44
1945/46	As 1943/44

as an excavator in the country (Table 2). It is also noticeable that, whereas he is best known as a specialist on the Neolithic and Bronze Ages, for eight sessions out of 18 he offered to teach the Honours Class at Edinburgh, the topic he selected was an Iron Age one.

A key component of Childe's commitment to Scottish archaeology was represented by his involvement in fieldwork, generally with him as director leading small teams that consisted either of professional labourers, or of students, or of an admixture of the two. On a few sites, for example Finavon, Angus, adult volunteers also took part (Childe 1935b). In terms of his field projects, it is perhaps unfortunate that the first, at the Neolithic village of Skara Brae on mainland Orkney, should be the best known, and that on which he tends to be judged, for it was in many ways atypical, as well as controversial at the time.[11] The intervention at Skara Brae had begun before Childe's involvement was agreed, and was essentially a clearing-out and stabilizing exercise on these remarkable dry-stone structures, in preparation for their display to the public, following serious damage resulting from a disastrous storm (Clarke 1976:6–8). It is also perhaps fair to point out that Childe's exposure to excavation prior to assuming command at Skara Brae seems to have been limited. He had of course visited sites in central and Balkan Europe – famously, the deep stratification at Vinča with Daryll Forde in 1926 – and had also taken part in 1923 in excavations in Poland at Koszyłowce directed by Leon Kozłowski. But at Skara Brae, working on behalf of the Ministry of Works, he was thrown in literally and metaphorically at the deep end of Scottish field archaeology, as is plain from consultation of his field notebooks from the first campaigns. The interpretation of the site also engendered heated debate in the Scottish press.[12] Much that is critical has been

said, but less written, of Childe's fieldwork at Skara Brae, the site that produced, characteristically shortly after the fieldwork was completed, his only excavation monograph (Childe et al. 1931a). It is true his initial view was that the site was of early historic, and thus Pictish, affiliation, but he rapidly reassessed his position (this reappraisal was already clearly under way in Childe 1931b, 1931c; but see Callander 1931). It is worth remarking that the account of the site (and of Rinyo) 'compiled from material kindly supplied by Professor V. Gordon Childe' contained in the RCAHMS *Inventory of Orkney* in 1938 (but not published until after the Second World War in 1946; RCAHMS 1946 no: 683, pp.254–259; and Appendix 4, pp.363–365 for Rinyo) is a confident summary, essentially by Childe, of the key evidence from what were clearly by then understood to be remarkable Neolithic settlements. As the 1930s progressed, so in general the fieldwork he directed became more comprehensible. Fieldwork with student teams began at the chambered cairn of Kindrochat in Perthshire, and this seems to have been a catalyst for the establishment of the Edinburgh League of Prehistorians (Appendix). If some of Childe's field projects look to have been distinctly less than elegantly conducted, they none the less produced significant results, as at Castlelaw, Midlothian, where the negative traces of one of the first undoubted wooden palisades on an Iron Age hill-fort to be found in Scotland were recognized (Childe 1933a; Ralston 2003).

The 1930s

From the beginning of his professorship in Edinburgh, Childe began publishing Scottish material (the reference list to this article gives all Childe's publications on Scottish material known to the author and includes a few omitted by Smith 1955), both in academic journals and in the popular press – his first article appearing in the *Illustrated London News* in 1928 (Childe 1928a). From 1930, his syntheses also included Scottish material integrated into wider perspectives, for example *The Bronze Age* (Childe 1930a). The 1930s saw him not only more heavily involved in domestic archaeology, but also consolidating his international reputation. For example, the Edinburgh Senatus appointed him their representative at the Oslo Congress of Prehistoric and Protohistoric Sciences in 1936; at the Tercentenary of Harvard University in the same year; and at the International Congress of Anthropology and Ethnology, held in Copenhagen in 1938. He was not, however, prepared to be the University's representative to the 6th International Congress of the Archaeological Institute of the German Reich, Berlin, intended for 1939. Other intimations of his developing 'global reach' mark that decade; he was for example granted a term's leave of absence in the spring of 1933 to visit archaeological discoveries in India. His first experience of the USSR followed in September 1935, sailing from London to Leningrad in the company of Professor David Talbot Rice, then recently appointed to the Watson-Gordon Chair of Fine Art at Edinburgh, and his wife Tamara (Green 1981; Klejn 1994:76). This visit has been proposed as an important spur to his efforts more formally to integrate Marxist perspectives into his ideas and writing. He was also twice in the USA to collect Honorary doctorates: from Harvard (1936); and from Pennsylvania State (1937).[13]

Domestically, however, the position within the Edinburgh Faculty of Arts seems to have been less rosy, with student enrolment – particularly of females – dropping through the difficult years of the 1930s.[14] By contrast, recruitment – dominantly of males – to the (smaller) Faculty of Science remained more resilient, and I suspect that this may have been one of the reasons that contributed to Childe's decision to try to establish Archaeology in that Faculty as well. By mid-decade, however, he had published his first synthesis of the Scottish prehistoric record (Childe 1935a). This was the first overview of the evidence since Munro's book of 1899, and was the only substantial single-author account of Scotland's prehistory composed during the twentieth century (Ralston and Megaw 2004:n. 37). Its appearance chimes well with the programme of topics selected for the University's Honours class in Prehistoric Archaeology during its initial years (Table 2). Childe was of course able too to draw on the outcomes of his own fieldwork, some of which, including that at the chambered cairn at Kindrochat (Childe 1931a) and the vitrified hill-fort of Finavon (Childe 1935b, 1936a), is illustrated in the volume.

It has frequently been claimed that Childe was shunned by the Scottish archaeological establishment but, if some of its crustier members kept him at arm's length, not least on account of his politics, he was certainly not ostracized by everyone. He was elected a Fellow of the Society of Antiquaries of Scotland directly on his arrival (1927; *pace* Green 1981:59), and was a councillor by 1930; from 1932 he was – appropriately enough – its Secretary for Foreign Correspondence and later its Editor during the Second World War. In 1935, in his early 40s, he was elected to the 'Scottish Academy', the Royal Society of Edinburgh. His sponsors for this were Sir Edward Sharpey-Schafer, Sir James Walker, Sir Charles Galton Darwin, and Professor Thomas Jehu, which gives an insight into the way Childe was considered by the higher echelons of the Scottish academic community beyond the archaeological establishment.[15] Sharpey-Schafer, a distinguished physiologist, had been appointed Professor of 'Institutes of Medicine' (now Physiology) at Edinburgh in 1899; Walker was its Professor of Chemistry from 1908–1928; Jehu, a Welshman, was appointed to the Edinburgh Chair of Geology in 1914; and Darwin, a descendant of the other Charles and a personal friend of Childe (Green 1981:60) was the first holder of the Tait Chair of Natural Philosophy (Physics).

By this time, Childe's rising importance within the discipline was one of the factors which undoubtedly attracted a number of distinguished archaeologists to Edinburgh. They included Munro Lecturers – on the three occasions when Childe did not hold the Munro lectureship[16] as well as his Chair in the University – and Rhind Lecturers and other visitors to the Scottish Antiquaries. In 1936, for example, Professor Pedro Bosch Gimpera, then of the University in Barcelona and shortly thereafter to be Minister of Justice in the Generalitat, the Catalan Republican Government, stayed with Childe in his apartment in Eglinton Crescent whilst in Edinburgh to lecture to the Scottish Antiquaries.

The rooms he took in the Hotel de Vere, Childe's second address in Edinburgh (he lodged initially in the suburb of Liberton at a house called Belleview, in Kirk Brae) have been described as rather spartan. But the building itself – in Eglinton Crescent, built in 1875–1880 and one of the finest of Edinburgh's later Victorian

developments – had been newly converted in 1933 into a residential hotel by the successful Edinburgh architectural firm of Peddie and Walker Todd. Other purchases during the 1930s also suggest that he was prospering. His love of cars, and his legendary lack of driving skills (E. Stevenson, S. Piggott, J.V.S. Megaw, I. Scollar, pers. comms), are well-established; A.J.H. Edwards of the National Museum had to give lectures on his behalf in 1929 when he was absent as the result of an accident. During the 1930s he was able to purchase increasingly speedy vehicles. In 1930, he took the young Stuart Piggott round the monuments of Argyll in his baby Austin 7 (Fig. 1). By the time Howard Kilbride-Jones was becoming prominent amongst his students in the mid-1930s, Childe had acquired a rather powerful open-topped American sports car, a Hudson Terraplane – assembled in Britain but undoubtedly an unusual and showy model (Fig. 2).[17] The celebrated Scottish actor, Jimmy Logan, also had one. Childe also at different times owned a two-litre Morris 14; and an open-top Bentley (Drummond n.d.).

There are other pointers to the later 1930s marking Childe's fuller integration into Scottish archaeology. Some of the older brigade in the archaeological establishment

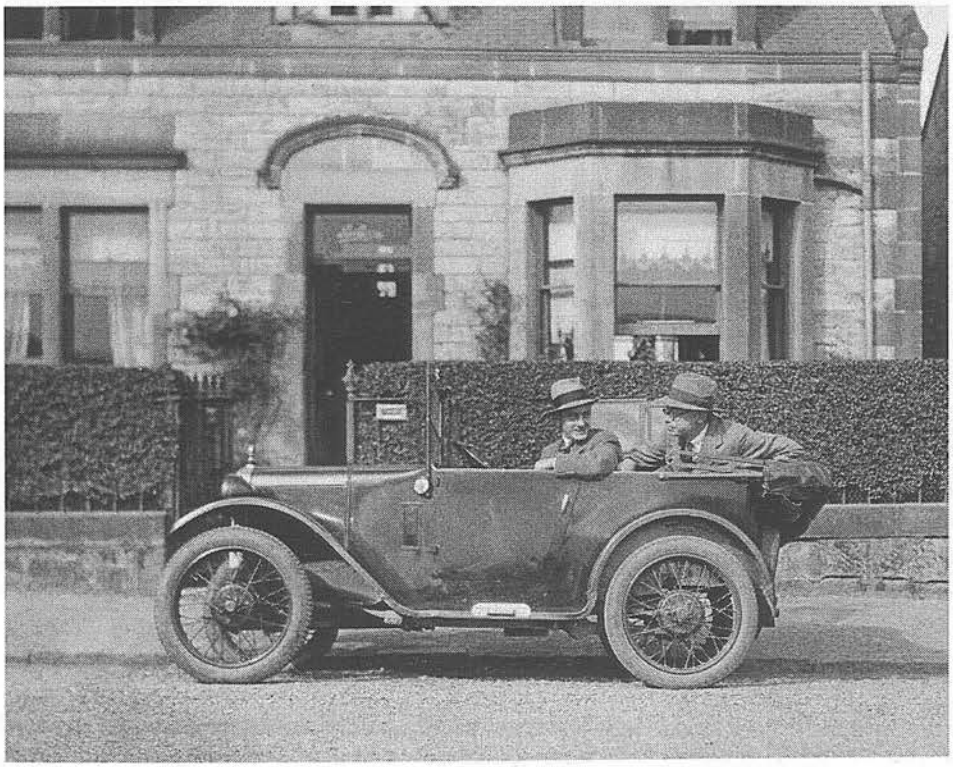


Figure 1. *Childe in the back seat of his Austin 7 Chummy (identification by Richard Craig of RCAHMS) outside his first Edinburgh home in Kirk Brae, Liberton. The driver has not been identified. This was the car Childe had in 1930 when Piggott accompanied him to sites in Argyll. (Courtesy: RCAHMS.)*



Figure 2. *Childe, resplendent in shorts, poses in front of his Hudson Terraplane c.1933. (Image reproduced from the Piggott Archive courtesy of the Institute of Archaeology, Oxford. Anyone wishing to use the image should contact the Institute.) (Photographer unknown.)*

who were suspicious of him had died, or their influence was waning (Graham 1981:220–223). New collaborations beckoned. One of the most interesting is that with Wallace Thorneycroft, a mining engineer and sometime Managing Director of the Plean Mining Company in Stirlingshire. Thorneycroft seems to have been able to recover from a considerable disaster at one of the Plean collieries in the early 1920s, and in the following decade – now resident in south-west England – developed an interest in archaeology. He took part in the excavation at Finavon (Childe 1935b:78), but his main collaboration with Childe was in experimental work to replicate vitrification, first at one of the Plean collieries (near Stirling) – undertaken in appalling spring weather with '...a strong east wind with snow still thick on the ground';[18] and latterly, following their joint excavation of the vitrified dun at Rahoy in Morvern, Argyll (Childe and Thorneycroft 1938a, 1938b), on-site there.[19]

Another collaboration – this time sadly interrupted by the war – was in the excavation of a further Neolithic stone-built village at Braes of Rinyo, on Rousay in the Orkney Islands, undertaken with a capable amateur, Walter Grant of Trumland House on that island (Fig. 3; Childe and Grant 1939a, 1947a; Reynolds and Ritchie 1985). Some six years Childe's senior, Grant had substantial interests in the whisky industry, including that celebrated Orcadian product, *Highland Park*, to commend him alongside his archaeological talents. Childe certainly drank his whisky with pleasure (Drummond n.d.; Kilbride-Jones 1994); he also enjoyed vodka (my late



Figure 3. *The front row comprises (L to R) Childe, Graham Callander and Walter Grant, photographed together on Rousay in June 1932 before Hewat Craw's first season at Midhowe. The cloth-capped figure has not been identified. (Courtesy: RCAHMS – James Hewat Craw collection.)*

mother as an Edinburgh undergraduate was tasked with finding some in the wartime city when he attended student meetings) and, amongst wines, of which he was a connoisseur (Drummond n.d.), hock (E. Stevenson, pers. comm.). Orkney, too, clearly attracted Childe, and he was to return there to excavate on Sanday and at Maes Howe even after his translation to London (Fig. 4).[20] Given Childe's political views, collaborations with senior businessmen may seem to sit a little uneasily, but nothing has come to light in my researches to indicate how these shared projects initially developed, whether from one participant or the other. In Grant's case, however, Childe certainly encountered him early in his career in Scotland. Grant had been a Fellow of the Society of Antiquaries of Scotland for some years prior to his work with Childe, and had worked through the 1930s on sites on Rousay (Orkney) in association with J.G. Callander and J. Hewat Craw (Reynolds and Ritchie 1985). Figure 3 was taken in June 1932, during a visit immediately before the important excavations at the Midhowe stalled cairn got under way (Callander et al. 1934:320, fn.1), but Grant, Childe, Hewat Craw, and Callander had visited the chambered cairn at Knowe of Lairo, Rousay, together in August 1929 (Grant and Wilson 1943:17). Both Hewat Craw (d. 1932) and Callander (d. 1938) were, however, deceased before the Childe–Grant fieldwork began.



Figure 4. *An uncharacteristic perspective on Childe emerging from the lower entrance of Taversoe Tuick chambered cairn on Rousay, Orkney (1932). His article (Childe 1942b) on the Rousay Neolithic cairns is a classic distributional study. From Skara Brae to Maes Howe, he began and ended his 30-year career as an excavation director on Orkney. (Courtesy: RCAHMS – James Hewat Craw collection.)*

If student recruitment in Archaeology within the University had faltered somewhat, Childe nonetheless seems to have managed to get a Lectureship (not simply an assistant) in Prehistoric Archaeology established just before the Second World War. This, in light of what elsewhere has been written about the impact of his support for the development of Social Anthropology at Edinburgh (e.g. Harding 2008), needs to be borne in mind: by 1939 Edinburgh had two posts – the Abercromby Chair and a Lectureship – specifically in Prehistoric Archaeology. A Cambridge man – H.J.H. (James) Drummond – whom he had encountered at the Oslo conference of 1936, was appointed to teach in particular the Palaeolithic, perhaps on the recommendation of Miles Burkitt, Childe's colleague in Cambridge and the sometime external examiner at Edinburgh. Drummond's career at Edinburgh was brief before he was called up for RAF service.[21] After he was invalided out in 1942, he returned to his family by then resident in Edinburgh to be told by Childe that there were no students, and that, as a luxury department, Archaeology had 'more or less closed down for the duration' (McLaren 1986). Childe recommended that Drummond contact the University Librarian, as the library was short-staffed, and thus he began a career change towards librarianship, whilst concurrently University Assistant in

Prehistoric Archaeology. He was still University Assistant, as well as an Assistant Librarian in 1946, when Piggott (pers. comm.; Drummond n.d.:97) arrived as Childe's successor. The Lectureship in Prehistoric Archaeology none the less remained – albeit unfilled – in the *University Calendar*.[22] In 1939, Childe had again visited the USA, returning from California via Boston as war broke out to face local circumstances that would mark a new chapter in his involvement with Scottish archaeology.

THE WAR YEARS

Perhaps the best known of Childe's wartime achievements is the writing of a series of syntheses, both specialist and, in other instances, intended for a wider readership. During the war years, as has been noted, the number of students unsurprisingly dwindled very significantly; the League of Prehistorians went into abeyance. The first edition of his British synthesis – *Prehistoric Communities* – appeared (Childe 1940a), and into this he was able to integrate Scottish material, notably the outcome of his own fieldwork, as at Finavon. *What Happened in History* (Childe 1942a) was followed by *Progress and Archaeology* shortly before he moved south (Childe 1944a). Such instructive overviews sat well with Abercromby's requirements of the post which he had funded, and of course Childe had produced others before the war provided extra stimulus: *Man Makes Himself*, arguably the most influential of these, being published in 1936 (Childe 1936b).

During the war years, however, Childe took on a number of other roles within Scottish archaeology. Most significantly, with Angus Graham, who had been appointed in 1935 as Secretary of the Royal Commission on the Ancient and Historical Monuments of Scotland, he undertook emergency surveys of field monuments, as a response to damage to sites during military training exercises. Consultation of the surviving notebooks in RCAHMS indicates that these visits to military training areas were widely dispersed across the country: Orkney 1941;[23] Argyll including Mull June 1942; Lanarkshire, Ayrshire, Mull, Lismore, Glen Nevis, all June 1943; and Atholl and elsewhere in Perthshire June 1944. Some of this work – a selection of the sites visited across the country in the summer of 1942 – was published (Childe and Graham 1943a; also Childe 1944c), but much of it is simply recorded in the manuscript notebooks held in RCAHMS. As part of this work, he was also able on occasion to both report on, and arrange the conservation of, earlier finds, notably the Late Bronze Age hoard found in digging an ornamental pond at Ballymore (now Ballimore) House, near Otter Ferry, Kilfinan, Argyll (Childe 1943c).

As well as serving as the Society of Antiquaries of Scotland's editor,[24] he was also, at its behest and with the agreement of the University Principal, interim Director of the National Museum of Antiquities, without salary, between 1944 and 1946. This followed the death in office of the Director, Arthur Edwards,[25] while the future Keeper, then Captain Robert Stevenson, was still on active service in Italy. A letter (14 October 1945) to the University Principal, Sir John Fraser, asking for this arrangement to be extended betrays the lightness of Childe's teaching commitments at the time: 'This will not interfere with my teaching work – if any – as there is no need ... to be in the museum continuously all day'. Sir John underlined the 'if

any' and scribbled two exclamation marks in the letter's margin![26] John Brown, the museum technician, who was not called up on health grounds, told David V. Clarke much later that his first duty each week was to prepare a supply of clay pipes for the Professor. Childe's role in the Museum was, however, far more than as a simple caretaker, taking steps with colleagues to reopen the Museum in the latter part of the war – including on Sundays – for, amongst others, Dominion and American troops on leave in the city.[27] With many staff at the University also on active service, Childe played a more active role within that institution in these years too, for example from 1940 for a number of years as a Senatus member of the council of the 'Settlement Association', a student body which carried out a range of charitable functions locally. From 1943, he also represented the University on the embryo Council for British Archaeology. In the following year, the Council for Scottish Archaeology was established as a group of societies led by an Executive Committee under the chairmanship of Childe. It was represented at the first formal meeting of the CBA, of which it formed the Scottish Regional Group.[28]

Unsurprisingly, during the war years, excavation – aside from the occasional small salvage exercise, notably on Bronze Age burials – ceased. The last campaign he undertook before the end of the war was at Freswick in Caithness in 1941 (Childe 1943a). That said, relatively few excavation directors are still active in the field in Scotland at the age he was then (nearly 50) and, remarkably, he resumed fieldwork thereafter, when he was able to go back to Rinyo in the summer of 1946 before his move to London (Childe and Grant 1947a). His last two excavations, both in Scotland – when he was in his 60s – were undertaken while he was director of the Institute in London: Quoyness 1951 and 1952 (Childe 1952a); and Maes Howe 1954 and 1955 (Childe 1956a). This may suggest that, however strong the pull of a senior post in the more congenial atmosphere of the south had been, the north still held its attractions. Indeed, these two Orcadian chambered cairns were his only field projects while he was Director of the Institute. He was also back in Scotland on several occasions on other matters, some archaeological, after his move south.[29]

Conclusion

It is clearly preposterous to try to provide a rounded assessment of Childe's contributions to Scottish archaeology independently from his wider importance as a prehistorian. Here I will simply try to address some specific points that have previously been made about his contribution in Scotland, and which seem to me to be less than fair.

It has, for example, been suggested that Childe failed to develop a 'School' of archaeological disciples in his Edinburgh period (Piggott 1958a). The structure of Edinburgh degrees at that time – considering not least that most students simply did the Ordinary MA degree – rather militated, however, against such a possibility, leaving aside the fact that there was neither the money nor the framework of new salaried posts available to allow this to happen. Even in established subjects at Edinburgh, such as history, Honours classes remained small and students with research interests were often advised to head south to Oxford

or London (Anderson, pers. comm.). Nor was there – after Abercromby – private finance on any appreciable scale to stimulate local research. Alexander Keiller's money, which underpinned much 1930s' Wessex fieldwork, may have been made in confectionery and marmalade in Dundee as, at a later generation, Dr Daniel McDonald's was at the BSR factories in Northern Ireland and in Glasgow's hinterland, but it was largely disbursed on archaeology in the south of Britain, in the latter case in the Cambridge Institute that bears his name, or further afield.

Nevertheless, there were numbers of students who studied with Childe who did go on to make their mark in archaeology. There are others too who, had financial circumstances been different, might have done doctoral work with Childe, such as Robert Braidwood (1989:90).

Margaret E. Crichton Mitchell (later Stewart) was the only student to complete her PhD (then a rare and relatively new degree at Edinburgh) with Childe. She researched Scottish Beaker pottery (Mitchell 1934). After war service in naval intelligence, she returned to Perthshire, where she contributed much as an amateur to the archaeology of Tayside. Robert Stevenson (d. 1992) had a distinguished career as Keeper of the National Museum of Antiquities of Scotland. Stewart Cruden's career in the predecessor bodies to Historic Scotland has already been mentioned. Benedikt Isserlin (d. 2005), a refugee from Hitler's Germany, took archaeology as part of his Edinburgh degree before moving to Oxford for his doctorate. He headed the Semitic Studies Department at Leeds University for many years, and excavated – amongst other places – at Motya on Sicily (Isserlin and du Plat Taylor 1974). Howard Kilbride-Jones (born c.1907) was at least intermittently involved in archaeology throughout his long life. He visited chambered cairns in Argyll with Childe in 1932 (Childe 1932a:416)[30] and was sometime Secretary of the League of Prehistorians. He was notably involved within Scotland in the excavation of stone circles in the North East, where he had previously assisted Childe at Old Keig, Aberdeenshire, in the same decade (Kilbride-Jones 1935).[31] T.T. Paterson (an Edinburgh-trained doctor who published with Drummond, noted earlier) went on to become Curator of the Museum of Anthropology and Archaeology at Cambridge, and was one of those considered for the Abercromby Chair in 1946.[32] Eoin MacWhite (an Irish pupil of S.P. Ó Ríordáin), who spent the 1944/1945 session in Edinburgh as a graduate student with Childe,[33] was thereafter an archaeologist in Madrid, before becoming a diplomat and latterly Irish Ambassador to Australia, then the Netherlands, where he was killed in a car accident in 1972 (O'Sullivan 1998). Other undergraduates Childe taught distinguished themselves in other fields, for example, James H. Burns, Childe's sole Honours student in 1942–1943, was Professor of the History of Political Thought at University College London. This listing makes no pretence at exhaustivity.

Within Scotland, Childe also encouraged others to pursue their archaeological interests. This was certainly the case with the geographer, Dr Horace Fairhurst (pers. comm.), who shortly after being appointed to Glasgow University developed archaeological interests under the influence of Childe, was the Glasgow Secretary of the League of Prehistorians, began excavations on the Iron Age sites of Argyll, and after the war contributed a series of archaeological papers.[34] It was

of course from the Geography Department that Archaeology at Glasgow University was later established. It was also, for example, through the support of Childe that Miss Sylvia Benton, the excavator of the Sculptor's Cave at Covesea in Moray, was invited to lecture to the Society of Antiquaries of Scotland and to publish in its *Proceedings* (Ian Shepherd, pers. comm.).[35] Childe had previously sought Myres's assistance to encourage her to take the Oxford Diploma in Classical Archaeology.[36]

Childe resigned the Abercromby Chair in May 1946, preparatory to heading south, although this did not in the event happen for some months (E. Stevenson, pers. comm.). He wrote to the University Principal announcing his intention that February: 'I may perhaps hope that my 18 years work here have to some extent advanced Scottish prehistory'.[37] Alongside the other intellectual achievements of his Edinburgh period, and his contributions to popularizing scholarship, and directly and indirectly to left-wing politics,[38] all of which lie outwith the compass of this essay, it can be contended that in the two decades he was the Abercromby Professor, he made a major contribution to Scottish archaeology, more particularly its prehistory. He established the teaching of Scottish archaeology as one strand of the instruction offered at Edinburgh and, like his successor Piggott, his output each year included at least one article on a Scottish topic. He conducted significant amounts of fieldwork, and some 20 excavations, widely dispersed around the country, and at a variety of scales (Fig. 5).[39] And, for all his social awkwardness (considered by others at the Durham conference to intimate that he may have been autistic; see Brothwell this volume), on a personal level he clearly developed working relationships with members of the other Scottish archaeological institutions, notably RCAHMS and the National Museum and, particularly in wartime, greatly helped their operations. If he repelled some in the Scottish establishment (Graham 1981; Piggott 1958a), elsewhere he was welcome. This was a man who, with the young Robert Stevenson in tow, could turn up unannounced and completely unabashed in shorts after a walk in the Pentland Hills south of Edinburgh for Sunday afternoon tea at the Clerks of Penicuik, descendants of the famous Sir John.[40]

Childe's last general statement on the archaeology of Scotland (1946a) emerged from a new (for Childe) London publisher, Methuen, in the year of his departure. This was *Scotland Before the Scots*, the substance of which had formed Childe's Rhind Lectures to the Society of Antiquaries of Scotland under the title 'The development of tribal society in pre-Roman times' in 1944 (Childe 1946a:v). Childe himself regarded it as the more successful of his two Scottish syntheses, as he states in his posthumously published 'Retrospect':

> [t]he cautious application of working hypotheses [drawing on Marrism] ... did give a picture of Scotland's development ... far more realistic and ... historical than ... migrationist hypotheses in the *Prehistory of Scotland* (1935[a]). Yet I just had to admit migrations and the impact of foreign cultures: the internal development of Scottish society in accordance with 'universal laws' simply could not explain the archaeological data... (Childe 1958a:73)

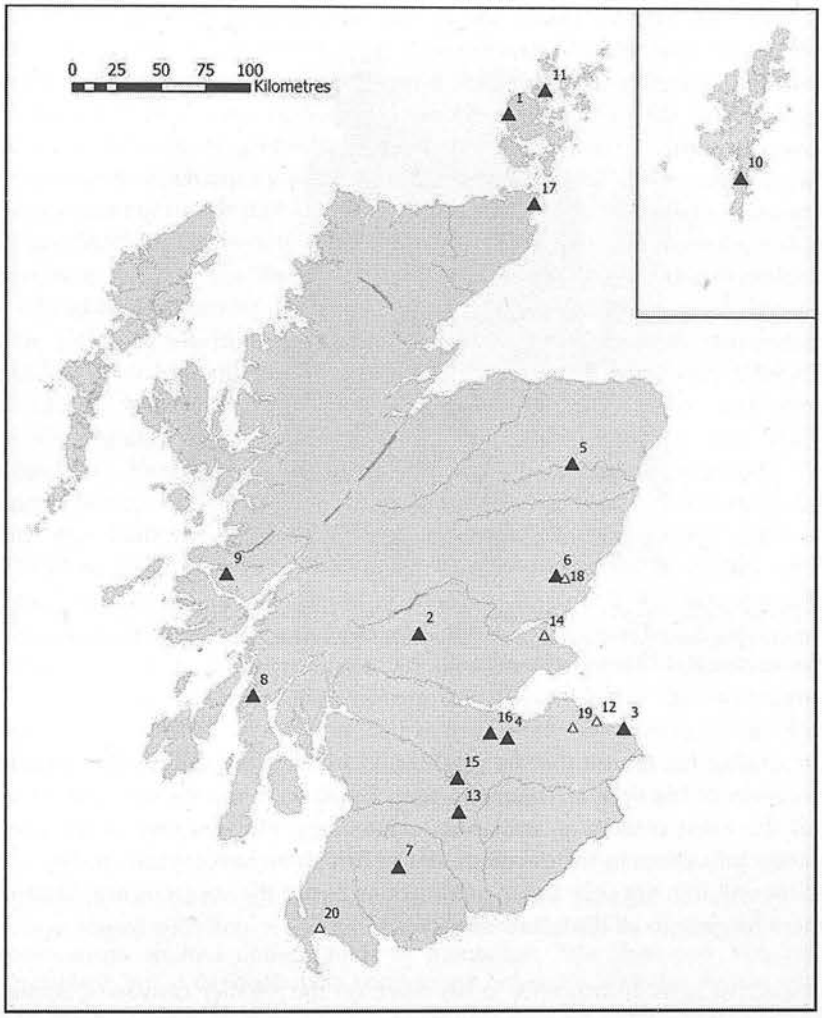


Figure 5. *Childe's excavations in Scotland whilst Abercromby Professor at Edinburgh. Major sites: large filled triangles. Others: small triangles. (Map drawn by Dr Shelly Werner.)*

Comparing in particular the Iron Age chapters of his two syntheses, I consider his assessment correct. For all its 'stages' and comments on class, perspectives which exercised Piggott in his hostile review (1947),[41] the 1946 treatment is a perceptive one and on some aspects of the record (e.g. the significant role of agriculture) infinitely preferable to the pastoral view of Scottish later prehistory centred on 'Celtic cowboys' that emerged during the following decade (Piggott 1958b).

I have already suggested that Piggott's (1958a) obituary was less than generous to Childe (Fig. 6). But other sentiments informed the *Special Minute* of the Edinburgh University Senatus recording his retirement and written, certainly by Piggott (although unsigned), in 1957:



Figure 6. *Childe visiting Piggott, his successor as Abercromby Professor at Edinburgh, at the latter's excavation at Corrimony, Inverness-shire, in 1952. (Courtesy: Dr David H. Wallace, Frederick, Maryland – a non-graduating student at Edinburgh in that year.)*

> It was during his tenure that he established himself as perhaps the greatest prehistorian of his time ... Thanks to him, Edinburgh had become known as one of the great centres of academic archaeology. He was one of the great formative influences in the development of British archaeological studies and his work will live not only in his publications but in the stimulus and encouragement he gave to all his fellow-scholars.

This perspective is as appropriate to his work on the smaller canvas of Scotland's archaeology as it is to his wider contributions.

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Notes

1. When in the north after he moved to London, for example *en route* for Orkney, Childe often stayed with Robert and Elizabeth Stevenson and their children in Edinburgh. Robert Stevenson studied under Childe at Edinburgh. Mrs Stevenson had also been Childe's student, but at the Institute in London and before her marriage. Robert Stevenson described Childe to his wife as 'the kindest of men', a view shared by Drummond (n.d.:57), and was amongst those who thought that the repression of the Hungarian Uprising in 1956 was what finally put paid to Childe's communism (E. Stevenson, pers. comm.; also Hauser 2008).

2. I owe this view to Audrey Henshall and Gordon Barclay. Margaret Stewart, through the offices of her husband, none the less left a substantial bequest to the University of Edinburgh to support students researching Scottish Beaker and related topics. Coincidentally Margaret Stewart and Audrey Henshall were visiting the chambered cairn at Kindrochat in Perthshire – site of one of Childe's earlier Scottish fieldwork projects (Childe 1931a:33) – when the farmer told them that Childe's death in Australia had just been announced on the radio.

3. This was recounted by Stuart Piggott when the writer was a student at Edinburgh c.1970.

4. For the list of Honorary Members of the Society of Antiquaries of Scotland in 1914 from which these names are taken, see *Proceedings of the Society of Antiquaries of Scotland* 48(1913–1914):xl–xli.

5. A letter (2 January 1918) from the University's Law Agent, Henry Cook, to the then Principal (Sir J. Alfred Ewing) is in the University Secretary's Abercromby file in Edinburgh University Library Special Collections (File 1/5 Faculty of Arts/Archaeology Chair correspondence 1918–1946). Other holdings in Special Collections used in compiling this piece include the *Edinburgh University Calendars* for the years of Childe's tenure, and the printed *Minutes* of the Senatus of the University.

6. Lord Abercromby's legacy was the fourth largest from an individual to the University of Edinburgh in the period 1916–1928 (Appendix on 'Recent Benefactions' in *Edinburgh University Calendar* 1932–1933). Other chairs for which broadly comparable sums were forthcoming include the Chairs of Accounting and of Organization of Industry and Commerce for which (jointly) Edinburgh Chamber of Commerce gave £30,500; the Trustees of the Royal Victoria Hospital Chair of Tuberculosis (£18,300); and the Chair of Mining for which James Hood provided £15,000. Abercromby also left his books and photographs to form the nucleus of a collection 'to be devoted exclusively to the subjects of Archaeology and Anthropology'. Further moneys (one-quarter of Abercromby's estate) came to the University from that estate after the death of his daughter, who had enjoyed the life-rent of it. According to Abercromby's wishes, these additional sums were deployed to assist students of Prehistoric Archaeology with travel in furtherance of their studies. They are still used for this purpose, rather than to fulfil Abercromby's other desire which was to spend them 'in providing an allowance for incumbents *emeriti* of the Chair of Archaeology' (Senatus *Minutes*, 6 November 1924).

7. It is plain from correspondence in the Special Collections and Western Mss Department of the Bodleian Library, Oxford, from Childe to Myres, that Childe was aware by 1925 that a Chair at Edinburgh was soon to be announced. He wrote to Myres from his London address: 'I have just heard that Edinborough [*sic*] University has accepted Lord Abercromby's bequest and will probably proceed to the appointment of a Professor of Prehistory' and then further from the 1917 Club in Gerrard Street in June 1925: 'I gather Edinburgh is only going to offer £700 in which case it is unlikely that either Wace or Macalister will want to apply' (BOD-Myres, box 08, docs 29 (17 June 1925) and 31 (26 June 1925); Margarita Díaz-Andreu is thanked for drawing this correspondence to my attention). Childe's salary at the Royal Anthropological Institute was £750 per annum. Information on professorial salaries in the Scottish universities after the First World War is scarce, but there are strong indications that they had declined in relative terms since the Edwardian period (Anderson 1987:37, table 3). Top professorial salaries then may have been around £1200 per annum.

8. This sum of £16,000 was then judged sufficient to fund a lecturer's salary of £350/£400 per annum, plus class expenses.

9. It was noted that 'The incumbent ... will be required to reside in Edinburgh for part of the year'.

10. I am grateful to Professor Anderson for the information that the term 'Department' as then used in the *University Calendar* was simply a way of classifying courses and had no organizational implications.

11. The importance and interpretative difficulties of the fieldwork at Skara Brae meant that it figured intermittently in the press, across the spectrum from the letters pages of the major Edinburgh and Glasgow dailies to the relatively 'downmarket': for example *The Bulletin and Scots Pictorial*, which reported gleefully on controversies as they emerged in the 'Pertinent or Otherwise' column by 'The Passer-By', probably journalist Donald A. Mackenzie (e.g. 20 and 26 August, 1929; and 18 June 1931).

12. See for example correspondence from J.W. Cursiter and Childe himself in *The Scotsman*, 9 and 11 May 1931.

13. All this information is drawn from the printed *Minutes* of the Edinburgh University Senatus held in Edinburgh University Library Special Collections.

14.

Table 3. *Numbers of full-time undergraduate students in the Faculty of Arts during Childe's tenure (source:* Edinburgh University Calendars*).*

Year	Male	Female	Total incl Termly
1927/28	948	976	2010
1928/29	1004	1051	
1929/30	1013	1012	
1930/31	977	960	
1932/33	932	872	
1933/34	934	783	
1934/35	834	693	
1935/36	821	612	
1936/37	810	598	
1937/38	734	544	
1938/39	750	550	
1939/40	523	481	
1940/41	424	471	
1941/42	350	476	
1942/43	275	553	
1943/44	217	675	
1944/45	262	708	
1945/46	472	926	1613

15. *Former Fellows of the Royal Society of Edinburgh 1783–2002 part 1* (RSE 2006).

16. The three occasions were: 1931 Leonard Woolley; 1935 Louis Leakey; and 1938 Adolf Mahr (from Dublin). By the late 1930s the Munro Lectureship had been transferred to the Faculty of Arts. It is possible that, had it not been for the exceptional circumstances prevailing in wartime, Childe would have held this post less frequently, if at all, thereafter, since by 1937 a Senatus Committee Report noted that its members 'did not regard the present relation between the Munro Lectureship and the Abercromby Chair as an ideal one'. Childe continued to deliver the 10-lecture Munro series during wartime; those of 1942 were on the 'Methods and aims of Soviet Archaeology', attracting the attention of the security services (National Archives, Kew, KV2/2148). The remit of the Munro Lectureship was revised in 1945. During Childe's tenure, moneys drawn from the Munro legacy were also deployed in support of his excavations (see Appendix).

17. The reference to the Austin is from a foolscap typed page initialled 'VGC' and held in the University Secretary's Abercromby Chair file in Edinburgh University Library Special Collections. Clearly written when Piggott was being considered for the Abercromby Chair in 1946, it includes the following: 'He [i.e. Piggott] stayed with me in Scotland in 1930; we visited sites in Argyll and Kintyre in my baby Austin'. Childe had the Terraplane by the end of 1933; a typed Boxing Day letter to a Mrs Dobson who was proposing a visit to the monuments of Scotland and in which Childe commends many examples on the off-shore islands concludes: 'I hope something comes of your plan ... I shall come myself if not digging provided you have a large sea-worthy tseamer [*sic*] or aeroplane or that I need not leave my Terraplane' (letter in the private collection of Lloyd Laing, University of Nottingham).

18. The late Horace Fairhurst of Glasgow University told me that diesel or other fuel was needed to get the Plean experiment alight on 11 March and Euan MacKie has independently heard this story. The meteorological report is from the photocopy of Childe's *Notebook* 59, held

in RCAHMS, Edinburgh. Wallace Thorneycroft, O.G.S. Crawford and Childe paid for Gerhard Bersu and his wife's accommodation when they were refugees from Germany at Blacklunans in Perthshire and working in Scotland at the outbreak of the war (information from Lady Gordon Finlayson in January 1940 in National Archives, Kew security service file KV2/2148/32x).

19. Ann Bridge (Lady O'Malley) dedicated her extraordinary novel, *And Then You Came* (Bridge 1948), to Childe. He appears in it in the guise of Professor Porlock, excavator *extraordinaire* of Argyll vitrified forts. I have been unable as yet to establish whether they knew each other in person. In the volume, she expresses her thanks for assistance to Piggott and Angus Graham (a cousin of her husband; O'Malley 1954:27), but not directly to Childe.

20. Childe's fee from the Ministry of Public Buildings and Works for excavating the Quoyness chambered cairn in 1952 – he was not salaried – was a case of sherry (Lloyd Laing, pers. comm.). Childe was clearly well liked in Orkney, with Jimmy Yorston, once an employee of Walter Grant of Trumland and latterly the foreman of the Orkney Ministry of Works squad, and Mrs Scott, custodian at Unstan cairn, speaking well of him when Anna Ritchie began work on the islands in the late 1960s.

21. Drummond's account (n.d.:77) is that he started to prepare lectures on the Palaeolithic whilst working on material from their Indian expedition with T.T. Paterson in Cambridge over the winter 1938–1939, as Childe

> had told me confidentially he was trying to get me appointed as his assistant. The appointment was finally confirmed the following summer, not long before war broke out. I was to have the official title of part-time lecturer, on a very low salary scale, but my sole obligation normally would be to give a course of fifteen lectures ... on the Palaeolithic ... If I remember right, ... Childe's Chair ... was a part-time one, leaving him free during the summer to go abroad for excavation ... or to collect material for ... his ... books ... However, he wanted to be free occasionally for a longer period than one summer in order to carry out more extensive field work, and it was part of my contract that I should then take over from him and give all his ... lectures when ... my salary would be raised ...

22. H.J.H. Drummond left Edinburgh in 1951 on his appointment as Deputy Librarian, University of Aberdeen, and retired in 1972. He died in 1989. He continued to publish, both works on the Aberdeen University Library collections, and works on archaeology, notably *Soan: The Palaeolithic of Pakistan* (Paterson and Drummond 1962). The post of University Assistant was that subsequently occupied by R.J.C. Atkinson, in due course the first Professor of Archaeology at the University of Wales at Cardiff.

23. Childe frequently maintained (James Graham-Campbell, pers. comm.) that he did not dare post mail in military areas as it would be intercepted by the security services. It was; in May 1941 a letter of Childe's about Orkney fell into the hands of Major Perfect, Scottish Regional Security Officer. Further inquiries revealed that Childe 'was indulging in archaeological pursuits near certain gun sites', but despite Glasgow Police being sure in 1937 that he was a member of the Communist Party, this was not confirmed by others. In any case, the judgement was that 'he is of the progressive intellectual type and not likely to be dangerous' (National Archives, Kew, KV2/2148/35a & 36a).

24. Childe was not impressed by the effectiveness of his successor, Henry Paton, as editor. Childe wrote (5 February 1949) regarding his publication of Rinyo (Childe and Grant 1947): ' ... it was ready two years ago, but, since I left the editorship of P.S.A.S. that publication has been scandalously slow. They will now at last produce a double-volume' (Díaz-Andreu 2007:37). This is the issue comprising volumes 80 and 81, covering 1945–1947.

25. Childe contributed a memoir on Arthur Edwards, complimenting him in these terms: 'Continental travel and regular digestion of foreign periodicals had given him a wider knowledge ... than was possessed by many of his Scottish colleagues since the spacious days of Abercromby and Munro' (1944b:151). Edwards is frequently acknowledged in the prefaces to Childe's books for having proofread them (e.g. 1930a, 1935a).

26. The letter referred to here (14 October 1945) is in Edinburgh University Library Special Collections (Abercromby Chair file 1918–1946).

27. Details of this are given in the *Proceedings of the Society of Antiquaries of Scotland* 81(1946–1947):8–9.

28. This information is drawn from the printed *Minutes* of the Edinburgh University Senatus held in Edinburgh University Library Special Collections, supplemented in the case of the development of the Council for Scottish Archaeology by evidence from its archive (Alan Saville pers. comm.).

29. Childe's declassified Security Service file at the National Archives, Kew (KV2/2148/58a & 61a) contains intercepted correspondence with Peter Cregan, Propaganda Organizer of the Scottish District of the Communist Party, about his lecture on 'Marxism and History' in Glasgow in October 1948. Childe wrote on Athenaeum Club headed paper. Earlier, in 1941, Childe had been watched at meetings by plain-clothes officers while acting as Chairman of the Society for Cultural Relations with the USSR.

30. Kilbride-Jones is the scale in the photograph of the jumbled façade of the Auchnaha, Argyll, chambered cairn (Childe 1932a:417, fig. 2).

31. Some of his Scottish activities are summarily mentioned in his Society of Antiquaries of London on-line obituary (see Society of Antiquaries n.d.). It is not clear to me what his appointment as 'director of excavations for Aberdeenshire and Orkney' means, although he dug importantly for example at the Cullerlie, Aberdeenshire, stone circle and kerb cairns (Kilbride-Jones 1935).

32. This information is in the file mentioned in note 5.

33. Information in the class mark-book of the Department of Prehistoric Archaeology, University of Edinburgh. MacWhite also accompanied Childe to examine the findspot of the Droughdool/Droughduil (Old Luce, Wigtownshire) cinerary urn in the early spring of 1945 (Childe 1945a:168).

34. Horace Fairhurst, a Liverpool geography graduate, was a member of staff of Glasgow University Geography Department (and concurrently a PhD candidate) from the early 1930s (Taylor 1986). Soon after his arrival he began to excavate with Childe and the (Edinburgh) League of Prehistorians, for example at Earn's Heugh (Childe and Forde 1932:153) and Finavon (Childe 1935b:78), where he prepared the site plan; and thereafter he began to direct excavations, for example at the Kildonan galleried dun in Argyll, in his own right. For some years he was the Glasgow Secretary of the League of Prehistorians.

35. The first excavation directed by a woman to be reported in the Society's *Proceedings* was some 20 years earlier (Bate 1909), Benton's article, based on her lecture, appeared in the *Proceedings* in 1931. Her obituary, in which it is mentioned that she met Childe in Greece in the late 1920s, appeared in *Proceedings of the Society of Antiquaries of Scotland* 115(1985):1–2.

36. This information is from a letter in the Bodleian Library, Oxford, to which my attention was kindly drawn by Margarita Díaz-Andreu (BOD-Myres, box 8, doc.41, dated 18 Nov 1928).

37. This letter of 22 February 1946 to the Principal, Sir John Fraser, is in the Abercromby Chair file in Edinburgh University Library Special Collections.

38. Aside from his involvements in politics, such as in the Scottish–USSR Friendship Society (of which he was president in 1933; and to whom his speech was reported to Special Branch in March 1946: National Archives, Kew KV2/2148), Childe participated in Edinburgh's extra-mural programme until the end of his tenure of the Abercromby Chair, for example lecturing in Peebles in 1945 on Russia.

39. *Childe's excavations in Scotland: a list* (see also Fig. 5)

This list does not include non-invasive fieldwork, including sites simply described, sketched, planned, or photographed (e.g. Childe 1932a, 1935c, 1944a; Childe and Graham 1943a; Childe and Taylor 1939a), and summarily indicates whether the field records survive. It is noteworthy that all but one (no. 13) are published. Compare the distribution map provided by Trigger (1980:78) where some initial field reconnaissance – notably on Islay on which Childe spent two days (letter from Childe to Piggott 12 August 1945, Box 36, Piggott Archive, Oxford) – is over-emphasized (see also: Ralston 1988).

Key: **bold** = notebooks survive in University of London Institute of Archaeology (with photocopies in RCAHMS); *italics* = names of students, workmen and collaborators (in the field); plain = no notebooks known to the author.

In the late 1930s, Childe also apparently took part in an exercise in which Walter Grant partially exposed the walls of a Late Norse hall near the Bay of Swandro, Westness, Rousay, Orkney (Graham-Campbell 2004, 203), but the writer meantime has insufficient evidence on Childe's contribution to include this in the present list. (N.B. The excavations at **Quoyness, Orkney,** 1951/1952, and **Maes Howe, Orkney,** 1954/1955, conducted when Childe was Director of the Institute in London, are not considered here.)

1. Skara Brae, Sandwick, Orkney 1928/1929/1930/1931; numerous publications singly or with others especially from 1928 to 1932. Neolithic settlement. HY 231187.

2. Kindrochet/Kindrochat, Comrie, Perthshire (Perth and Kinross) 1929/1930 – Childe 1930b, 1931a. Chambered cairn – Childe's trenches are still open. An early campaign of the Edinburgh League of Prehistorians. *Margaret Mitchell.* NN 723229.

3. Earn's Heugh, Tun Law, Coldingham, Berwickshire/Scottish Borders (2 forts) 1931; Childe and Forde 1932a (with Daryll Forde and the participation of several named members of the Edinburgh League of Prehistorians; *Margaret Mitchell* appears in photos of the site held in RCAHMS). NT 892691.

4. Castle Law, Glencorse, Midlothian 1931/1932 – Childe 1933a, 1933b. *Margaret Mitchell* appears in photographs of the site held in RCAHMS. Fort and souterrain. NT 229638..

5. Old Keig, Keig, Aberdeenshire – 1932/1933 – Childe 1933c, 1934a. *H.E. Kilbride-Jones.* Recumbent stone circle. Kilbride-Jones (1935) challenged Childe's interpretation of the structural sequence in relation to the pottery. NJ 596194.

6. Finavon, Oathlaw, Angus 1933/1934/1935 Childe 1935b,1936a. Fort. Childe (1935a:78) provides a full list of thanks to those who assisted in the project, including both professional labouring help, a range of English visitors, *W. Thorneycroft, H. Fairhurst* (who contoured the plan), and members of the League of Prehistorians. NO 506556.

7. Carminnow(s) promontory fort, Carsphairn, Stewartry of Kirkcudbright (Dumfries and Galloway) 1935; Childe 1936a. Rescue work on the defences in advance of the submergence of the site behind a dam. Assisted by (Edinburgh) League of Prehistorians – *Miss Stuart* and *Mr Turner*. NX 607907.

8. Achnamara, North Knapdale, Argyll (Argyll and Bute) round cairn. 1936; Childe 1937a. This somewhat denuded cairn, in which one of three cists had not previously been damaged, was excavated, using local labour and at the instigation of Mr J.S. Richardson, Inspector of Ancient Monuments. NR 783877.

9. Rahoy, Torr an Fhamhair, Morvern, Argyll (Argyll and Bute) 1936/1937 *Wallace Thorneycroft*. Childe and Thorneycroft 1938a. Vitrified dun. The cut where Childe and Thorneycroft dynamited through the vitrified *enceinte* is still apparent. NM 633564.

10. Jarlshof, Dunrossness, Shetland broch, wheelhouse, settlement 1937. The 1937 season (excavation was already under way when Childe arrived) was conducted in association with Mr J.S. Richardson of the Ministry of Works. It was focused on the early occupation sequence in the NE part of the site (Childe 1938a). *J Yorston* present (Childe's *Notebook* 57). HU 398095.

11. Braes of Rinyo, Rousay and Egilsay, Orkney 1938/1946: Neolithic settlement. Childe and Grant 1939a, 1947a. *J Yorston, C Flett.* The second season took place in July and August 1946, immediately preceding Childe's translation to London. The 'Second Report', not in print until 1949, was read to the Society in March 1947, it is presumed by Childe. HY 439322.

12. Thornton, Innerwick, East Lothian: cist with beaker 1939. Childe and Low 1939a. Childe visited the cist, discovered during agricultural operations, and recovered additional human bone belonging to the skeleton of a child. NT 7373.

13. Berries Hill/Castle Crawford Farm, Crawford, (South) Lanarkshire fort 1939. Although called 'Castle Hill' by Childe, this is not the inventoried Castle Hill fort (RCAHMS 1978, 97, no.223), but rather Berries Hill (RCAHMS 1978:90–92, no.214). Childe excavated according to his manuscript notebook in the vicinity of the rampart in May/June 1939 with *J.I. Sutherland* as foreman, and other labourers (*Notebook 65*; Childe 1939a: 257), discovering Iron Age material but no secure post-holes. NS 951218.

14. Brackmont Mill, Leuchars, Fife cremation cemetery 1939. This rescue excavation in a sand quarry was conducted by the proprietor and Dr J.B. Mears, following earlier work in the vicinity. After the sudden death of the latter, writing up of the project and description of the cinerary urns was undertaken by Childe. Childe and Waterston 1942a. NO 436223.

15. Cairngryf(f)e Hill, Pettinain, (South) Lanarkshire 1939/1940; Childe 1941b. Fort. Like Kaimes Hill, this fort was being destroyed by wartime quarrying (Cloburn Quarry), and was examined with a team of labourers supplied by the County Council in advance of further destruction of this scheduled monument, in autumn 1939 and again the following summer. *Notebook 58* makes plain *Stuart Cruden's* significant role in the 1940 campaign. NS 943411.

16. Kaimes Hill, Ratho, Midlothian fort 1940; Childe 1941a. Childe's excavations, on the defences of this multivallate fort in relation to the internal occupation evidence, were the first (a consent condition on this scheduled site) at a hill progressively removed by quarrying. NT 131665.

17. Freswick Links, Canisbay, Caithness (Highland Region) multi-period complex 1941; Childe 1943a. Parts of this coastal sand site, much affected by deflation which exposes a wide variety of archaeological evidence, had already been examined by the likes of A.J.H. Edwards and subsequently by A.O. Curle before Childe's intervention. Childe's work was occasioned by storm damage in 1940, coupled with the need for sand extraction in wartime. He confirmed elements already identified by Curle, including an Iron Age midden and Late Norse house at Lady's Brow, and demonstrated that these remains were more extensive than previously demonstrated. ND 377675.

18. Melgund Muir, Aberlemno, Angus encrusted cinerary urn 1943; Childe 1943b. Discovered by the farmer, Mr S.A. Smith and signalled to J.S. Richardson of the Ministry of Works, this encrusted cinerary urn, inverted in a protecting slab-lined pit, was excavated by Childe, assisted by the farmer. NO 553545.

19. Nunraw Barns, Garvald and Bara, East Lothian – beaker cist Childe et al. 1944a:no.5. Discovered while ploughing in January 1944, this cist, which contained a beaker and the inhumation of a child, was excavated by Childe assisted by the local church minister. NT 598700.

20. Droughduil/Droughdool, Old Luce, Wigtownshire (Dumfries and Galloway) cremation grave 1945. Childe examined the site of the discovery of a cinerary urn in early spring 1945 (including sieving of spoil) accompanied by *Eoin MacWhite*. Childe 1945a. NX 156568.

40. I owe this story to Elizabeth Stevenson. Sir John Clerk of Penicuik, 2nd Baronet, 1676–1755, was a major figure of the Scottish Enlightenment.

41. I could find no trace of any enduring coolness between Piggott and Childe in the wake of this review in an initial search of correspondence at the Piggott Archive, Institute of Archaeology, University of Oxford. They had known each other since the 1930s; and Piggott had even contemplated asking Childe to act as chaperone on his first foreign venture with his then future wife Peggy (Ralston & Megaw 2004; also letter in Box 36, Piggott Archive, Oxford; sent by Piggott to Peggy from the Manor, Avebury). Childe was able to write teasingly to Piggott on another topic in May 1948 – 'Congratulations on your revolutionary courage – you ought to be accepted by the C.P.' In any case, Childe had forewarned Piggott, then at Headquarters RAF India in December 1943: 'Am myself absorbed in preparing Rhind Lectures on barbarian societies in Scotland. I fear the most novel things will be the quotations from Engels' (letter Childe–Piggott 27 December 1943; Box 25, Piggott Archive, Oxford).

REFERENCES

Note: This list includes all the published sources used in this piece. It also comprises the complete listing of Childe's writings on Scottish archaeology, as presently known to the author. For Childe's contributions, the convention adopted here is that only those distinguished by 'a, b, etc.' are directly cited in text above, and these precede others of the same date in the list sequence. Childe's co-authored works appear in the list according to their date.

ABERCROMBY, J., 1912. *A Study of the Bronze Age Pottery of Great Britain and Ireland*. 2 vols. Oxford: Clarendon Press.

ANDERSON, J., 1883. *Scotland in Pagan Times: The Iron Age*. Edinburgh: David Douglas.

ANDERSON, R.D., 1987. Scottish university professors 1800–1939: profile of an elite. *Scottish Economic and Social History* 7:27–54.

ANDERSON, R.D., 2003. Part III: The construction of a modern university. In R.D. Anderson, M. Lynch and N. Phillipson, *The University of Edinburgh: An Illustrated History*: 103–207. Edinburgh: Edinburgh University Press.

BATE, D.M.A., 1909. Notice of the excavation of a cairn at Mossknowe, on the Kirtle Water, Dumfriesshire. *Proceedings of the Society of Antiquaries of Scotland* 43(1908–1909):165–169.

BELL, A.S. ed., 1981. *The Scottish Antiquarian Tradition: Essays to Mark the Bicentenary of the Society of Antiquaries of Scotland and its Museum, 1780–1980*. Edinburgh: John Donald.

BENTON, S., 1931. The excavation of the Sculptor's Cave, Covesea, Morayshire. *Proceedings of the Society of Antiquaries of Scotland* 65(1930–31):177–216.

BRADLEY, R., 2004. Stuart Piggott, Ancient Europe and the prehistory of northern Britain. In I.A.G. Shepherd and G.J. Barclay (eds), *Scotland in Ancient Europe: The Neolithic and Bronze Age of Scotland*: 3–11. Edinburgh: Society of Antiquaries of Scotland.

BRAIDWOOD, R.J., 1989. Robert J. Braidwood. In C. Chippindale and G. Daniel (eds), *The Pastmasters – Eleven Modern Pioneers of Archaeology*: 89–99. London: Thames & Hudson.

BREEZE, D.J. ed., 1984. *Studies in Scottish Antiquity*. Edinburgh: John Donald.

BRIDGE, A., 1948. *And Then You Came*. London: Chatto & Windus.

CALLANDER, J.G., 1931. Skara Brae: its culture and its period. *Proceedings of the Society of Antiquaries of Scotland* 65(1930–1931):103–114.

CALLANDER, J.G., W.G. GRANT and A. LOW, 1934. A long stalled chambered cairn or mausoleum (Rousay type) near Midhowe, Rousay, Orkney. *Proceedings of the Society of Antiquaries of Scotland* 68(1933–1934):320–350.

CHAMPION, T. 1996. Three nations or one? Britain and the national use of the past. In M. Díaz-Andreu and T.C. Champion (eds), *Nationalism and Archaeology in Europe*: 119–145. London: UCL Press.

CHILDE, V.G., 1928a. Relics of human sacrifice in the Orkneys. *Illustrated London News* 173(15 September):448–449.

CHILDE, V.G., 1929. The decorative art of the prehistoric village of Skara Brae, Orkney. *IPEK (Jahrbuch für prähistorische und ethnographische Kunst)*: 53–55.

CHILDE, V.G. and J.W. PATERSON, 1929. Provisional report on the excavations at Skara Brae, and on the finds from the 1927 and 1928 campaigns. *Proceedings of the Society of Antiquaries of Scotland* 63(1928–29):225–280.

CHILDE, V.G., 1930a. *The Bronze Age*. Cambridge: Cambridge University Press.

CHILDE, V.G., 1930b. Excavations in a chambered cairn at Kindrochat, near Comrie, Perthshire. *Proceedings of the Society of Antiquaries of Scotland* 64(1929–30): 264–272.

CHILDE, V.G., 1930. The early colonization of north-east Scotland. *Proceedings of the Royal Society of Edinburgh* 50:51–78.

CHILDE, V.G., 1930. Operations at Skara Brae during 1929. *Proceedings of the Society of Antiquaries of Scotland* 64(1929–30):158–190.

CHILDE, V.G., 1931a. The chambered long cairn at Kindrochat, near Comrie, Perthshire. *Proceedings of the Society of Antiquaries of Scotland* 65(1930–31): 281–293.

CHILDE, V.G., 1931b. Skara Brae; a 'Stone Age' village in Orkney. *Antiquity* 5(17): 47–59.

CHILDE, V.G., 1931c. Final report on the operations at Skara Brae. *Proceedings of the Society of Antiquaries of Scotland* 65(1930–31):27–77.

CHILDE, V.G. (with T.H. BRYCE and D.M.S. WATSON), 1931a. *Skara Brae: A Pictish Village in Orkney*. London: Kegan Paul, Trench, Trubner and Co.

CHILDE, V.G., 1932a. Chambered cairns near Kilfinan, Argyll. *Proceedings of the Society of Antiquaries of Scotland* 66(1931–32):415–425.

CHILDE, V.G., 1932. Age of Skara Brae. *Man* 32(August):191.

CHILDE, V.G., 1932. Scottish notes. *Proceedings of the Prehistoric Society of East Anglia* 7(1):129–130.

CHILDE, V.G. and C.D. FORDE, 1932a. Excavations in two Iron Age forts at Earn's Heugh, near Coldingham. *Proceedings of the Society of Antiquaries of Scotland* 66(1931–32):152–183.

CHILDE, V.G., 1933a. Excavations at Castlelaw Fort, Midlothian. *Proceedings of the Society of Antiquaries of Scotland* 67(1932–33):362–388.

CHILDE, V.G., 1933b. Excavations at Castlelaw, Midlothian and the small forts of north Britain. *Antiquaries Journal* 13:1–12.

CHILDE, V.G., 1933c. Trial excavations at the Old Keig stone circle, Aberdeenshire. *Proceedings of the Society of Antiquaries of Scotland* 67(1932–33):37–53.

CHILDE, V.G., 1933. *Ancient Dwellings at Skara Brae*. Edinburgh: HMSO (HM Office of Works, official guide).

CHILDE, V.G., 1933. Scottish megalithic tombs and their affinities. *Transactions of the Glasgow Archaeological Society new series* 8(3):120–137.

CHILDE, V.G., 1933. Notes on excavations in Scotland in 1933. *Proceedings of the Prehistoric Society of East Anglia* 7(2):269.

CHILDE, V.G., 1934a. Final report on the excavation of the stone circle at Old Keig, Aberdeenshire. *Proceedings of the Society of Antiquaries of Scotland* 68(1933–34): 372–393.

CHILDE, V.G., 1934. The chambered tombs of Scotland in relation to those of Spain and Portugal. *Annuario del Cuerpo Facultativo de Archiveros, Bibliotecarios Y Archeólogos* 1:1–13.

CHILDE, V.G., 1934. Neolithic settlement in the west of Scotland. *Scottish Geographical Magazine* 50(1):18–25.

CHILDE, V.G., 1934. Notes on excavations in Scotland during 1934. *Proceedings of the Prehistoric Society of East Anglia* 7(3):413–414.

CHILDE, V.G., 1935a. *The Prehistory of Scotland*. London: Kegan Paul, Trench, Trubner and Co.

CHILDE, V.G., 1935b. Excavation of the vitrified fort of Finavon, Angus. *Proceedings of the Society of Antiquaries of Scotland* 69(1934–35):49–80.

CHILDE, V.G., 1935c. Notes of some duns in Islay. *Proceedings of the Society of Antiquaries of Scotland* 69(1934–35):81–84.

CHILDE, V.G., 1935. Le rôle de l'Ecosse dans la civilisation préhistorique de l'Atlantique. *Préhistoire* 4:7–21.

CHILDE, V.G., 1935. Notes on excavations in Scotland during 1935. *Proceedings of the Prehistoric Society* 1:142–144.

CHILDE, V.G., 1936a. (1) Carminnow fort; (2) supplementary excavations at the vitrified fort of Finavon, Angus; and (3) some Bronze Age vessels from Angus. *Proceedings of the Society of Antiquaries of Scotland* 70(1935–1936):341–356.
CHILDE, V.G., 1936b. *Man Makes Himself*. London: Watts.
CHILDE, V.G., 1936. Notes on excavations in Scotland during 1936. *Proceedings of the Prehistoric Society* 2(2):224–226.
CHILDE, V.G., 1936. Scottish tracked stones and their significance. *Proceedings of the Prehistoric Society* (N.S.) 2(2):233–236.
CHILDE, V.G., 1937a. A round cairn near Achnamara, Loch Sween, Argyll. *Proceedings of the Society of Antiquaries of Scotland* 71(1936–37):84–89.
CHILDE, V.G., 1937. Notes on excavations in Scotland during 1937. *Proceedings of the Prehistoric Society* 3:454–455.
CHILDE, V.G., 1938a. Excavations carried out by H.M. Office of Works in the Bronze-Age levels at Jarlshof in 1937. *Proceedings of the Society of Antiquaries of Scotland* 72(1937–1938):348–363.
CHILDE, V.G., 1938. Notes on excavations in Scotland during 1938. *Proceedings of the Prehistoric Society* 4:323–324.
CHILDE, V.G. and W. THORNEYCROFT, 1938a. The vitrified fort at Rahoy, Morvern, Argyll. *Proceedings of the Society of Antiquaries of Scotland* 72(1937–1938):23–43.
CHILDE, V.G. and W. THORNEYCROFT, 1938b. The experimental production of the phenomena distinctive of vitrified forts. *Proceedings of the Society of Antiquaries of Scotland* 72(1937–1938):44–55.
CHILDE, V.G., 1939a. Notes on excavations in Scotland during 1939. *Proceedings of the Prehistoric Society* 5:256–257.
CHILDE, V.G., 1939. Some results of archaeological research in Scotland 1932–1937. *University of London Institute of Archaeology Second Annual Report*: 29–45.
CHILDE, V.G. and W.G. GRANT, 1939a. A Stone-Age settlement at the Braes of Rinyo, Rousay, Orkney (first report). *Proceedings of the Society of Antiquaries of Scotland* 73(1938–1939):6–31.
CHILDE, V.G. and A. LOW, 1939a. A Beaker burial from Innerwick, East Lothian. *Proceedings of the Society of Antiquaries of Scotland* 73(1938–39):318–319.
CHILDE, V.G. and J. TAYLOR, 1939a. Rock scribings at Hawthornden, Midlothian. *Proceedings of the Society of Antiquaries of Scotland* 73(1938–1939):316–318.
CHILDE, V.G., 1940a. *Prehistoric Communities of the British Isles*. London and Edinburgh: Chambers.
CHILDE, V.G., 1940. *Prehistoric Scotland*. London: Bell and Sons (Historical Association Pamphlet 115).
CHILDE, V.G., 1941a. The defences of Kaimes hill-fort, Midlothian. *Proceedings of the Society of Antiquaries of Scotland* 75(1940–1941):43–54.
CHILDE, V.G., 1941b. Excavation of the prehistoric fort on Cairngryfe Hill, near Lanark. *Proceedings of the Society of Antiquaries of Scotland* 75(1940–1941): 213–218.
CHILDE, V.G., 1941. Rock engravings in Scotland. Antiquity 15(59):290–291.
CHILDE, V.G., 1942a. *What Happened in History*. Harmondsworth: Allen Lane (Penguin).
CHILDE, V.G., 1942b. The chambered cairns of Rousay. *Antiquaries Journal* 22:139–142.
CHILDE, V.G., 1942. Rare flint in Hawick Museum. *Transactions of the Hawick Archaeological Society* [for 1942]:31
CHILDE, V.G. and D. WATERSTON, 1942a. Further urns and cremation burials from Brackmont Mill, near Leuchars, Fife. *Proceedings of the Society of Antiquaries of Scotland* 76(1941–1942):84–93.
CHILDE, V.G., 1943a. Another late Viking house at Freswick, Caithness. *Proceedings of the Society of Antiquaries of Scotland* 77(1942–1943):5–17.
CHILDE, V.G., 1943b. An encrusted urn from Aberlemno, Angus. *Proceedings of the Society of Antiquaries of Scotland* 77(1942–1943):189–191.

CHILDE, V.G., 1943c. A hoard of bronzes from Ballymore, Cowall, Argyll. *Proceedings of the Society of Antiquaries of Scotland* 77(1942–43):184–187.

CHILDE, V.G., 1943. The prehistoric archaeology of north-east Scotland. In J.F. Tocher (ed.), *The Book of Buchan*: 62–80. Aberdeen: The Buchan Club.

CHILDE, V.G. and A. GRAHAM, 1943a. Some notable prehistoric and medieval monuments recently examined by the Royal Commission on Ancient and Historical Monuments of Scotland. *Proceedings of the Society of Antiquaries of Scotland* 77(1942–1943):31–49.

CHILDE, V.G., 1944a. *Progress and Archaeology*. London: Watts.

CHILDE, V.G., 1944b. Memoir: Arthur J. H. Edwards; Director of the Museum. *Proceedings of the Society of Antiquaries of Scotland* 78(1943–1944):150–151.

CHILDE, V.G., 1944c. An unrecognized group of chambered cairns. *Proceedings of the Society of Antiquaries of Scotland* 78(1943–1944):26–39.

CHILDE, V.G., 1944. The bronze blade from Craigscorry, near Beauly. *Proceedings of the Society of Antiquaries of Scotland* 78(1943–1944):138.

CHILDE, V.G., A.J.H. EDWARDS, A. LOW and M. MACDOUGALL, 1944a. Newly-discovered short-cist burials with Beakers. *Proceedings of the Society of Antiquaries of Scotland* 78(1943–1944):106–119.

CHILDE, V.G., 1945a. An unusual cinerary urn from Droughdool, near Dunragit, Wigtownshire. *Proceedings of the Society of Antiquaries of Scotland* 79(1944–1945):168–170.

CHILDE, V.G., 1945. Prehistoric cereals from Scotland. *Proceedings of the Society of Antiquaries of Scotland* 79(1944–1945):167.

CHILDE, V.G., 1946a. *Scotland Before the Scots (being the Rhind lectures for 1944)*. London: Methuen.

CHILDE, V.G., 1946. A bronze-worker's anvil and other tools recently acquired by the Inverness Museum, with a note on another Scottish anvil. *Proceedings of the Society of Antiquaries of Scotland* 80(1945–1946):8–11.

CHILDE, V.G., 1947. Megalithic tombs in Scotland and Ireland. *Transactions of the Glasgow Archaeological Society* 11:7–21.

CHILDE, V.G. and W.G. GRANT, 1947a. A Stone Age settlement at the Braes of Rinyo, Rousay, Orkney (second report). *Proceedings of the Society of Antiquaries of Scotland* 81(1946–1947):16–42.

CHILDE, V.G., 1952a. Re-excavation of the chambered cairn of Quoyness, Sanday, on behalf of the Ministry of Works in 1951–2. *Proceedings of the Society of Antiquaries of Scotland* 86(1951–1952):121–139.

CHILDE, V.G. and W.D. SIMPSON, 1952. *Scotland: Illustrated Guide to Ancient Monuments*. Edinburgh: HMSO.

CHILDE, V.G., 1956a. Maes Howe. *Proceedings of the Society of Antiquaries of Scotland* 88(1954–1956):155–172.

CHILDE, V.G., 1958a. Retrospect. *Antiquity* 32(126):69–74.

CHILDE, V.G., 1962. The earliest inhabitants/The Bronze Age. In F.T. Wainwright (ed.) *The Northern Isles*: 9–25/44–52. Edinburgh. Nelson.

CLARKE, D.V., 1976. *The Neolithic Village at Skara Brae, Orkney 1972–73 Excavations: An Interim Report*. Edinburgh: Department of the Environment/HMSO.

CRAW, J.H., 1930–1931. Two urns found at Lintlaw, Berwickshire and the excavation of a cairn at Drumelzier, Peebles-shire. *Proceedings of the Society of Antiquaries of Scotland* 65:359–372.

CRUDEN, S., 1957. Memorial of Professor V. Gordon Childe. *Proceedings of the Society of Antiquaries of Scotland* 90(1956–1957):256–259.

DÍAZ-ANDREU, M., 2007. Internationalism in the invisible college; political ideologies and friendships in archaeology. *Journal of Social Archaeology* 7(1):29–48.

DRUMMOND, H.J.H., n.d. Ancestry and Early Life 1912–51. Aberdeen University Library Special Collections MS 3319 (donated 1989).

GAIR, G.R., 1930/1931. Editorial. *Proceedings of the Edinburgh League of Prehistorians* 1(1):iii.

GRAHAM, A., 1981. In Piam Veterum Memoriam. In A.S. Bell (ed.), *The Scottish Antiquarian Tradition: Essays to Mark the Bicentenary of the Society of Antiquaries of Scotland and its Museum, 1780–1980*: 212–226. Edinburgh: John Donald.

GRAHAM-CAMPBELL, J., 2004. 'Danes ... in this Country': discovering the Vikings in Scotland. *Proceedings of the Society of Antiquaries of Scotland* 134:201–239.

GRANT, W.G. and D. WILSON 1943. The Knowe of Lairo, Rousay, Orkney (with a Note on the Relics by V.G. Childe, p. 26). *Proceedings of the Society of Antiquaries of Scotland* 77 (1942–1943):17–26.

GREEN, S., 1981. *Prehistorian: A Biography of V. Gordon Childe*. Bradford-on-Avon: Moonraker Press.

HARDING, D.W., 2008. Abercromby and After: a History of the Abercromby Chair. URL (consulted 7 June 2008): http://dwharding.com/abercromby.html

HAUSER, K., 2008. *Bloody Old Britain: O.G.S. Crawford and the Archaeology of Modern Life*. London: Granta Books.

ISSERLIN, B.S.J. and J. DU PLAT TAYLOR, 1974. *Motya: a Phoenician and Carthaginian City in Sicily. 1: Fieldwork and Excavation*. Leiden: Brill.

KILBRIDE-JONES, H.E., 1931/1932. Editorial. *Transactions of the League of Prehistorians* 1(2):iii.

KILBRIDE-JONES, H.E., 1932/1933. Editorial. *Transactions of the League of Prehistorians* 1(3):ii.

KILBRIDE-JONES, H.E., 1935. An account of the excavation of the stone circle at Loanhead of Daviot, and of the standing stones of Cullerlie, Echt, both in Aberdeenshire, on behalf of HM Office of Works. *Proceedings of the Society of Antiquaries of Scotland* 69(1934–1935):168–214.

KILBRIDE-JONES, H.E., 1994. Postscript [recollection of Childe the man]. In D.R. Harris (ed.), *The Archaeology of V. Gordon Childe: Contemporary Perspectives*: 135–139. London: UCL Press.

KLEJN, L.S., 1994. Childe and Soviet archaeology: a romance. In D.R. Harris (ed.), *The Archaeology of V. Gordon Childe: Contemporary Perspectives*: 75–93. London: UCL Press.

LANE, A. and E. CAMPBELL, 2000. *Dunadd: an Early Dalriadic Capital*. Oxford: Oxbow (Cardiff Studies in Archaeology).

MCLAREN, C., 1986. Interview with H.J.H. Drummond (d.1989), University Librarian. Aberdeen: unpublished manuscript. Aberdeen University Special Libraries and Archives, University of Aberdeen Oral History Project MS 3620/45.

MCNAIRN, B., 1980. *The Method and Theory of V. Gordon Childe*. Edinburgh: Edinburgh University Press.

MIDDLETON, P., 1934/1935. Editorial. *Transactions of the League of Prehistorians* 1(5):ii.

MITCHELL, M.E.C., 1934. A new analysis of the Early Bronze Age Beaker pottery of Scotland. *Proceedings of the Society of Antiquaries of Scotland* 68(1933–1934):132–189.

MUNRO, R., 1882. *Ancient Scottish Lake Dwellings or Crannogs*. Edinburgh: David Douglas.

MUNRO, R., 1899. *Prehistoric Scotland and its Place in European Civilisation*. Edinburgh and London: William Blackwood.

O'MALLEY, O., 1954. *The Phantom Caravan*. London: John Murray.

O'SULLIVAN, M., 1998. Eoin MacWhite: archaeologist, scholar, diplomat (1923–1972). *Journal of Iberian Archaeology* 0:133–142.

PATERSON, T.T. and H.J.H. DRUMMOND, 1962. *Soan: The Palaeolithic of Pakistan*. Karachi: Department of Archaeology Government of Pakistan.

PIGGOTT, S., 1947 Review of Childe, V.G. 1946 Scotland Before the Scots. *Man* 47 (February):31–32.

PIGGOTT, S., 1948. The excavations at Cairnpapple Hill, West Lothian, 1947–48. *Proceedings of the Society of Antiquaries of Scotland* 82(1947–1948):68–123.

PIGGOTT, S., 1958a. Vere Gordon Childe 1892–1957. *Proceedings of the British Academy* 44:305–312.

PIGGOTT, S., 1958b. Native economies and the Roman occupation of North Britain. In I.A. Richmond (ed.), *Roman and Native in North Britain*: 1–27. Edinburgh: Thomas Nelson.

RCAHMS (Royal Commission on the Ancient and Historical Monuments of Scotland), 1946. *Twelfth Report with an Inventory of the Ancient Monuments of Orkney & Shetland*. 3 vols. Edinburgh: HMSO.

RCAHMS (Royal Commission on the Ancient and Historical Monuments of Scotland), 1978. *Lanarkshire: an Inventory of the Prehistoric and Roman Monuments*. Edinburgh: HMSO.

RALSTON, I., 1988. Appendix 2: Department of Archaeology: field projects by present and past members of the Department 1927–1987: Scotland. *University of Edinburgh Department of Archaeology 34th Annual Report*:49–53.

RALSTON, I., 2003. Scottish roundhouses: the early chapters. *Scottish Archaeological Journal* 25(1):1–26.

RALSTON, I. and V. MEGAW, 2004. Beyond barbarian Europe: Stuart Piggott 1910–1996: an appreciation. In I.A.G. Shepherd and G.J. Barclay (eds), *Scotland in Ancient Europe: the Neolithic and Bronze Age of Scotland*: 13–27. Edinburgh: Society of Antiquaries of Scotland.

REYNOLDS, D.M. and J.N.G. RITCHIE, 1985. Walter Gordon Grant: an archaeological appreciation. *Proceedings of the Society of Antiquaries of Scotland* 115:67–73.

RSE, 2006. *Former Fellows of the Royal Society of Edinburgh 1783–2002 part 1*. URL (consulted 17 June 2009): http://www.rse.org.uk/fellowship/fells_indexp1.pdf

SHARPLES, N., 1996. Nationalism or internationalism; the problematic Scottish experience. In J.A. Atkinson, I. Banks and J. O'Sullivan, J. (eds), *Nationalism and Archaeology*: 77–88. Glasgow: Cruithne Press.

SMITH, I.F., 1955. Bibliography of the publications of Professor V. Gordon Childe. *Proceedings of the Prehistoric Society* 21:295–304.

SOCIETY OF ANTIQUARIES, n.d. *Obituary Archive: H.E. Kilbride-Jones*. Society of Antiquaries of London. URL (consulted 17 June 2009): http://www.sal.org.uk/obituaries/Obituary%20archive/howard-jones

STEVENSON, R.B.K., 1955. Pins and the chronology of the brochs. *Proceedings of the Prehistoric Society* 21:282–94.36

STEVENSON, R.B.K., 1981. The Museum, its beginnings and its development. Part II: The National Museum to 1954. In A.S. Bell (ed.), *The Scottish Antiquarian Tradition: Essays to Mark the Bicentenary of the Society of Antiquaries of Scotland and its Museum, 1780–1980*:142–211. Edinburgh: John Donald.

TAYLOR, D.B., 1986. Appreciation: Dr Horace Fairhurst. *The Scotsman* 14 July: 6.

TRIGGER, B.G., 1980. *Gordon Childe: Revolutions in Archaeology*. London: Thames & Hudson.

BIOGRAPHICAL NOTE

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APPENDIX

AN ACCOUNT OF THE EDINBURGH LEAGUE OF PREHISTORIANS 1929–1948

A reviewer of this article in its first draft noted the exclusion of the Edinburgh League of Prehistorians (ELP). The writer's rationale was straightforward: beyond the standard view, reproduced hereafter, I then knew very little about it, and had few clues how to uncover relevant information. The following account seeks to rectify this perfectly fair criticism, and consists in its entirety of new material that was not considered in the lectures from which this article derives.

The prevailing views of the ELP are those expressed respectively by Green and by Kilbride-Jones:

> Whilst at Edinburgh, Gordon Childe founded an archaeological society which he called the Edinburgh League of Prehistorians, with an intentional similarity to the title 'Young Communists' League'. Many of his keener students were members, and as well as attending lectures from visiting archaeologists, they spent many weekends and vacations excavating with the professor. (Green 1981:67)

> Generally cold-shouldered by his colleagues in Scotland, and because of an unwillingness to accept his credentials, he founded the League of Prehistorians with me as its secretary, to be a vehicle for his views. Subscription five shillings per year. Even the low subscription rate did not encourage people to join the Society, so it folded up after three years. (Kilbride-Jones 1994:137)

In fact, as so often, Childe's involvement was perhaps less dominant than these brief accounts and the received wisdom suggest. Although he was an Honorary President from the outset, he was in fact only its third President – albeit from 1932 until 1946. Other senior academics were involved beyond Edinburgh and, within the University, its Lecturer in Classical Archaeology, Mr C.R. Wason (also a resident of the Hotel de Vere in Eglinton Crescent) played a part, particularly when Childe was absent elsewhere or through ill-health. It should, however, be noted that the Edinburgh Police were interested in both men, the Chief Constable reporting to the security services in November 1936 that Childe's address to the Left

Book Club in the city had endorsed 'Wason's Peace Plan' (National Archives, Kew KC2/2148/28a). The following account should thus be regarded as a preliminary view of the ELP.

The Young Communists' League (YCL) was set up in Britain in 1921 through the merger of pre-existing organizations, including the Young Workers' League. Such organizations loosely mirrored the development of KOMSOMOL, the 'Communist Union of Youth' wing of the Communist Party of the Soviet Union, which had been set up in 1918. YCL, like its parent body, the Communist Party of Great Britain, has had a chequered recent history, but is still operational (http://www.ycl.org.uk/). But in the 1920s and thereafter, the use of the word 'League' had wider resonances, most notably the 'League of Nations' that was an outcome of the Paris Peace Conference of 1919. Indeed Childe was also Chairman of the Edinburgh Branch of the India League, which was set up in late 1938 (*Edinburgh Evening Dispatch* 15 November 1938). Rather than making any assumption about the possible political colour of the ELP, it seems preferable to examine how its name came about and what can be reconstituted of its activities, as a window into 1930s' archaeology in Edinburgh. This is to some extent possible, because of the recovery of the *Minutes* of the ELP, and its publications (for which I am much indebted to Pat Storey).

Student archaeological societies within the universities were not a commonplace before, or indeed in, the 1930s. A 'prehistoric anthropological club' had been founded as early as 1907 at Cambridge, and there was certainly a University Archaeological Society at Oxford by the mid-1920s. It was not, however until 1935 – some years after the establishment of the Edinburgh League of Prehistorians – that Thurstan Shaw and Rainbird Clarke founded the Cambridge University Field Archaeological Society with the express intention of forming a group which could assist the Fenland Research Committee and J.G.D. Clark in his fieldwork. By this time, the word 'club' with its associations with drinking, was eschewed in favour of the more academic 'society' (Smith and Shaw, pers. comm.). But a few years earlier, perhaps the term 'league' carried the same connotations of seriousness of purpose. In any case, it transpires that the original name proposed for the ELP – although not adopted – was very different.

The ELP was founded in late 1929 (although formally only in March 1930 when its initial constitution was adopted), but seemingly already unofficially earlier in the preceding year, on the occasion of the first excavations at Kindrochat, Perthshire – the first fieldwork conducted by Childe with his students and independently of the Ministry of Works and the use of a squad of labourers (cf. Skara Brae). The League is said to have been founded 'by students and ex-students of the Department of Prehistoric Archaeology' (Middleton 1934/1935:ii), 'for the purpose of furthering research in Prehistoric Archaeology and Anthropology', with 'the sympathetic support of Professor Childe' and the 'approval of the Society of Antiquaries of Scotland' (Gair 1930/1931:iii), which nominated a member (initially A.O. Curle, then Director of the Royal Scottish Museum) to its governing committee. Its original committee, meeting in 1929 under the chairmanship of A.G. Jackson, and seemingly without Childe's direct involvement, proposed that its title

be the 'Palaeoceltic Society'; this was overruled in favour of the 'Edinburgh League of Prehistorians' in a General Meeting the following year. Its first Secretary, Miss M.E.B. Simpson, who was a member of Childe's First Ordinary Class in 1928–1929, recorded the gestation of the League very fully in the Minute-book. She had to resign shortly thereafter, however, to take up an Assistant Inspectorship of Ancient Monuments – making her arguably Childe's first student to obtain employment in archaeology. Margaret Simpson was an Assistant Inspector in Edinburgh with J.S. Richardson until 1948, when she moved to Surrey on her marriage. To the limits of the author's knowledge, she had been the first female professional archaeologist in Scotland.

The League's membership (5 shillings for students and 7s 6d for all others – rates that were maintained throughout its existence, except immediately before the war, when each was lowered by 2s 6d) was open to all interested in prehistory. The ELP provided a programme of lectures, excursions, and excavations; by 1933 field trips during the university summer term were planned alongside excavations, already 'a regular feature of the programme of the League' (Kilbride-Jones 1931/1932:iii). The first lecture for which there are records was held in January 1930, and Margaret Crichton Mitchell organized a first excursion to the Scottish Borders that April. For fieldwork, Kilbride-Jones (1932/1933:ii) was able to note that its President (i.e. Childe) 'has been enabled to draw on the Munro Fund for systematic excavation'. Early optimism was rewarded by the opening of branches in Glasgow (where Professor Bryce was President) and St Andrews (where Professor Waterston filled that role) in the early 1930s, although the latter only seems to have lasted for three years. Bryce, Waterston, Curle and Kilbride-Jones (by then its third Secretary) devised a revised constitution, published in part 3 of the League's *Transactions*, in 1933, which allowed for the establishment of branches outside Edinburgh.

Five part issues, comprising one volume, of the journal, *'Proceedings'* (after Part 1 the *'Transactions'*) of the *Edinburgh League of Prehistorians* (after Part 1 the *'League of Prehistorians' simpliciter*) were issued between sessions 1930–1931 and 1934–1935. The ELP's address, originally given as 'University Department of Anthropology and Prehistoric Archaeology, 16, Chambers Street, Edinburgh' is, from Part 3 (session 1932–1933), shortened to 'Department of Prehistoric Archaeology'. Each front cover announced that the League was 'affiliated to the Society of Antiquaries of Scotland'. The substance of each issue consisted of an article or articles reprinted (with the original pagination) from the Society of Antiquaries of Scotland's *Proceedings*, as detailed in Table 4.

These five years seem to have been the high point of the League, which had then both an impressive list of Honorary Presidents amongst senior and rising British archaeologists (Table 5), and direct links to the Society of Antiquaries of Scotland, through Alexander Curle. The only membership list of the League (in the Minute-book) indicates that its Edinburgh branch had 33 members in 1932–1933.

This perspective is borne out by the list of office-bearers, again most extensive in the first half of the 1930s (Table 6).

Table 4. *Articles reprinted from the Proceedings of the Society of Antiquaries of Scotland in the Proceedings / Transactions of the (Edinburgh) League of Prehistorians 1930–35*

Part	Date	Author(s)	Subject	Reference
Vol.1, pt 1	1930–31	VG Childe	Kindrochat	Childe 1931a
		J Hewat Craw	Lintlaw/Drumelzier	Craw 1930–1931
Vol.1, pt 2	1931–32	VG Childe et al.	Earn's Heugh	Childe and Forde 1932a
Vol.1, pt 3	1932–33	VG Childe	Castlelaw Fort	Childe 1933a
Vol.1, pt 4	1933–34	MEC Mitchell	EBA pottery	Mitchell 1934
		VG Childe	Old Keig	Childe 1934a
Vol.1, pt 5	1934–35	VG Childe	Finavon	Childe 1935b

Table 5. *The Honorary Presidents of the (Edinburgh) League of Prehistorians. There are no records of this role after 1935, except for the decision in 1947 to make Childe an Honorary President in place of Peet*

1930–31	1931–32	1932–33	1933–34	1934–35
M.C. Burkitt	M.C. Burkitt	M.C. Burkitt	M.C. Burkitt	M.C. Burkitt
V.G. Childe				
J. Garstang	J. Garstang	J. Garstang	J. Garstang	J. Garstang
T.E. Peet	T.E. Peet	T.E. Peet		
A.H. Sayce	A.H. Sayce			
		R.E.M. Wheeler	R.E.M. Wheeler	R.E.M.
Wheeler				

Thereafter, the ELP continued to exist, although the records of it (now only in its manuscript Minute-book) suggest reducing circumstances. There are no further mentions of Honorary Presidents (barring Childe's elevation in 1947); the activities recorded are uniquely lectures by external speakers, with rare mentions of the possibilities of participation in fieldwork. That list of speakers, however, gives an excellent indication of the range of lecturers who could be heard in the Edinburgh Department during this period, and the series of topics laid before Childe's students and other interested parties (Table 7). Given the number of distinguished southern British archaeologists who, having made the journey north, lectured to the ELP, the absence of any record of O.G.S. Crawford, Childe's left-wing friend and confidant (Hauser 2008: *passim*) is perhaps a little surprising.

After 1939, the ELP went into abeyance for the duration of the war. It was briefly revived thereafter, a move in which Robert Stevenson played a leading role. In 1947 however, with the new Abercromby Professor, Piggott, now President (and Childe elected Honorary President), the decision was taken to change the name to the 'Edinburgh Prehistorians'. The character of the group was patently changing, and it now felt the need to have a nominated student representative on its committee. The last lecture was delivered in March 1948, and thereafter the Minute-book falls silent.

Table 6. *The office-bearers of the Edinburgh League of Prehistorians, as published in the Proceedings / Transactions for the period to 1935, and extracted from the Minute-book thereafter. There are some discordances with the Minute-book, which, for example, records A.G. Jackson resigning as President in 1932 on his move to London. He was briefly succeeded by Lt.-Col. L.M. Davies, but both Davies and the Secretary, Robert Gair, resigned in November 1932*

	1930–31	1931–32	1932–33	1933–34	1934–35	
President	A.G. Jackson	V.G. Childe	V.G. Childe	V.G. Childe	V.G. Childe	
Vice-presidents	M.E.C. Mitchell	Prof D. Waterston	Prof D. Waterston	D.A. MacKenzie	D.A. MacKenzie	
	N/A	M.E.C. Mitchell	M.E.C. Mitchell	M.E.C. Mitchell	MEC Mitchell	
	N/A	Prof T.H. Bryce	Prof T.H. Bryce	Prof T.H. Bryce	Prof T.H. Bryce	
Secretary	G.R. Gair	H.E. Kilbride-Jones	H.E. Kilbride-Jones	H.E. Kilbride-Jones	P. Middleton	
Treasurer	Miss I.R. Henderson	P. Kennedy	P. Kennedy	P. Kennedy	P. Kennedy	
SAS representative	A.O. Curle	A.O. Curle	A.O. Curle	A.O. Curle	A.O. Curle	
Glasgow sec	N/A	H. Fairhurst	H. Fairhurst	H. Fairhurst	H. Fairhurst	
St Andrews sec	N/A	I.C.G. Campbell	I.C.G. Campbell	I.C.G. Campbell	N/A	
	1935–36	1936–37	1937–38	1938–39	1946–47	1947–48
President	V.G. Childe	V.G. Childe	V.G. Childe	V.G. Childe	S. Piggott	S. Piggott
Vice-pres	D.A. MacKenzie	Dr Gilruth	Dr Gilruth	Miss B. Laidler	M.E.C. Stewart	M.E.C.
Stewart						
	M.E.C. Mitchell	M.E.C Stewart	M.E.C. Stewart	N/A	N/A	N/A
	Prof T.H. Bryce	N/A	N/A	N/A	N/A	N/A
Secretary	P. Middleton	Miss B. Laidler	Miss B. Laidler	R.G. Tulloch	R.G. Tulloch	R.G. Tulloch
Treasurer	W. Henderson	W. Henderson	W. Henderson	W. Henderson	W. Henderson	W. Henderson
SAS rep	N/A	N/A	N/A	N/A	N/A	N/A
Glasgow sec	N/A	N/A	N/A	N/A	N/A	N/A
St Andrews sec	N/A	N/A	N/A	N/A	N/A	N/A

Table 7. *Presentations given to the League of Prehistorians in Edinburgh 1930–1948. Lectures that were not delivered are excluded (source: Proceedings / Transactions vol.1, parts 1 & 2, and thereafter the Minute-book)*

1930–31	V.G. Childe		Tasks for Scottish Prehistorians
	A.O. Curle	Director RSM	Prehistoric forts
	D.A. MacKenzie		Calton Hill and the Mother Goddess cult
	J.H. Craw	Secretary, SAS	The observation of early remains
	Dr R. Campbell	Geology Dept	The distribution of flint on the east of Scotland
	A.J. Edwards	Nat Museum	The preservation of antiquities
1931–32	V.G. Childe		An Iron Age fort at Earnsheugh, Berwickshire
	Prof. W.J. Watson	Celtic	The Celts and their history
	Prof. A.G. Ogilvie	Geography	Cartography and prehistory
	Miss M.E.C. Mitchell		Some types of Scottish Bronze Age pottery
	R.E.M. Wheeler	Director, London Museum	Recent excavations in England
	J.G. Callander	Director, Nat Museum	Hebridean earth-houses
	Prof. Herbert Read	History of Art	Art in prehistory
1932–33	Prof. T.H. Bryce	Glasgow	The physical anthropology of the Scottish people
	Dr C.A. Nordman	Helsingfors (Rhind lecturer)	The cultures and peoples of prehistoric Finland
	Dr R. Craig		Peat in relation to the glacial epochs
	Dr W. Mackay Mackenzie		Castles – prehistoric and medieval
	Mr C.R. Wason	L, Classical Archaeology	Excavations in Ithaca
	Dr J.G. Callander	Director, Nat Museum	Scottish megalithic monuments
	V.G. Childe		A small fort with secondary souterrain at Castlelaw
	R.E.M. Wheeler		What is being done, and what is not being done, in English archaeology at the present time
1933–34	V.G. Childe		Aryan nonsense
	J. Wilson Paterson	Chief architect, Ministry of Works	The preservation of ancient monuments
	Dr J.J. Galbraith	Dingwall	Celtic art
	J.G.D. Clark		An archaeological tour of N W europe
	A.O. Curle		Jarlshof, the prehistoric settlement at Sumburgh
	Prof C.D. Forde	Univ Wales, Aberystwyth	N/A
1934–35	V.G. Childe		The vitrified fort at Finavon, Forfar
	Miss M.E.C. Mitchell		Irish origin of certain Scottish prehistoric forms

(Continued)

Table 7. *(Continued)*

	Prof. Ian C. Hannah		The place of the Picts in Celtic art
	Discussion group	Childe, Mitchell & Henderson	Scottish distribution maps and their seasons
	C.R. Wason		The Phoenicians
	Prof. C. Daryll Forde		Pen Dinas and hill-forts in Wales
1935–36	E. Thurlow Leeds	Keeper, Ashmolean, Oxford	The prehistoric midlands
	V.G. Childe		A Dark Age fort in Antrim
	Discussion group	Childe in chair	Problems of population in prehistoric Scotland
	C.F.C. Hawkes	British Museum	Economics and folk movements in the north west European Bronze Age
	L.S.B. Leakey	Lecture and demonstration	Techniques of flint working
	Prof. D. Talbot Rice	Fine Art	Some aspects of Palaeolithic art
1936–37	John Cowan		Bronze swords of England
	Prof. P. Bosch-Gimpera	Barcelona (Rhind Lecturer)	The Celts of Iberia
	Dr J.B. Simpson		Geochronology and its bearings upon anthropology
	Mr H. Fairhurst	Glasgow	The galleried dun at Kildonan, Kintyre
	V.G. Childe		Vitrified forts
	R.E.M. Wheeler		Maiden Castle
1937–38	S. Piggott		Aspects of the New Stone Age in Britain
	J.S. Richardson		The broch of Gurness, Aikerness
	H. Fairhurst		Further excav ... galleried dun at Kildonan, Kintyre
	Dr Gilmuth		The Bronze Age art of Crete
	Miles Burkitt		Civilizations and cultures in prehistory
1938–39	V.G. Childe		The date of Skara Brae
	Dr P. Dikaios		Prehistoric Cyprus
	T.D. Kendrick		Insular traditions in our pre-Conquest art
	Miss G. Caton-Thompson		The Hahdramaut past and present
	Herbert Maryon		Early soldering
	V.G. Childe		Visit to National Museum of Antiquities
	Miles Burkitt		An excavation in southern Turkey
1946–47	Professor S. Piggott		Aims in Scottish prehistory
	Dr Kenneth Steer	RCAHMS	Air photography and archaeology
	R.L.S. Bruce-Mitford		The seventh-century Saxon treasure from Sutton Hoo
	T.G.E. Powell		The Celtic problem in Irish prehistory
	Mrs A.R. Maxwell-Hyslop		Anatolia in prehistoric and early historic times

1947–48	Prof. I.A. Richmond	Roman and native in Scotland
	Professor S. Piggott	William Stukeley – an eighteenth-century prehistorian
	A.R. Burn	Life and legend in the Greek Early Iron Age
	R.B.K. Stevenson	The National Museum of Antiquities – past, present and ideal
	Mrs C.M. Piggott	Recent excavations of Early Bronze Age shrines at Dorchester, Oxfordshire
	Prof. David Talbot-Rice	The spread of Scythian Art

The League, like the League of Nations, was a casualty of post-war changes. I have noted elsewhere that the content of the 1947–1948 volume of the *Proceedings of the Society of Antiquaries of Scotland* (vol. 82) heralds a sea-change in Scottish archaeology (Ralston 2003) and Piggott's article therein (1948), summarizing his seminal work at the Cairnpapple henge, acknowledges the help received from students of six universities (1948:74, n. 2). Although the ELP had included other than student members, its successor within Edinburgh University was undoubtedly the student-led University Archaeological Society, which was already active in the early 1950s.

Abstracts

Gordon Childe et l'archéologie écossaise: ses années à Édimbourg 1927 – 1946
Ian Ralston

Cet article évoque la carrière de Childe en Écosse, où il était titulaire de la chaire » Abercromby « en archéologie préhistorique à l'Université d'Édimbourg de 1927 à 1946, et évalue en même temps son impacte sur l'archéologie écossaise et la communauté archéologique écossaise. On y discute entre autres les programmes d'enseignement et les ressources qu'il avait développés au sein de l'université, et son association avec la Ligue des Préhistoriens d'Édimbourg. Ses fouilles et son travail sur le terrain, entre autres à Skara Brae, et ses publications durant cette période sont également examinés. De plus on passe en revue sa collaboration avec la 'Royal Commission on the Ancient and Historical Monuments of Scotland' et avec le Musée National, plus particulièrement pendant la Deuxième Guerre Mondiale, et on résume brièvement les exploits archéologiques de quelques-uns de ses étudiants édimbourgeois.

Mots clés: chaire » Abercromby », Ligue des Préhistoriens d'Édimbourg, Université d'Édimbourg, Écosse, archéologie écossaise, Vere Gordon Childe

(translation by Isabelle Kayser-Gerges)

Gordon Childe und die Archäologie Schottlands: Die Jahre in Edinburgh 1927 – 1946
Ian Ralston

Dieser Aufsatz beschäftigt sich mit Childes Karriere in Schottland, wo er zwischen 1927 und 1946 Abercromby-Professor für Prähistorische Archäologie an der Universität Edinburgh war, und bewertet seinen Einfluss auf die Archäologie Schottlands und die schottische archäologische Gemeinschaft. Dies schließt seine Entwicklung von Lehrprogrammen und -ressourcen innerhalb der Universität und seine Anbindung an die *Edinburgh League of Prehistorians* ein. Seine

Ausgrabungen und Feldforschungen in Skara Brae und anderen Plätzen sowie seine Publikationen in diesem Zeitraum werden behandelt. Zudem werden Childes Zusammenarbeit mit der *Royal Commission on the Ancient and Historical Monuments of Scotland* und dem Nationalmuseum eingeschätzt sowie die archäologischen Leistungen einiger seiner Edinburgher Studenten kurz zusammengefasst.

Schlüsselbegriffe: Abercromby Professor, Edinburgh League of Prehistorians, Universität Edinburgh, Schottland, schottische Archäologie, Vere Gordon Childe

(translation by Heiner Schwarzberg)

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The Earlier Iron Age in Britain and the Near Continent

edited by

Colin Haselgrove and Rachel Pope

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The character of Earlier Iron Age societies in Scotland

Ian Ralston and Patrick Ashmore

Introduction

We may compare standard views of the Scottish archaeological record for the last millennium BC to a hammock, with perceived high points at either end, represented respectively by the Later Bronze Age record and by that of the Iron Age in its mature phases – equivalent to the Middle Iron Age of more recent commentators on the Atlantic North-West (e.g. Armit 1997; Hingley 1998). The metalwork, more especially its sheet-metal component including such items as shields, has long been considered symptomatic of the relative elaboration of local Late Bronze Age societies and their integration into wider cultural spheres.

To use metalwork as an indicator a second time, the Iron Age from at least the third century BC is marked by the appearance of material in the La Tène tradition, including conventionally Early Celtic Art objects, arguably the earliest of which – certainly as a grand object – is the pony-cap from Torrs in Dumfries and Galloway (Jope 2000, plates 100–1). Peter Wells (2001) has recently stressed the apparent significance of the culturally peripheral depositional contexts of a number of such remarkable items of Early Celtic Art, including the helmet found by a badger in the cave at Agris, Charente, in western France. Albeit headgear for a horse rather than a warrior, Torrs may be fitted into the context of culturally peripheral deposition of exceptional pieces in this style. The period with which we are concerned here occupies the intervening centuries, between the demise of the late Bronze Age industries and *c.* 300 BC.

The systematisation of the results from related fields of enquiry has tended to provide additional support for a perspective in which the last few centuries BC see a change of tempo, an upswing from a more mundane record indicative both of relatively weak hierarchies and relatively gradual change. The most graphic instance, in terms of the area demonstrably affected, is provided by the dramatic decline of the forest cover. Richard Tipping's exposition, from palynological data, for the opening of the landscapes of southern Scotland on a previously unprecedented regional scale from about the middle of the first millennium BC, is very important in this regard (Tipping 1994, 31–3).

It may be suggested that a perceptible enrichment of the material aspects of Iron Age societies in Scotland is well underway by around 300 BC, and that its defining characteristics were preceded by extensification and intensification of the use of southern Scottish landscapes. There is also a renewed engagement with practices and styles in the employment of material culture that display more than a measure of familiarity with wider temperate European practices. Amongst slightly later artefact types, for example, the rotary quern – apparently here as elsewhere in temperate Europe rapidly disseminated after *c.* 300 BC – is a key indicator of this Scottish participation in generalised technological innovations. It seems reasonable to infer that the social and economic transitions that may well underpin such changes would also have occurred here, albeit possibly in more muted form, since the beginning of the Scottish Middle Iron Age (*sensu* Armit 1997 and others) does not show, for example, the dramatic upswing in iron production apparent in some areas of continental Europe.

A similar familiarity with wider temperate European practices may also be considered characteristic of the early end of the metaphorical hammock. As a *Leitmotiv* for that, we may cite the particular strangenesses in the

deposits of human remains and associated artefacts such as the decapitation practices revealed by the Shepherds' re-examination of the Late Bronze Age activity within Covesea cave in Moray, echoed at Heathery Burn in County Durham, and at Le Trou de Han and Le Trou de l'Ambre in Belgium and elsewhere (Shepherd 1995). Indeed the artefacts from the same levels at Covesea have their best parallels from various parts of Europe, including southern England and northern, western and eastern France, suggesting long-distance networking.

The sagging middle of the hammock, between on the one hand the demise of the Late Bronze Age industries and, on the other, the varied indicators of increasing complexification in the last centuries BC, is the topic of this paper. What were the societies of earlier Iron Age Scotland like? Is there any reason to revise prevailing views?

Some aspects of the record for the half millennium preceding about 300 BC are well-known. Most widespread geographically are architectural variants of the substantial circular roundhouses which, in some areas north of Cheviot, continue into the succeeding span. These buildings, remarkable rather for their scale than for the particular elaboration of their architecture, include for the Earlier Iron Age, initial versions of what subsequently developed into Armit's complex Atlantic roundhouses, as on Orkney (see also Henderson this volume). East of the Highland massif, their comparators are generally substantially timber-built, and include dry land examples as well as at least some crannogs.

The broad pattern described above – and the importance of substantial houses more generally in the interpretation of the Scottish Iron Age – was enunciated over a decade ago by Richard Hingley (1992). To our knowledge nothing has emerged in the intervening years to require any radical modification to that perspective. Elsewhere, Rachel Pope (2003; this volume) contends that the period *c.* 800–600 cal. BC is one of significant change in roundhouse architecture more generally in central and northern Britain. Despite the attention that has been paid to it in recent years, the potential for a re-evaluation of this architecture is considerable, for so far it has not been demonstrated whether Atlantic roundhouses and their equivalents elsewhere were occupied all year round, nor indeed whether they were continuously occupied in any sense at all.

Some, perhaps many, of the hill- and promontory forts of Scotland, or at least parts of it, also enjoyed their *floruit* during the earlier centuries of the Iron Age. General treatments of this class of sites have correctly drawn attention to the initial use and sometimes potentially the enclosure of such hilltop sites within the Later Bronze Age – as for example has been demonstrated for the core of the site at Traprain Law, East Lothian, or Eildon Hill North, Scottish Borders (Owen 1992) discussed further below. In some cases – as at Traprain itself – whilst recourse to the hilltop and even occupation may be demonstrable, it cannot be shown that they were enclosed at an early date. Others, following Alcock (1987, fig. 4), have equally stressed the continued use and construction of this broad class of site well into the first millennium AD, so hillforts are far from corresponding wholly with earlier pre-Roman Iron Age use.

Artefacts, contrastingly, have played a much more spartan role in assessments of this span. In general a small number of items have been highlighted; and subjected to radically different interpretations. The few variant Hallstatt C Gündlingen swords from Scotland (cf. O'Connor this volume) may be considered axiomatic of this. At one scale, within Scotland, their predominantly eastern and riverine distribution has been suggested as indicative of a 'classic raiding pattern' involving new arrivals from continental Europe (Burgess 1974, 213). At another, they conform to much broader continental-scale patterns of distribution, with riverine/wetland contexts of deposition of copper alloy examples characteristic of a broad swathe of northern temperate Europe (Torbrügge 1970–1). Minimally, they are indicative of the continuing 'Europeanisation' of contacts that already characterised some phases within the Later Bronze Age.

Such links, in Scotland's case, re-appeared more forcibly in the late first millennium BC, but never wholly evaporated across the intervening period. The conspicuous consumption of artefacts through special deposition otherwise seems rare throughout the Earlier Iron Age. There is undoubtedly more that can be extracted from the prosaic material culture record, however, as is becoming plain, for example from Catherine McGill's consideration of the pottery record from eastern Scotland outlined below (McGill in preparation).

In general, coloured by the habitually small-scale nature of the units suggested by the settlement evidence and by the lack of indications of marked differences discernible from material culture evidence, most recent interpretations of the Early Iron Age in Scotland propose a relative lack of hierarchy in social or political terms, and small-scale, decentralised societies. In these communities, the main signifiers of social, economic and political superiority were furnished by domestic architecture, and perhaps only very secondarily by acts of enclosure, generally not visible (with exceptions!) over great distances, and still less transportable. We may even propose that societies at this time were organised heterarchically, as has been suggested in other Iron Age contexts by Crumley and Marquardt (1987; Crumley 1995). In consequence, there may have been relatively frequent shifts in the key places in the landscapes of the country. To that extent, 'central places', in which the symbols of power, wealth and status were accumulated and displayed, may not have been a feature of the Earlier Iron Age landscapes of Scotland.

The radiocarbon evidence

In approaching the Scottish Early Iron Age, we now wish to focus on the accumulating evidence from radiocarbon dates, used here in the full knowledge of their shortcomings as a dating tool for the period under examination. Plateaux in the calibration curve between about 750 BC to 420 BC, and again from about 350 BC to 200 BC, smear out the probability distributions for calibrated ages. In effect, even with ages with 30 year error terms, this creates a chest of drawers: the lowest drawer contains samples dating before about 800 BC; the middle drawer, samples with calibrated dates indistinguishable from one another, from before 750 BC to after 420 BC; and the upper drawer, samples with dates from before 350 BC onward past the end of the millennium.

Kilian *et al.* (1995, 963–5) have argued, contrary to the previous consensus, that the calibration curve contains information very similar to that of the Holocene climatic record. This may imply a markedly wet period in north-west Europe around 800 cal. BC and presumably another around 400 cal. BC, as well as smaller ones at other periods, for instance perhaps around 200 cal. BC. It is thus conceivable that the flat periods of the calibration curve were relatively favourable to farming in Scotland. Without invoking environmental determinism, we might in due course test for the possibility of a reflection of this in the cultural record, but the dates available at present are useless for this purpose.

The start date we have preferred for pragmatic reasons related to the shape of the calibration curve begins 50 radiocarbon years before the cut-off point of 2550 BP selected by Stuart Needham (this volume). There are presently some 333 archaeological radiocarbon determinations for Scotland with laboratory ages between 2600 and 2100 BP uncalibrated. In preparing this paper we rejected some results for reasons varying from the presence of a marine effect of unknown strength, for instance in the case of auk bones from under the Atlantic roundhouse wall at Dun Vulan, South Uist (Parker Pearson and Sharples 1999, 46; 50), to a high likelihood of residuality, for example an age derived from an early historic weaving shed at Ratho, Midlothian (Smith 1995). The rest produce results that, on calibration, wholly or partially fall within the span between 800 and 300 BC. We have given much lesser weight to the many ages that produce calibrated date ranges covering extensive periods within the developed Iron Age. But the choice of 2600 BP as our early cut-off date and the preceding steep part of the calibration curve usually avoids dates with ranges stretching deep into the prior period.

Some results come from laboratories whose error estimates for dates obtained between AD 1950 and around AD 1982 must be increased by factors between 4 and 1.4 (Baillie 1990; Ashmore *et al.* 2000a). Only 79 dates present a reasonable level of confidence that the sample truly belongs in the period from 800 to 350 cal. BC, or – in the case of some of the later ones – to that or the immediately succeeding centuries. It is worth remembering that, on purely statistical grounds, about four of these 79 samples probably have true dates outwith the 95% range expressed by the calibrated dates, but of course one cannot know which. On top of all that, there must remain some archaeological concerns about the samples dated before the merits of single entity dating were recognised (Ashmore 1999a).

Age BP	*Approximate date*	*Comments*
3050	1300 BC	Roughly the start of a 500 calendar year Late Bronze Age
2600	800 BC	Roughly the start of a 500 calendar year Early Iron Age
2250	300 BC	The calibration curve is very irregular here
1800	200 AD	There is a small plateau at this point

Table 1. Start and end ages BP and dates BC for the periods used here.

Provided care is taken, this apparently dispiriting core data set is, however, surprisingly useful. All the data used – warts and all – is accessible in the radiocarbon index on Historic Scotland's web site or published in recent issues of *Discovery and Excavation in Scotland* (Ashmore 1996; 1997; 1998a; 1999b; 2000; 2001; 2002; Ashmore *et al.* 2000b). Its utility suggests that a programme of re-dating key deposits, based in each case on several single-entity high precision dates, is sorely needed. It will not help much within the plateau regions but it will allow identification of structures of around 800 and around 400 BC respectively.

Above, we have reiterated perceived views that the Early Iron Age seems to be marked by less elaboration, particularly to judge from the material culture record, than the periods that precede and follow it. Although the end dates for the Early Iron Age and the Middle Iron Age, respectively, chosen here coincide with slightly awkward parts of the calibration curve, it is possible to choose reasonable approximate ages BP corresponding to the beginnings and ends of the three periods. These ages are listed in Table 1.

So, are sites attributable to this span any rarer than for the Later Bronze Age or for the Middle Iron Age, as is sometimes supposed? Some sites have had many more dates obtained for them than others. To remove this potential bias, it is best to count sites with at least one radiocarbon age in a period. If we do so for all sites – i.e. including those with radiocarbon determinations that

Period	*No. of sites with at least one age of any weakness*	*No. of sites with at least one age of weakness <20*	*No. of sites with at least one age of weakness <10*
Later Bronze Age	98	68	41
Early Iron Age	109	56	36
Middle Iron Age	156	92	59

Table 2. The numbers of sites with ages of various weaknesses in each period; the scoring system is explained in the Appendix.

are subject to considerable doubt as to their quality – chi-square tests lead to the conclusion that there are indeed significant differences between the three periods. Contrastingly, if one considers only the well-dated sites, it is not safe to conclude that there were any fewer sites in the Early Iron Age than there were in neighbouring periods. The number of sites falling into each of the three periods and categories in shown in Table 2.

The conclusion is that, although there are differences in the numbers of excavated sites firmly attributed to one period or the other, those differences could happen often enough by chance if one randomly dug 136 of the sites which really date to between 1300 BC and AD 200. So we cannot safely project these differences back onto the parent population of sites, and it is not safe to say from the radiocarbon determinations obtained so far, that the observed differences reflect real variations in the number of sites belonging to each of our three periods. There may in truth have been significantly fewer Earlier Iron Age sites in Scotland than either before or after, but we have not yet obtained enough good dates from the three periods to be sure beyond reasonable doubt.

The dated samples give some insight into the way in which wood was used during the period. A few identified species occur in dated samples in sufficiently large numbers to quote meaningful percentages. Hazel was most frequently used for obtaining dates, occurring in 27% of samples. Only two of these were suspected of possibly having derived from a post because of occurring in a post hole, but even in these cases, it may have been a component of the debris that filled the post hole after the post burnt down, decayed, or was removed. Oak occurred in 20% of samples and alder in 19%. Birch was used in 14% of samples and willow in 11%, the latter often interpreted as from wattle. Heather, *Prunus*, hawthorn, Pomoideae and rowan were also used for dating samples very occasionally.

Focussing on the Early Iron Age itself, rather more site categories, as conventionally defined, appear to have been in use during this period than perhaps had been realised. Further, some categories of site long recognised, on stratigraphic and other grounds, as likely to be relatively precocious – palisades are a case in point – still have markedly few determinations within this period. There is considerable regional variation, a conclusion in line with the results of recent detailed survey programmes, such as the Royal Commission on the Ancient and Historical Monuments of Scotland's astonishingly unsung considerations of the settlement records of eastern Dumfriesshire (RCAHMS 1997) and north-east Perthshire (RCAHMS 1990).

Patterns in the evidence

Unsurprisingly, perhaps, the radiocarbon dates are dominated numerically by samples from what are apparently domestic contexts. These include numbers of substantial and less massive houses from Orkney southward, in a variety of traditions. Roundhouses in Scotland have a pedigree going back to at least 1750 cal. BC (Terry 1995, 379–84; McCullagh and Tipping 1998, 39–40). It has been the consensus for many years that a horizon of large roundhouses should exist in our period (Mercer 1985, 73; Armit 1990, 194; Hingley 1992, 13). In this respect, it is worth noting that the set of 41 dates for houses in the core date-list includes a much higher proportion of dates from relatively small houses than does the set of 81 dates for houses from the full date-list including dates to which severe doubts about quality must be attached (Ashmore *et al.* 2000a). It seems possible that biases in preservation and in the selection of sites for excavation have led to a lack of attention to the existence of smaller roundhouses in the earlier part of our period.

The recent majority opinion in Scotland seems to be that most roundhouses were occupied for only brief periods. This perspective appears to be based on a few cases where this is indeed likely, such as Buiston crannog (Crone 2000, 64). It also assumes that a lack of contiguous midden deposits and casually discarded remains should indicate a short period of use. However, this view ignores the evidence from other sites such as Lairg, where sometimes deep anthropogenic deposits survived in a way which suggested systematic and repeated clearing out of houses (McCullagh and Tipping 1998, 46; 49); and where there was also evidence for severe anthropogenic erosion in houses in acid oxygen-rich environments, and for subsequent cultivation even inside houses (*ibid.*, 52–3). It rests also perhaps on the indications of significant decay in the vertical posts of

the experimental roundhouse at Pimperne (Reynolds 1994) within two decades of its construction, but such observations need to be qualified by the fact that that structure was neither routinely inhabited nor heated. Nor is the fact that its internal posts were no longer earth-fast a sign that it was likely imminently to collapse.

Undoubtedly some houses were short-lived, but given the survival, for instance, of sixteenth-century foundationless turf, cob and flint houses with thatched roofs still containing remnants of 450-year-old thatch at Wherwell in Hampshire (D. and C. Etchells pers. comm.), it is clear that houses which would leave little evidence of their construction and use after down-taking and one episode of ploughing can survive for centuries. It is also obvious that there is a high potential for residuality on such sites and that bulk charcoal samples may provide meaningless average dates. Another recent crystallisation of opinion emphasises the seasonal use of individual houses, at least in the uplands. We prefer here Cowley's analysis of marginality in the second and first millennia BC in the Strath of Kildonan, Sutherland, which to us implies the long-term occupation of more favourable areas, and a likely shorter-term occupation of more marginal structures (Cowley 1998; 1999).

Amongst newer dimensions of this *problématique*, the recent work at Cladh Hallan on South Uist (Parker Pearson *et al.* 2002; Selkirk 2002) has demonstrated – from an example with a sunken and, helpfully, repeatedly re-floored interior – the potentially long survival there of individual roundhouses belonging, on the radiocarbon evidence so far available, to a period only slightly earlier than ours. Half a millennium is proposed for a single building, perhaps a little optimistically. This Hebridean work also puts forward new variants on roundhouse architecture, in some instances including light internal post rings and indications of low roof-lines with eaves propped onto a sand-cored outer wall, producing an external effect somewhat akin to the cellular early village structures at Jarlshof (Hamilton 1956, fig. 10), and heralding later, first millennium AD, building styles in machair sand environments. The aligned layout of the buildings on the South Uist site mirrors that in some of the upland roundhouse settlements of Perthshire (Alyth Burn, RCAHMS 1990, 30; Drumturn Burn, *ibid.*, 45; Hill of Cally, *ibid.*, 53; Hill of Kingseat, *ibid.*, 54; Loch Beachally, *ibid.*, 60; Muir of Gormack, *ibid.*, 69).

Cellular structures as at Ceann nan Clachan, Vallay Strand on North Uist, Western Isles (Armit and Braby 2002) and from the very end of or perhaps slightly later than our period at Tungadale, in Glen Bracadale on Skye (R. Miket pers. comm.; Ashmore *et al.* 2000b GU-3808), may suggest that Bronze Age building practices played a part, however transmitted, in the development of wheelhouses. Substantially built circular structures such as Kilphedir in Sutherland (Fairhurst and Taylor 1970–1, 90) and Quanterness (Renfrew 1979, 184, 194) with smaller examples such as Alt a'Ghasgain, Sleat, Skye (Wildgoose *et al.* 1993; 1994) all lying outside the core data set, and Bu (Hedges 1987) and Pierowall in Orkney (Sharples 1984, 90) with a date amongst our core set from midden under its wall and another from occupation material, provide another component in this drystone building tradition.

East and south of the Highland massif, the comparators of the drystone roundhouses are generally substantially timber-built, and include, from just before or in our period, upland examples such as Carn Dubh, Pitlochry, Perthshire (Rideout 1995), and lowland ones such as the houses at Dryburn Bridge, Dunbar, East Lothian, at least one with a massive porch, inside a palisaded enclosure (Triscott 1982). Firmly in our period is Candle Stane, Insch, Aberdeenshire (Cameron 1999, 125). It consisted of a ring groove 15.5 m in diameter with two rings of posts inside it. That said, statistical testing suggests that the charcoal from the inner and outer rings have different radioactive signatures.

One possibility is that the two samples from the inner ring truly belong to well before 390 cal BC and the two samples from the outer rings truly belong well after 390 cal BC. Alternatively, the structure as a whole belongs to between 400 and 380 cal BC, and a combination of very minor differences in the true date of the samples; statistical fluctuations in measurement; and the very rapid increase in the amount of C14 in the atmosphere at this time have led to samples with minor calendar differences in date appearing to be truly well separated in time. Despite the cautionary example of Culhawk, where fourth millennium BC charcoal had contaminated first millennium contexts (Rees 1998; Ashmore 1998b; 1999a), there is the exciting possibility that Candle Stane could be dated to within a 20-year period. A programme of thorough charcoal analysis and dating of several single entity samples from each context is highly desirable, because there is the potential for fixing the house in time with an unusual degree of accuracy.

Some of the houses in the unenclosed settlement at Douglasmuir, Friockheim, Angus (Kendrick 1995, 58) belong to the first part of our period, from 800 to 400 cal. BC. There are also crannogs constructed in this time frame including the marine example at Redcastle in the Beauly Firth (Hale 1996a, 139; 2000, table 1), Oakbank (Dixon 1981), and Fearnan at Kenmore in Loch Tay (Crone 1993, 246). Earlier examples are known at Carn Dubh in the Beauly Firth (Hale 1996b, 139; cf. 2000) and Milton Loch 1, Dumfries and Galloway (Guido 1974, 55; Morrison 1981a; 1981b). There are possibly only slightly later ones at Ederline in Loch Awe, and Loch Arthur, Nithsdale (Crone 1993). Some of these early substantial houses are now recorded from areas not previously known to exhibit the tradition: Kirsty Cameron's excavation of the one adjacent to the Candle Stane, a recumbent stone circle, in Aberdeenshire may stand as an example. Whilst Kendrick (1995, 61–3) is

right to point to the variability present within the class of ring-ditch houses, echoed by further excavations, as at Forest Road, Kintore, Aberdeenshire (M. Cook pers. comm.), they remain perhaps the most coherent timber-built variant of such structures that should generally be identifiable in the air photographic record, albeit now extending chronologically outwith the span considered here.

It remains of course true that some of the buildings with broad ring ditches may have been byres for small cattle, as has been suggested, very tentatively, for one of those at Douglasmuir (Kendrick 1995, 61–2), their locations fitting into patterns of the exploitation of both lowland and upland pasture, for both lowland pastoralism and transhumance seem wholly possible within societies operating in these environments. One noticeable trend apparent in the data originally considered by Hill (1982a, appendix 1) was, however, that the more extensive ring-ditch house settlements seemed to be further from stream courses than their smaller equivalent. Given the need cattle have for water, this may introduce a problem for the byre interpretation.

Despite this reservation, the time has perhaps come to react against the thoroughness of the readjustment against Piggott's (1958) footloose Celtic cowboys. Strat Halliday (1993) has judiciously pointed out both that some of the high altitude cord-rigging encountered, for example in the Cheviots, may be indicative of pretty marginal cultivation systems; and that Scottish livestock – cattle, sheep, maybe at least some goats – probably contributed to the decline of woodland and concurrent extension of grassland that was underway during the Earlier Iron Age.

As a gross generalisation to which there are exceptions – as at Dryburn Bridge and in open settlements at Cyderhall near Dornoch in Sutherland (Pollock 1992) with a souterrain, Douglasmuir in Angus (Kendrick 1995), and Deer's Den near Kintore in Aberdeenshire (Alexander 2000, illus 4) with four-posters – known Earlier Iron Age substantial houses are not usually found with identifiable storage structures of normal forms. We accept, however, that some four-posters may have had other functions, not least as porches of buildings otherwise eliminated from the record by subsequent attrition, as Guilbert (1981) argued for Moel y Gaer. Quantifying the proportional reliance on stock raising on Earlier Iron Age farms is not presently feasible, but in many Scottish environments it is likely to have been a significant activity.

What is perhaps less commonly appreciated is that a sub-rectangular building is dated to the plateau between 400 and 200 BC at An Dunan, Uig, Western Isles (Gilmour and Church 1999, 115). One structure is not perhaps enough in itself to suggest a real link with the sub-rectangular buildings of the first millennium AD, and it may be that this example is in truth from the developed Iron Age; but it illustrates the diversity of building styles already noted by others from the second half of the first millennium BC and the first millennium AD (Cowley 1999, 67–9).

Some dates refer directly to enclosures on hill- or promontory forts, or derive from internal features that may or may not be contemporary with enclosing works on such sites. Many of these dates were obtained during the heroic early days of the application of radiocarbon dating to later Scottish prehistory, in the important work then conducted by Euan MacKie, the late Alan Small and others. The generalisation of particular traits assumed to be geographically widespread on the radiocarbon evidence so far accumulated is thus to be avoided at this stage, not least in the full knowledge of how hard it has proved to dislodge that useful heuristic device, the Hownam sequence (cf. Armit 1999), from its seeming wide applicability as the paradigm for south-eastern Scottish settlement sequences.

A few trends can be picked out, none the less. An obvious one is that there is, in present circumstances, no single chronological horizon for the enclosure of the big forts of Scotland. Isotopic dates of course remain few, and excavation samples generally diminutive. Whilst the earliest of the roundhouse platforms within Eildon Hill North, Scottish Borders (Owen 1992), thus belongs before the mid first millennium BC, the fortifications themselves remain undated, although the outermost triple circuit, A (RCAHMS 1956, fig. 417; Owen 1992) – or at least components of it – may date to the Late Bronze Age, or relatively shortly thereafter. Both the extent of this putatively early multiple enclosure, and the presence of post holes for vertical timbers probably for revetting beneath the one bank so far examined at Eildon, are unusual in the Scottish context, but far from unacceptable at a relatively precocious date.

A wall face containing vertical timbers set in individual posts – again, a non-standard style of architecture within Scotland – succeeds the palisaded phase on the early coastal promontory fort at Cullykhan, now in Aberdeenshire (Greig 1972); more extensive rampart cuttings may produce further instances of the use of upright posts in years to come. Although there are two relevant dates from the fully-excavated Broxmouth fort, on the East Lothian coastal plain near Dunbar, one probably indicates use of heartwood from a long-lived tree and the other, from animal bone in weathered soil sealed between rampart rebuilds, may reflect a period of rampart disuse as easily as a time of strength. Scotland may however share a trait with areas of northern temperate Europe – more particularly the former German Democratic Republic – where some locally big and seemingly sparsely occupied hillforts have long been recognised as a Late Bronze Age phenomenon (Herrmann 1989).

Contrastingly, the proposed early summit palisade line on Traprain Law has not been confirmed by the recent work there. Of the other big once-upon-a-time 'minor

oppida' (Feachem 1966), George Jobey's early work (1978) on the palisade and succeeding enclosure on Burnswark at the foot of Annandale seems still the best claimant as a precocious sizeable (several hectare) later prehistoric enclosure. In Angus, the Brown Caterthun has produced radiocarbon dates which suggest rampart building at some time between 800 and 400 BC; the downslope expansion of this unusual, multiple-entrance, hilltop enclosure occurs over time from the Late Bronze Age/ Early Iron Age onward, with the construction of its main enclosure lines lying wholly within the pre-Roman Iron Age (Dunwell and Strachan forthcoming). Only the much slighter innermost bank – enveloping but unrelated to a pit containing quantities of grain dated just after 800 BC – may not conform to the sequence of expansion of the enclosed area through time.

Numbers of smaller Scottish hillforts were certainly in use during the Earlier Iron Age. Apart from the inner components of the Brown Caterthun, examples include Gillies Hill near Stirling (Rideout 1992); the earlier phases of Broxmouth, near Dunbar; Balloch Hill in lowland Kintyre (despite the poor quality of the dates which has led to their rejection from our table in the Appendix; Peltenburg 1982); and north to the Lewis promontory fort at Gob Eirer. At least some of the gateless oblong, and frequently heavily-vitrified forts, primarily of north-east Scotland, but present on the west coast as far north as Dun Lagaidh (MacKie 1976), may also belong to the Earlier Iron Age, despite the disparate set of radiocarbon dates for them. The biggest example, marked by the presence of a very ruinous outer defence, like the principal circuit also vitrified, is Dunagoil on Bute. It yielded some extraordinary finds from Marshall's excavation early last century – both rich and numerous for the restricted volume of work conducted (Mann 1915), and now housed in Rothesay Museum.

Dunagoil, strategically set within the Firth of Clyde, is worth drawing attention to, given the primarily southern, eastern and mainland focus of Scottish hillfort research. This highly unusual series of vitrified forts, so distinctive in their form, and so redolent of symbolism in the fiery spectacles that must have marked their destruction (Ralston 1986), throw into high relief all our problems with dating. In essence, there are three competing chronologies: from the thermoluminescence work of David Sanderson and collaborators (1988); Doug Gentles' application of archaeomagnetism (1993); and the several hands concerned with the accumulation of radiocarbon dates associated with them. Derek Alexander (2002) rehearses the dating problems with regard to the well-known site at Finavon in Angus. Numbers of the radiocarbon dates suggest that a Late Bronze Age/Early Iron Age horizon is possible for what is surely still a good claimant as a relatively narrow cultural tradition of building. It has to be noted, however, that the thermoluminescence suggests widely disparate dates for these sites; but if the archaeomagnetic dates, which appear much more chronologically coherent, are to that extent more believable, then these sites would belong primarily rather later within the pre-Roman Iron Age than the period here considered.

There is a perhaps surprising number of dates close to our period of interest, from a variety of contexts associated with funerary or ritual practices. Some fall fairly certainly earlier. Cremation is still represented shortly before the outset, at least among the small series of dated kerb cairns from Argyll and Aberdeenshire (Ralston and Sabine 2000). Trevor Watkins' site at Rullion Green on the Pentland edge in Midlothian also demonstrates that small ring ditches with funerary remains (again cremations) are present in the period just before the Earlier Iron Age. And at least some of the unaccompanied inhumations from East Lothian, like those in pits beyond Broxmouth's enclosure (Hill 1982b; Ashmore and Hill 1983), could belong before or on the cusp of our nominal cut-off date at 300 BC, as could inhumations from cemeteries at Kirkhill and Kingsbarns (James 2001) in Fife – the first in pits, the second from a young woman in a crouched position in a collapsed short cist – demonstrating that this ritual was not restricted to the Lothians.

Only more precise dates than those presently available could resolve the question, although the suspicion must be that the centre of our metaphorical hammock still does not hold any known formal burials. It does however include less formal disposals of corpses: the most unusual addendum to this set of data in recent years has come from a programme of dating the inhumations within MacArthur's Cave, Oban, Argyll (Saville and Hallén 1994), best known for its Mesolithic material. There, human bone belongs in both the earlier and the later parts of our period. An apparently casual disposal of human remains from at least two individuals at the settlement site at the Howe in Orkney also lies firmly in the hammock (Ballin Smith 1994, 260). Perhaps we are in fact able to settle on the length of the period during which formal burials are rare in Scotland as lasting about 20 to 25 generations from about 800 to about 300 BC? That the single cart burial from the country, from Newbridge, Midlothian (Carter and Hunter 2003), should fall into this span perhaps emphasises the exceptional character of that find. And how can we interpret that find in terms of sharing of beliefs with, or an absence of effective contact with, or a purposeful separateness from, the beliefs of continental societies? It does not support Simon James' suggestion that there was substantial identity in practices between the people of the Late Bronze Age and the developed Iron Age in Atlantic Europe, although it leaves untouched his argument that a continued use of roundhouses is significant (James 1999, 88).

As the constituent parts of the European Iron Age become more fully studied and its internal chronology better fixed, it may be suggested that two trends are

apparent. One is that, whatever broad-scale cultural labels may be attached, regional and chronological variations are increasingly recognised as constant features of the material record. The second is that the archaeological indicators on the barometer of the comparative levels of political, social or economic complexity point frequently to social change. For some twenty years, syntheses in which the big blocks of time amount to a couple of, or at most three, centuries have become the norm – from Wells' (1984) treatment to Kristiansen's (1998) overview. The same seems broadly true of southern Britain. Other phenomena appear to have been much more transitory in terms of their chronological survival, perhaps most celebrated the 'princely seats' and related features of the Late Hallstatt world, described in a recent book as an 'epiphenomenon' (Brun and Chaume 1997).

Conclusions

It would be premature to suggest that this very preliminary reading of the accumulating information from Scotland over the half millennium from about 800 BC points unequivocally to the occurrence of detectable social and political changes, whether temporary or more permanent, over the kinds of timescales presented above. Regional variation is certainly widely attested; but we need to allow for the possibility of more frequent social changes, that are unlikely to have been unidirectional, and that should in due course be detectable from the record. It will need the application of more than radiocarbon dating – archaeomagnetic or refinements of optically stimulated luminescence perhaps – to bring such oscillations into clearer focus.

We would contend that the available data do contain indications of communal action and of change on physically rather grander scales than the substantially localised ones of household and community on which Hingley's (1992) overview usefully focussed. The very different vegetation record for lowland inland Aberdeenshire from that suggested in southern Scotland is one pointer. Other indications come from Catherine McGill's doctoral research on the pottery from eastern Scottish sites, material which is, if not copiously represented, much more plentiful than we had appreciated. As in other domains, separating Late Bronze Age from Early Iron Age is problematic, but McGill's work suggests a number of broader-scale variations in this material (McGill in preparation). In general, Borders hillforts produce few forms amongst their pottery, even when – in Scottish terms – assemblages are of a reasonable size: Traprain remains the conspicuous exception to this rule. The range of pottery forms is particularly restricted on hillforts and other enclosed sites in the south-east – for example Dryburn Bridge and Broxmouth.

Contrastingly, the patterning of the evidence changes, north and west of Midlothian, and especially north of the Tay, where on some sites pottery forms are more varied. Sites either unenclosed or lightly enclosed, and with substantial houses, such as Scotstarvit, Myrehead, and upland Perthshire sites like Dalnaglar and Dalrulzion fall into this category. Overall McGill has identified some 35 forms, with richer assemblages displaying about ten of these (*ibid.*). A further suite of sites, with rather different assemblages, occurs from Aberdeenshire (at sites like Deer's Den, Kintore and Barra Hill) to Moray. And material is yet more common and more variable on Moray Firth promontory sites such as Cullykhan – with clear evidence of enclosure in the Early Iron Age – and Green Castle, Portknockie, probably with a palisade at this time.

The important question that faces us is whether we are beginning to see glimpses of a rather wider patterning superimposed on social structures where the local dimension has for long seemed to dominate in the record. We suspect that this may be the case.

Appendix: Things dated reasonably well to the period 800 to 350 cal. BC

P.J. Ashmore

There are 382 radiocarbon ages between 2600 and 2100 BP for Scottish archaeological material. They are each somewhere between excellent and awful. I have used a method here, which attempts to govern the wilfulness of choice of which dates to use.

Each radiocarbon age has been given a score for Age Weakness (that is to say, irrespective of Contextual Weakness, dealt with separately below) based on information readily available to me about the sample and its measurement. Some of the ages may thus have been judged harshly because not all recorded information is easily available. Four factors were scored independently:

- whether it was single-entity, as a proxy for whether it might be material of mixed age (score between 0 = good and 5 = bad)
- whether its species was identified, which was taken partly as a proxy for good examination of the material before it was dated (score between 0 = identified, 5 = material only, and 10 = not even the material dated was clear)
- whether it was measured when techniques were not as good as they are now (score between 0 = after 1985, and 15 = before 1980)
- the time that may have elapsed between the last incorporation of carbon from the atmosphere in the sample and the death of the organism which provided it, important for charcoal which may have come from old heartwood (score between 0 and 15 = possibly up to 500 years old).

These scores were added up. A technically excellent age had a score of 0 and an unusable one had a score of 45. The total score was divided by 4.5 and reduced to the nearest lower integer, so every date had an Age Weakness score between 0 (excellent) and 10 (unusable). An Age Weakness score above 2 then led to rejection of the age from the list below. This choice of break-point was based on examination of the results for all 382 ages: an Age Weakness of 3 included many results which seemed to me unacceptably poor while an Age Weakness of 2 seemed to include few ages likely to be badly wrong. It must be emphasised that this choice was subjective. It is very difficult to express its consequences in terms of radiocarbon years, or of calendar years due to the wiggles of the radiocarbon curve, but subjectively I do not think that many of the remaining dates are wrong by more than two or three generations over and above any wrongness arising from statistical uncertainties.

In the database, technical problems were scored separately. Ages that had, for instance, suffered from contamination during measurement, such as some of those from Hoddom, were excluded. After examination, all five remaining dates with adjusted errors greater than 110 were also excluded because their calibrated ages were too vague to be even slightly useful.

Most ages related to several different things. For example, the age might have been taken from a single well-preserved carbonised twig, and its relevance to the age of that twig is immediately obvious. And if the carbonised twig was in a pit in a fort, a score for the Contextual Weakness could be given to each relationship, between 0 (for instance the twig itself in the example above) and 10 (the fort). A reasonably good relationship such as that between the date of the twig and date of the pit was given a score of 4. Had the twig in the example above been a lump of charcoal, the Contextual Weakness of the age in relationship to the pit would have been 6, as a loose *TPQ*. All contextual relationships with a Contextual Weakness greater than 4 were excluded.

Contextual relationships with particular species of tree (birch, hazel, oak etc.) were omitted as not particularly interesting, because an analysis had shown that there was little variation through the period. As noted in the text, hazel, oak, alder, birch, and willow were the species most often used for dating.

There remain 132 ages relating to 258 contextual relationships. These latter form the rows in the list that follows. This is therefore a compilation of the things reasonably well dated to the period, with their dates, not simply a table of dates. It is ordered by Tag, a simple descriptor of the thing to which the date relates, and then by Site.

Tag	*Site*	*Reference*	*Material of sample*	*Code*	*Contextual weakness*	*Age weakness*	*Calibrated date*	*Adjusted age*	*Adjusted error*	*d13c*
artefact (figurine)	Ballachulish, Lochaber	Christison 1880–81; Coles 1990, 320, 326	wood	HAR-6329	0	0	790 to 410 cal BC	2490	70	
artefact (axe-marked wood)	Dail na Caraidh, Fort William	Barrett and Gourlay 1999	wood	GU-2185	0	1	770 to 400 cal BC	2440	60	-25
artefact (paddle)	Ravenstone Moss	Sheridan 1997b	wood	OxA-6815	2	2	780 to 400 cal BC	2470	55	-24.5
artefact (wooden bowl and trough)	Stornoway, River Arnol, Lewis	Earwood 1993	wood	OxA-3012	0	2	800 to 200 cal BC	2370	90	
barley	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8479	0	0	360 to 50 cal BC	2145	40	-23.4
barley	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8480	0	0	400 to 200 cal BC	2250	35	-23.8
barley	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8575	0	0	360 to 50 cal BC	2155	45	-24.6
barley	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8577	0	0	400 to 170 cal BC	2230	50	-25.1
barley	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8613	0	0	360 to 90 cal BC	2165	40	-21.7
barley	Bayanne, Yell	inf. H. Moore	charred grain	OxA-9898	0	0	410 to 200 BC	2300	38	-22.33
barley	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8037	0	0	800 to 510 cal BC	2520	35	-23.2
barley	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8038	0	0	790 to 410 cal BC	2495	45	-24.3
barley	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8039	0	0	810 to 510 cal BC	2535	40	-23.4
barley	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8062	0	0	800 to 410 cal BC	2500	40	-24.5
barley	Ceann Nan Clachan, Vallay Strand, N Uist	Armit and Braby 2002, 252	charred grain	OxA-9831	0	0	770 to 410 BC	2469	37	-24.18
barley	Ceann Nan Clachan, Vallay Strand, N Uist	Armit and Braby 2002, 252	charred grain	OxA-9969	0	0	780 to 400 BC	2475	50	-24.4
barley	Ceann Nan Clachan, Vallay Strand, N Uist	Armit and Braby 2002, 252	charred grain	OxA-9970	0	0	800 to 200 BC	2360	50	-25.31
barley	Cyderhall, Dornoch	Pollock 1992, 157	charred grain	GU-2633	2	1	400 to 170 cal BC	2220	50	-25.3
barley	Dun Vulan, S Uist	Parker Pearson and Sharples 1999, 50, 58, 211	charred grain	AA-22916	0	0	770 to 400 cal BC	2435	50	
barley	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19635	1	1	360 cal BC to 0 cal AD	2135	55	-23.5
barley	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19636	1	0	800 to 150 cal BC	2330	80	-23.5
barley	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19639	1	1	360 cal BC to 20 cal AD	2110	55	-22.1
barley	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19643	1	1	380 cal BC to 60 cal AD	2110	80	-24.5
barley	Gob Eirer, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8459	0	0	770 to 410 cal BC	2470	50	-24.3
barley	Gob Eirer, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8466	0	0	840 to 520 cal BC	2580	50	-23.7
barley	Gob Eirer, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8573	0	0	770 to 400 cal BC	2465	50	-24.4
barley	Rosebank, Kintore Bypass	Alexander 2000, 64	charred grain	OxA-8126	0	0	370 to 110 cal BC	2175	35	-23
broch	Crosskirk	Fairhurst 1984, 164–165	leaves	SRR-266	2	2	800 to 200 cal BC	2380	110	-26.8
burial	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1138	0	2	800 to 0 cal BC	2255	110	-19.9
burial	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1139	0	1	410 cal BC to 80 cal AD	2155	110	-20.3
burial	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1140	0	1	800 to 0 cal BC	2270	110	-20.7
burial	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1141	0	1	410 cal BC to 80 cal AD	2160	110	-20.6
burial	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1144	0	1	550 cal BC to 100 cal AD	2200	110	-20.5

Tag	Site	Reference	Material of sample	Code	Contextual weakness	Age weakness	Calibrated date	Adjusted age	Adjusted error	d13c
burial	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1146	0	2	400 cal BC to 70 cal AD	2145	110	-20.4
burial	Dryburn Bridge, Dunbar	Triscott 1982	bone, human	GU-1149	0	1	550 cal BC to 100 cal AD	2210	110	-21.5
burial	Dryburn Bridge, Dunbar	Triscott 1982	bone, human	GU-1410	0	1	800 to 200 cal BC	2415	110	-20.9
burial	Howe, Stromness	Ballin Smith 1994, 264–6	bone, human	GU-1799	0	0	770 to 370 cal BC	2380	50	-20
burial	Kingsbarns	James 2001, 20–4	bone human	GU-8219	0	0	410 to 160 BC	2250	60	-20.3
burial	Kirkhill, St Andrews	Wordsworth and Clark 1997, 13	bone, human	GU-1680	0	0	550 to 150 cal BC	2290	65	-21
burial	MacArthur Cave, Oban	Saville and Hallén 1994, 720	bone, human	OxA-4485	0	0	380 to 50 cal BC	2170	55	-21.4
burial	MacArthur Cave, Oban	Saville and Hallén 1994, 720	bone, human	OxA-4486	0	0	800 to 200 cal BC	2365	55	-21.3
burial	MacArthur Cave, Oban	Saville and Hallén 1994, 720	bone, human	OxA-4487	0	0	770 to 400 cal BC	2460	55	-21.9
burial	MacArthur Cave, Oban	Saville and Hallén 1994, 720	bone, human	OxA-4488	0	0	520 to 170 cal BC	2295	60	-22.3
cattle	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1152	0	1	850 to 200 cal BC	2440	110	-21.1
cattle	Cladh Hallan	Parker Pearson 1996, 142; 2002	bone, animal	AA-17477	0	0	800 to 150 cal BC	2310	65	-22.1
cattle	Pierowall Quarry, Westray	Sharples 1984, 90	bone, animal	GU-1580	0	0	800 to 410 cal BC	2510	80	-20
cattle	Pierowall Quarry, Westray	Sharples 1984, 90	bone, animal	GU-1581	0	0	770 to 390 cal BC	2425	60	-20
cattle	Silgenach	inf. N. Sharples	bone, animal	OxA-8880	0	0	760 to 380 cal BC	2385	40	-20.4
cattle	Silgenach	inf. N. Sharples	bone, animal	OxA-8881	0	0	790 to 410 cal BC	2485	40	-20.5
cattle	Silgenach	inf. N. Sharples	bone, animal	OxA-8922	0	0	790 to 410 cal BC	2485	40	-20.419
cattle	Silgenach	inf. N. Sharples	bone, animal	OxA-8923	0	0	760 to 390 cal BC	2410	40	-20.602
cattle	St Boniface, Papa Westray	Lowe 1998, 84	bone, animal	AA-9565	4	1	360 cal BC to 20 cal AD	2115	60	-20.6
cave	Inchmarnock Site 16A	inf. C. Lowe	charred hazel nutshell	AA-39966	4	0	350 to 40 cal BC	2110	35	-24.6
cemetery	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1138	2	2	800 to 0 cal BC	2255	110	-19.9
cemetery	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1139	2	1	410 cal BC to 80 cal AD	2155	110	-20.3
cemetery	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1141	4	1	410 cal BC to 80 cal AD	2160	110	-20.6
cemetery	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1146	4	2	400 cal BC to 70 cal AD	2145	110	-20.4
cemetery	Kirkhill, St Andrews	Wordsworth and Clark 1997, 13	bone, human	GU-1680	2	0	550 to 150 cal BC	2290	65	-21
cist	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1138	2	2	800 to 0 cal BC	2255	110	-19.9
cist	Broxmouth, Dunbar	Ashmore and Hill 1984, 94	bone, human	GU-1139	2	1	410 cal BC to 80 cal AD	2155	110	-20.3
cist	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1141	2	1	410 cal BC to 80 cal AD	2160	110	-20.6
cist	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1144	2	1	550 cal BC to 100 cal AD	2200	110	-20.5
cist	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1146	2	2	400 cal BC to 70 cal AD	2145	110	-20.4
cist	Kingsbarns	James 2001, 20–4	bone human	GU-8219	2	0	410 to 160 BC	2250	60	-20.3
cist	Kirkhill, St Andrews	Wordsworth and Clark 1997, 13	bone, human	GU-1680	2	0	550 to 150 cal BC	2290	65	-21
crannog	Carn Dubh, Beauly Firth	Hale 1996b, 139	wood	GU-4540	2	0	810 to 410 cal BC	2530	50	-25.3
crannog	Eilean Ban, Loch Frisa, Mull	Holley and Ralston 1995	wood	Beta-78832	2	0	400 to 60 cal BC	2200	70	
crannog	Erskine Bridge	inf. W. Hanson	wood	GU-2186	2	1	400 to 120 cal BC	2210	50	-25.8
crannog	Erskine Bridge	inf. W. Hanson; Crone 1993b, 246	wood	GU-2383	2	2	380 to 50 cal BC	2170	60	-28
crannog	Loch Arthur, Nithsdale	Crone 1993b, 246	wood	GU-2643	2	2	400 to 200 cal BC	2260	50	-28
crannog	Loch Arthur, Nithsdale	Crone 1993b, 246	wood	GU-2644	2	2	410 to 160 cal BC	2240	60	-28.5
crannog	Loch Tay, Fearnan Hotel, Kenmore	Crone 1993b, 246	Wood	GU-1322	2	2	850 to 250 cal BC	2475	110	-25.6

	Site		*Material of sample*		*Contextual weakness*	*Age weakness*	*Calibrated date*	*Adjusted age*	*Adjusted error*	
crannog	Loch Tay, Fearnan, Kenmore	Dixon 1981, 346–7	wood	GU-1323	2	0	900 to 400 cal BC	2545	110	-25.9
crannog	Loch Tay, Fearnan, Kenmore	Dixon 1981, 346–7	wood	GU-1325	2	2	800 to 200 cal BC	2410	110	-25.8
crannog	Loch Tay, Oakbank, Kenmore	Dixon 1981, 346–7	wood	GU-3468	4	2	790 to 410 cal BC	2490	50	-26
crannog	Loch Tay, Oakbank, Kenmore	Dixon 1981, 346–7	wood	GU-3469	2	2	830 to 510 cal BC	2560	50	-28.8
crannog	Loch Tay, Oakbank, Kenmore	Dixon 1981, 346–7	wood	GU-3470	2	2	800 to 410 cal BC	2510	50	-28.4
crannog	Loch Tay, Oakbank, Kenmore	Dixon 1981, 346–7	wood	GU-3471	2	2	790 to 410 cal BC	2490	50	-28.3
crannog	Loch Tay, Oakbank, Kenmore	Dixon 1981, 346–7	wood	GU-3472	2	2	770 to 400 cal BC	2450	50	-24.2
crannog	Redcastle, Beauly Firth	Hale 1996a, 139	leather	AA-21248	2	0	400 to 90 cal BC	2220	70	-27.9
crannog	Redcastle, Beauly Firth	Hale 1994, 39	wood	Beta-48763	4	2	380 to 40 cal BC	2150	60	
crannog	Redcastle, Beauly Firth	Hale 1995, 44	wood	GU-4094	2	1	520 to 200 cal BC	2310	50	-27.3
crannog	Redcastle, Beauly Firth	Hale 1995, 44	wood	GU-4095	2	1	800 to 200 cal BC	2330	50	-27.1
crannog	Redcastle, Beauly Firth	Hale 1995, 44	wood	GU-4097	2	2	780 to 410 cal BC	2480	50	-27
crannog	Redcastle, Beauly Firth	Hale 1996a, 139	wood	GU-4541	4	1	800 to 410 cal BC	2510	50	-27
crannog	Redcastle, Beauly Firth	Hale 1996a, 139	wood	GU-4542	4	1	830 to 520 cal BC	2570	50	-26.8
crannog	Redcastle, Beauly Firth	Hale 1996a, 139	wood	GU-4543	2	1	820 to 410 cal BC	2550	50	-27.8
ditch	Brixwold, Bonnyrigg	Crone and O'Sullivan 1997, 394	seeds	AA-18521	2	0	390 to 90 cal BC	2190	60	-22.4
ditch	Fisher's Road East, Port Seton	Haselgrove and McCullagh 2000, 127–128	seeds	AA-25730	4	1	840 to 540 cal BC	2590	45	-22.2
ditch	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19635	4	1	360 cal BC to 0 cal AD	2135	55	-23.5
ditch	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19636	4	0	800 to 150 cal BC	2330	80	-23.5
ditch	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19638	4	1	360 cal BC to 30 cal AD	2105	55	-23.4
ditch	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19639	4	1	360 cal BC to 20 cal AD	2110	55	-22.1
ditch	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	wood	AA-19641	4	2	400 to 50 cal BC	2204	75	-33.9
ditch, crescentic	Deer's Den, Kintore Bypass	Alexander 2000, 64	charcoal	OxA-8174	4	0	820 to 520 cal BC	2560	40	-26.2
enclosure	Brixwold, Bonnyrigg	Crone and O'Sullivan 1997, 394	seeds	AA-18521	2	0	390 to 90 cal BC	2190	60	-22.4
enclosure	Fisher's Road East, Port Seton	Haselgrove and McCullagh 2000, 127–128	seeds	AA-25730	4	1	840 to 540 cal BC	2590	45	-22.2
enclosure	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19635	4	1	360 cal BC to 0 cal AD	2135	55	-23.5
enclosure	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19636	4	0	800 to 150 cal BC	2330	80	-23.5
enclosure	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19638	4	1	360 cal BC to 30 cal AD	2105	55	-23.4
enclosure	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19639	4	1	360 cal BC to 20 cal AD	2110	55	-22.1
enclosure	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	wood	AA-19641	4	2	400 to 50 cal BC	2204	75	-33.9
enclosure	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19643	4	1	380 cal BC to 60 cal AD	2110	80	-24.5
enclosure	North Mains, Strathallan	Barclay and Tolan 1990, 50–3	charcoal	GU-2681	2	1	390 to 110 cal BC	2200	50	-24.3
fort	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4599	2	1	800 to 250 cal BC	2370	50	-26.6
fort	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4600	2	1	800 to 200 cal BC	2360	60	-26.2
fort	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4601	2	1	410 to 160 cal BC	2250	60	-26.9
fort	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4602	2	1	770 to 400 cal BC	2450	50	-25.9
fort	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4603	4	1	770 to 400 cal BC	2440	50	-27.5
fort	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4604	2	1	780 to 410 cal BC	2480	50	-27
fort	Brown Caterthun	Dunwell and Strachan 1998, 125	charcoal	GU-7322	2	0	520 to 200 cal BC	2310	50	-26.1

Tag	Site	Reference	Material of sample	Code	Contextual weakness	Age weakness	Calibrated date	Adjusted age	Adjusted error	d13c
fort	Brown Caterthun	Dunwell and Strachan 1998, 125	charcoal	GU-7323	2	0	770 to 370 cal BC	2380	50	-26.2
fort	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8037	4	0	800 to 510 cal BC	2520	35	-23.2
fort	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8038	4	0	790 to 410 cal BC	2495	45	-24.3
fort	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8039	4	0	810 to 510 cal BC	2535	40	-23.4
fort	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8062	4	0	800 to 410 cal BC	2500	40	-24.5
fort	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1144	4	1	550 cal BC to 100 cal AD	2200	110	-20.5
fort	Broxmouth, Dunbar	Hill 1982a, 1982b; Ashmore and Hill 1983, 94	charcoal	GU-1201	2	1	850 to 250 cal BC	2470	110	-25
fort	Broxmouth, Dunbar	Hill 1982a, 1982b	charcoal	GU-1225	2	2	800 to 0 cal BC	2250	110	-25.1
fort	Gillies Hill, Cambusbarron	Rideout 1992b, 132–3	charcoal	GU-1911	4	1	550 to 200 cal BC	2310	55	-26.8
four-post setting	Deer's Den, Kintore Bypass	Alexander 2000, 64	charcoal	OxA-8182	4	0	800 to 410 cal BC	2520	40	-26.6
grain	Cyderhall, Dornoch	Pollock 1992, 157	charred grain	GU-2633	0	1	400 to 170 cal BC	2220	50	-25.3
grain	Hornish Point, S Uist	inf. J. Barber	charred grain	GU-2550	0	0	390 to 0 cal BC	2160	80	-23.9
grain	Kebister, Lerwick	Owen and Lowe 1999, 138–47	charred grain	UtC-1146	2	1	500 cal BC to 50 cal AD	2200	100	-26.4
grain	Kebister, Lerwick	Owen and Lowe 1999, 138–47	charred grain	UtC-1147	2	0	380 cal BC cal BC to 10 cal AD	2130	70	-24.7
grave	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1138	2	2	800 to 0 cal BC	2255	110	-19.9
grave	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1139	2	1	410 cal BC to 80 cal AD	2155	110	-20.3
grave	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1141	2	1	410 cal BC to 80 cal AD	2160	110	-20.6
grave	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1144	2	1	550 cal BC to 100 cal AD	2200	110	-20.5
grave	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1146	2	2	400 cal BC to 70 cal AD	2145	110	-20.4
grave	Dryburn Bridge, Dunbar	Triscott 1982	bone, human	GU-1149	2	1	550 cal BC to 100 cal AD	2210	110	-21.5
gully	Cyderhall, Dornoch	Pollock 1992, 155	charcoal	GU-2650	2	1	800 to 200 cal BC	2330	50	-24.8
hearth	An Dunan, Uig	Gilmour and Church 1999, 115	charred hazel nutshell	OxA-8478	2	0	390 to 170 cal BC	2215	40	-22.8
hearth	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8479	4	0	360 to 50 cal BC	2145	40	-23.4
hearth	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8480	4	0	400 to 200 cal BC	2250	35	-23.8
hearth	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8575	4	0	360 to 50 cal BC	2155	45	-24.6
hearth	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8577	4	0	400 to 170 cal BC	2230	50	-25.1
hearth	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8613	4	0	360 to 90 cal BC	2165	40	-21.7
hearth	Howe, Stromness	Ballin Smith 1994, 264–6	bone, animal	GU-2343	4	2	380 cal BC cal BC to 20 cal AD	2130	80	-22.4
hearth	Kebister, Lerwick	Owen and Lowe 1999, 138–47	charred grain	UtC-1146	4	1	500 cal BC to 50 cal AD	2200	100	-26.4
hearth	Kebister, Lerwick	Owen and Lowe 1999, 138–47	charred grain	UtC-1147	4	0	380 cal BC cal BC to 10 cal AD	2130	70	-24.7
house	An Dunan, Uig	Gilmour and Church 1999, 115	charred hazel nutshell	OxA-8478	2	0	390 to 170 cal BC	2215	40	-22.8
house	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8479	4	0	360 to 50 cal BC	2145	40	-23.4
house	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8480	4	0	400 to 200 cal BC	2250	35	-23.8
house	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8575	4	0	360 to 50 cal BC	2155	45	-24.6
house	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8577	4	0	400 to 170 cal BC	2230	50	-25.1

Tag	*Site*		*Material of sample*		*Contextual weakness*	*Age weakness*		*Adjusted age*	*Adjusted error*	
house	An Dunan, Uig	Gilmour and Church 1999, 115	charred grain	OxA-8613	4	0	360 to 90 cal BC	2165	40	-21.7
house	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1152	2	1	850 to 200 cal BC	2440	110	-21.1
house	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1153	4	2	900 to 400 cal BC	2545	110	-21.4
house	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1154	4	2	850 to 250 cal BC	2460	110	-21.5
house	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28369	2	0	400 to 180 cal BC	2245	50	-25.6
house	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28370	2	1	770 to 370 cal BC	2380	50	-25.2
house	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28371	2	1	400 to 200 cal BC	2260	50	-25
house	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28372	2	0	770 to 390 cal BC	2420	70	-25.4
house	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28373	2	0	770 to 380 cal BC	2395	50	-25.4
house	Cladh Hallan	Parker Pearson 1996, 142; 2002	bone, animal	AA-17477	2	0	800 to 150 cal BC	2310	65	-22.1
house	Cyderhall, Dornoch	Pollock 1992, 155	charcoal	GU-2630	2	1	800 to 200 cal BC	2340	60	-25.3
house	Cyderhall, Dornoch	Pollock 1992, 155	charcoal	GU-2650	2	1	800 to 200 cal BC	2330	50	-24.8
house	Douglasmuir, Friockheim,	Kendrick 1995, 58	charcoal	GU-1468	4	2	840 to 380 cal BC	2495	110	-24.7
house	Douglasmuir, Friockheim,	Kendrick 1995,58	charcoal	GU-1471	4	2	800 to 200 cal BC	2400	110	-24.3
house	Dryburn Bridge, Dunbar	Triscott 1982	wood	GU-1257	2	2	850 to 200 cal BC	2450	110	-25
house	Dryburn Bridge, Dunbar	Triscott 1982	charcoal	GU-1283	2	2	800 to 50 cal BC	2280	110	-25
house	Eildon Hill North, Melrose	Owen 1992, 56–80	charcoal	GU-2192	4	2	400 to 110 cal BC	2220	60	-24.8
house	Greenyards, Bannockburn	Rideout 1996, 249–250	charcoal	GU-1655	4	1	770 to 400 cal BC	2445	60	-25
house	Howe, Stromness	Ballin Smith 1994, 264–6	bone, animal	GU-2343	4	2	380 cal BC to 20 cal AD	2130	80	-22.4
house	Romancamp Gate, Fochabers	Barclay 1993, 261–2	charcoal	GU-3102	4	1	360 cal BC to 10 cal AD	2110	50	-26
house	Tungadale, Glen Bracadale Skye	inf. R. Miket	charcoal	GU-3808	4	2	800 to 150 cal BC	2310	70	-26.7
house	Tungadale, Glen Bracadale Skye	inf. R. Miket	charcoal	GU-3810	4	2	400 cal BC to 50 cal AD	2150	100	
house?	Deer's Den, Kintore Bypass	Alexander 2000, 64	charcoal	OxA-8174	4	0	820 to 520 cal BC	2560	40	-26.2
leather	Redcastle, Beauly Firth	Hale 1996a, 139	leather	AA-21248	0	0	400 to 90 cal BC	2220	70	-27.9
midden	Bay of Moaness, Rousay	Edwards 2000	bone, animal	OxA-9013	2	0	770 to 400 cal BC	2445	45	-20.882
midden	Bayanne, Yell	inf. H Moore	charred grain	OxA-9898	4	0	410 to 200 BC	2300	38	-22.33
midden	Dun Vulan, S Uist	Parker Pearson and Sharples 1999, 50, 58, 211	charred grain	AA-22916	4	0	770 to 400 cal BC	2435	50	
midden	East Wemyss	Guttmann 2002, 118	shell	GU-2716	0	1	800 to 200 cal BC	2365	65	1.7
midden	Hornish Point, S Uist	inf. J. Barber	charred grain	GU-2550	4	0	390 to 0 cal BC	2160	80	-23.9
midden	Howe, Stromness	Ballin Smith 1994, 264–6	bone, animal	GU-1804	4	1	770 to 390 cal BC	2420	55	-21.2
midden	Inchmarnock Site 16B	inf. C. Lowe	charred hazel nutshell	AA-39967	4	0	360 to 50 BC	2150	35	-25.1
midden	Pierowall Quarry, Westray	Sharples 1984, 90	bone, animal	GU-1580	4	0	800 to 410 cal BC	2510	80	-20
midden	Silgenach	inf. N. Sharples	bone, animal	OxA-8880	2	0	760 to 380 cal BC	2385	40	-20.4
midden	Silgenach	inf. N. Sharples	bone, animal	OxA-8881	4	0	790 to 410 cal BC	2485	40	-20.5
midden	Silgenach	inf. N. Sharples	bone, animal	OxA-8922	4	0	790 to 410 cal BC	2485	40	-20.419
midden	Silgenach	inf. N. Sharples	bone, animal	OxA-8923	0	0	760 to 390 cal BC	2410	40	-20.602
midden	Silgenach	inf. N. Sharples	bone, animal	OxA-8924	4	0	800 to 200 cal BC	2340	55	-21.217

Tag	*Site*	*Reference*	*Material of sample*	*Code*	*Contextual weakness*	*Age weakness*	*Calibrated date*	*Adjusted age*	*Adjusted error*	*d13c*
midden	St Boniface, Papa Westray	Lowe 1998, 84	bone, animal	AA-9565	4	1	360 cal BC to 20 cal AD	2115	60	-20.6
midden	Tofts Ness, Sanday	Dockrill *et al.* forthcoming	bone, animal	GU-2208	2	1	770 to 410 cal BC	2470	50	-21.4
peat	Calanais Fields, Lewis	inf. K. Flitcroft	peat	OxA-10091	2	2	390 to 180 BC	2222	37	-28.68
peat	Calanais Fields, Lewis	inf. K. Flitcroft	peat	OxA-10120	2	2	760 to 380 BC	2380	40	-29.94
peat	Tofts Ness, Sanday	Dockrill *et al.* forthcoming	peat	GU-2544	2	2	770 to 410 cal BC	2470	50	-27.9
peat basal	Dail na Caraidh, Fort William	Barrett and Gourlay 1999	wood	GU-2185	4	1	770 to 400 cal BC	2440	60	-25
pit	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8037	2	0	800 to 510 cal BC	2520	35	-23.2
pit	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8038	2	0	790 to 410 cal BC	2495	45	-24.3
pit	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8039	2	0	810 to 510 cal BC	2535	40	-23.4
pit	Brown Caterthun	Dunwell 1999, 111	charred grain	OxA-8062	2	0	800 to 410 cal BC	2500	40	-24.5
pit	Broxmouth, Dunbar	Ashmore and Hill 1983, 94	bone, human	GU-1140	2	1	800 to 0 cal BC	2270	110	-20.7
pit	Cyderhall, Dornoch	Pollock 1992, 157	charred grain	GU-2633	2	1	400 to 170 cal BC	2220	50	-25.3
pit	Dryburn Bridge, Dunbar	Triscott 1982	bone, human	GU-1410	2	1	800 to 200 cal BC	2415	110	-20.9
pit	Greenyards, Bannockburn	Rideout 1996, 249–250	charcoal	GU-1656	2	2	410 to 170 cal BC	2255	60	-25
pit	Loudoun Hill	Atkinson 1996, 137	charcoal	GU-4537	4	2	360 cal BC to 10 cal AD	2120	60	-25.2
pit	Redcastle, Beauly Firth	Hale 1996a, 139	leather	AA-21248	2	0	400 to 90 cal BC	2220	70	-27.9
pit	Rosebank, Kintore Bypass	Alexander 2000, 64	charred grain	OxA-8126	4	0	370 to 110 cal BC	2175	35	-23
platform	Eildon Hill North, Melrose	Owen 1992, 56–80	charcoal	GU-2192	4	2	400 to 110 cal BC	2220	60	-24.8
Pomoideae	Eildon Hill North, Melrose	Owen 1992, 56–80	charcoal	GU-2192	4	2	400 to 110 cal BC	2220	60	-24.8
posthole	Cyderhall, Dornoch	Pollock 1992, 155	charcoal	GU-2650	2	1	800 to 200 cal BC	2330	50	-24.8
posthole	Greenyards, Bannockburn	Rideout 1996, 249–250	charcoal	GU-1655	4	1	770 to 400 cal BC	2445	60	-25
posthole	Lairg Watching Brief, Lairg	McCullagh 1997, 114	charcoal	AA-26222	4	1	800 to 200 cal BC	2325	60	-24.8
posthole	North Mains, Strathallan	Barclay and Tolan 1990, 50–3	charcoal	GU-2681	2	1	390 to 110 cal BC	2200	50	-24.3
pot	Cladh Hallan	Parker Pearson 1996, 142; 2002	bone, animal	AA-17477	2	0	800 to 150 cal BC	2310	65	-22.1
pot	Dun Vulan, S Uist	Parker Pearson and Sharples 1999, 50, 58, 211	charred grain	AA-22916	4	0	770 to 400 cal BC	2435	50	
pot	Silgenach	inf. N. Sharples	bone, animal	OxA-8922	4	0	790 to 410 cal BC	2485	40	-20.419
Prunus	Eildon Hill North, Melrose	Owen 1992, 56–80	charcoal	GU-2192	4	2	400 to 110 cal BC	2220	60	-24.8
rampart	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4599	2	1	800 to 250 cal BC	2370	50	-26.6
rampart	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4600	2	1	800 to 200 cal BC	2360	60	-26.2
rampart	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4601	2	1	410 to 160 cal BC	2250	60	-26.9
rampart	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4602	2	1	770 to 400 cal BC	2450	50	-25.9
rampart	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4603	4	1	770 to 400 cal BC	2440	50	-27.5
rampart	Brown Caterthun	Dunwell and Strachan 1996, 136	charcoal	GU-4604	2	1	780 to 410 cal BC	2480	50	-27
rampart	Brown Caterthun	Dunwell and Strachan 1998, 125	charcoal	GU-7322	2	0	520 to 200 cal BC	2310	50	-26.1
rampart	Brown Caterthun	Dunwell and Strachan 1998, 125	charcoal	GU-7323	2	0	770 to 370 cal BC	2380	50	-26.2
rampart	Broxmouth, Dunbar	Hill 1982a, 1982b; Ashmore and Hill 1983, 94	charcoal	GU-1201	2	1	850 to 250 cal BC	2470	110	-25
rampart	Broxmouth, Dunbar	Hill 1982a; 1982b	charcoal	GU-1225	2	2	800 to 0 cal BC	2250	110	-25.1
rampart	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19643	4	1	380 cal BC to 60 cal AD	2110	80	-24.5
red deer	Bay of Moaness, Rousay	Edwards 2000	bone, animal	OxA-9013	0	0	770 to 400 cal BC	2445	45	-20.882

Tag	Site	Reference	Material of sample	Code	Contextual weakness	Age weakness	Calibrated date	Adjusted age	Adjusted error	d13c
red deer	Silgenach	inf. N. Sharples	bone, animal	OxA-8924	0	0	800 to 200 cal BC	2340	55	-21.217
ring cairn	Balnuaran of Clava	Bradley 2000	charcoal	AA-25229	4	0	770 to 390 cal BC	2420	45	-26.5
ring ditch	Deer's Den, Kintore Bypass	Alexander 2000, 64	charcoal	OxA-8174	4	0	820 to 520 cal BC	2560	40	-26.2
ring ditch	Douglasmuir, Friockheim,	Kendrick 1995,58	charcoal	GU-1471	2	2	800 to 200 cal BC	2400	110	-24.3
ring ditch	Ironshill, Inverkeilor	Pollock 1997, 350	charcoal	GU-1982	4	1	800 to 200 cal BC	2340	50	-25.6
roundhouse	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1152	2	1	850 to 200 cal BC	2440	110	-21.1
roundhouse	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1153	4	2	900 to 400 cal BC	2545	110	-21.4
roundhouse	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1154	4	2	850 to 250 cal BC	2460	110	-21.5
roundhouse	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28369	2	0	400 to 180 cal BC	2245	50	-25.6
roundhouse	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28370	2	1	770 to 370 cal BC	2380	50	-25.2
roundhouse	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28371	2	1	400 to 200 cal BC	2260	50	-25
roundhouse	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28372	2	0	770 to 390 cal BC	2420	70	-25.4
roundhouse	Candle Stane, Insch	Cameron 1999, 367–368	charcoal	AA-28373	2	0	770 to 380 cal BC	2395	50	-25.4
roundhouse	Crosskirk	Fairhurst 1984, 164–165	leaves	SRR-266	2	2	800 to 200 cal BC	2380	110	-26.8
roundhouse	Cyderhall, Dornoch	Pollock 1992, 155	charcoal	GU-2630	2	1	800 to 200 cal BC	2340	60	-25.3
roundhouse	Cyderhall, Dornoch	Pollock 1992, 155	charcoal	GU-2650	2	1	800 to 200 cal BC	2330	50	-24.8
roundhouse	Douglasmuir, Friockheim,	Kendrick 1995, 58	charcoal	GU-1468	4	2	840 to 380 cal BC	2495	110	-24.7
roundhouse	Douglasmuir, Friockheim,	Kendrick 1995,58	charcoal	GU-1471	4	2	800 to 200 cal BC	2400	110	-24.3
roundhouse	Dryburn Bridge, Dunbar	Triscott 1982	wood	GU-1257	2	2	850 to 200 cal BC	2450	110	-25
roundhouse	Greenyards, Bannockburn	Rideout 1996, 249–250	charcoal	GU-1655	4	1	770 to 400 cal BC	2445	60	-25
roundhouse	Howe, Stromness	Ballin Smith 1994, 264–6	bone, human	GU-1799	4	0	770 to 370 cal BC	2380	50	-20
rowan	Loanleven	Lowe 1992, 127	charcoal	GU-2541	4	2	410 to 200 cal BC	2270	50	-25
sheep	St Boniface, Papa Westray	Lowe 1998, 84	bone, animal	AA-9565	4	1	360 cal BC to 20 cal AD	2115	60	-20.6
shell	East Wemyss	Guttmann 2002, 118	shell	GU-2716	0	1	800 to 200 cal BC	2365	65	1.7
shell midden	East Wemyss	Guttmann 2002, 118	shell	GU-2716	0	1	800 to 200 cal BC	2365	65	1.7
shell midden	St Boniface, Papa Westray	Lowe 1998, 84	bone, animal	AA-9565	4	1	360 cal BC to 20 cal AD	2115	60	-20.6
soil	Arisaig to Kinsadel Site 8	Halliday 2001	charcoal	AA-41069	0	0	410 to 200 BC	2290	45	
soil	Balnuaran of Clava	Bradley 2000	charcoal	AA-25229	4	0	770 to 390 cal BC	2420	45	-26.5
souterrain	Bu, Naversough Stromness	Hedges 1987	bone, animal	GU-1153	4	2	900 to 400 cal BC	2545	110	-21.4
structure	Ceann Nan Clachan, Vallay Strand, N Uist	Armit and Braby 2002, 252	charred grain	OxA-9831	2	0	770 to 410 BC	2469	37	-24.18
structure	Ceann Nan Clachan, Vallay Strand, N Uist	Armit and Braby 2002, 252	charred grain	OxA-9969	2	0	780 to 400 BC	2475	50	-24.4
structure	Ceann Nan Clachan, Vallay Strand, N Uist	Armit and Braby 2002, 252	charred grain	OxA-9970	2	0	800 to 200 BC	2360	50	-25.31
trough	Stornoway, River Arnol, Lewis	Earwood 1993	wood	OxA-3012	0	2	800 to 200 cal BC	2370	90	
wheat	Fisher's Road West, Port Seton	Haselgrove and McCullagh 2000, 28	charred grain	AA-19638	1	1	360 cal BC to 30 cal AD	2105	55	-23.4
winkle	East Wemyss	Guttmann 2002, 118	shell	GU-2716	0	1	800 to 200 cal BC	2365	65	1.7
wooden bowl	Stornoway, River Arnol, Lewis	Earwood 1993	wood	OxA-3012	0	2	800 to 200 cal BC	2370	90	

Bibliography

Alcock, L. 1987. Pictish studies: present and future, in A. Small (ed.), *The Picts: a New Look at Old Problems*, 80–92. Dundee: University of Dundee.

Alexander, D.L. 2000. Excavation of Neolithic pits, later prehistoric structures and a Roman temporary camp along the line of the A96 Kintore and Blackburn bypass, Aberdeenshire, *Proceedings of the Society of Antiquaries of Scotland* 130, 11–75.

Alexander, D.L. 2002. An oblong fort at Finavon, Angus: an example of the over-reliance on the appliance of science, in B. Ballin Smith and I. Banks (eds), *In the Shadow of the Brochs*, 45–54. Stroud: Tempus.

Armit, I. 1990. Epilogue: the Atlantic Scottish Iron Age, in I. Armit (ed.), *Beyond the Brochs: Changing Perspectives on the Atlantic Scottish Iron Age*, 194–210. Edinburgh: Edinburgh University Press.

Armit, I. 1997. *Celtic Scotland.* London: Batsford.

Armit, I. 1999. Life after Hownam: the Iron Age in south-east Scotland, in B. Bevan (ed.), *Northern Exposure: Interpretative Devolution and the Iron Ages in Britain*, 65–79. Leicester: Leicester Archaeology Monograph 4.

Armit, I. and Braby, A. 2002. Excavation of a burnt mound and associated structures at Ceann nan Clachan, North Uist, *Proceedings of the Society of Antiquaries of Scotland* 132, 229–58.

Ashmore, P. J. (ed.) 1996. A list of Historic Scotland Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland 1996*, 136–142.

Ashmore, P.J. (ed.) 1997. A list of Historic Scotland Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland 1997*, 112–117.

Ashmore, P.J. (ed.) 1998a. A list of Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland 1998*, 125–128.

Ashmore, P.J. 1998b. Single Entity Dating, *Actes du colloque «C14 Archéologie», 1998*, 65–71.

Ashmore, P. J. 1999a. Radiocarbon dating: avoiding errors in dating by avoiding mixed samples, *Antiquity* 73, 124–130.

Ashmore, P.J. (ed.) 1999b. A list of Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland 1999*, 110–115.

Ashmore, P.J. (ed.) 2000. A list of Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland* (NS) 1, 122–128.

Ashmore, P.J. (ed.) 2001. A list of Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland* (NS) 2, 122–128.

Ashmore, P.J. (ed.) 2002. A list of Archaeological Radiocarbon Dates, *Discovery and Excavation in Scotland* (NS) 3, 142–153.

Ashmore, P.J., Cook G.T. and Harkness D.D. 2000a. A radiocarbon database for Scottish archaeological samples, *Radiocarbon* 42, 41–48.

Ashmore, P.J., Cook G.T. and Harkness D.D. 2000b. *Radiocarbon dates for archaeological sites in Scotland issued before June 1996*, http://www.historic-scotland.gov.uk/ Edinburgh: Historic Scotland.

Ashmore, P.J. and Hill, P.H. 1983. Broxmouth and high-precision dating, in B.S. Ottaway (ed.), *Archaeology, Dendrochronology and the Radiocarbon Calibration Curve*, 83–98. Edinburgh: University of Edinburgh Department of Archaeology Occasional Paper 9.

Atkinson, J. 1996. Loudoun Hill, Ayrshire, *Discovery and Excavation in Scotland 1996*, 137.

Baillie, M.J.L. 1990. Checking back on an assemblage of published radiocarbon dates, *Radiocarbon* 32, 361–366.

Ballin Smith, B. (ed.) 1994. *Howe: Four Millennia of Orkney Prehistory.* Edinburgh: Society of Antiquaries of Scotland Monograph 9.

Barclay, G.J. 1993. The excavation of pit circles at Romancamp Gate, Fochabers, Moray, *Proceedings of the Society of Antiquaries of Scotland* 123, 255–268.

Barclay, G.J. and Tolan, M. 1990. Trial excavation of a terrace-edge enclosure at North Mains, Strathallan, Perthshire, *Proceedings of the Society of Antiquaries of Scotland* 120, 45–53.

Barrett, J.C. and Gourlay, R.B. 1999. An early metal assemblage from Dail na Caraidh, Inverness-shire, and its context, *Proceedings of the Society of Antiquaries of Scotland* 129, 161–188.

Bradley, R. 2000. *The Good Stones: a New Investigation of the Clava Cairns.* Edinburgh: Society of Antiquaries of Scotland Monograph 17.

Brun, P. and Chaume, B. (eds) 1997. *Vix et les éphémères principautés celtiques. Les VIe–Ve siècles avant J.-C. en Europe centre-occidentale.* Paris: Éditions Errance.

Burgess, C.B. 1974. The Bronze Age, in C. Renfrew (ed.), *British Prehistory: a New Outline*, 165–232. London: Duckworth.

Cameron, K. 1999. Excavation of an Iron Age timber structure beside the Candle Stane recumbent stone circle, Aberdeenshire, *Proceedings of the Society of Antiquaries of Scotland* 129, 359–372.

Carter, S. and Hunter, F. 2003. An Iron Age chariot burial from Scotland, *Antiquity* 77, 531–536.

Christison, R. 1880–81. On an ancient Wooden Image, found in November last, at Ballachulish Peat Moss, *Proceedings of the Society of Antiquaries of Scotland* 15, 158–178.

Coles, B. 1990. Anthropomorphic wooden figurines from Britain and Ireland, *Proceedings of the Prehistoric Society* 56, 320–332.

Cowley, D.C. 1998. Identifying marginality in the first and second millennia BC in the Strath of Kildonan, Sutherland, in C.M. Mills and G. Coles (eds), *Life on the Edge: Human Settlement and Marginality* (*Symposium of the Association for Environmental Archaeology* 13), 165–170. Oxford: Oxbow Books.

Cowley, D.C. 1999. Squaring the circle: domestic architecture in later prehistoric Sutherland and Caithness, in P. Frodsham, P. Topping and D. Cowley (eds), *'We were always chasing time': Papers presented to Keith Blood*, 67–75. Newcastle: Northern Archaeology 17/18.

Crone, B.A. 1993. Crannogs and chronologies, *Proceedings of the Society of Antiquaries of Scotland* 123, 245–254.

Crone, B.A. 2000. *The History of a Scottish Lowland Crannog: Excavations at Buiston, Ayrshire 1989–90.* Edinburgh: Scottish Trust for Archaeological Research Monograph 4.

Crone, B.A. and O'Sullivan, J. 1997. Excavation of a cropmark enclosure at Brixwold (Dalhousie Mains), Bonnyrigg, Midlothian, *Proceedings of the Society of Antiquaries of Scotland* 127, 387–405.

Crumley, C.L. 1995. Heterarchy and the analysis of complex societies, in R.M. Ehrenreich, C.L. Crumley, and J.E. Levy (eds), *Heterarchy and the Analysis of Complex Societies*, 1–5. Washington: Archaeological Papers of the American Anthropological Association 6.

Crumley, C.L. and Marquardt, W.H. 1987. Regional dynamics in Burgundy, in C.L. Crumley and W.H. Marquardt (eds), *Regional Dynamics: Burgundian Landscapes in Historical Perspective*, 609–623. San Diego and London: Academic Press.

Dixon, T.N. 1981. Radiocarbon dates for crannogs in Loch Tay, *International Journal of Nautical Archaeology and Underwater Exploration* 15, 346–347.

Dockrill, S.J., Bond, J.M., Nicholson, R.A. and Smith, A.N. (eds) forthcoming. *Investigations on Sanday Vol. II. The Tofts Ness Peninsula.*

Dunwell, A. 1999. Brown Caterthun, *Discovery and Excavation in Scotland 1999*, 111.

Dunwell, A. and Strachan, R.J. 1996. Brown Caterthun, *Discovery and Excavation in Scotland 1996*, 136.

Dunwell, A. and Strachan, R.J. forthcoming. *Excavations at the Caterthuns Forts, Angus.* Perth: Tayside and Fife Archaeology Committee Monograph.

Earwood, C. 1993. The dating of wooden troughs and dishes, *Proceedings of the Society of Antiquaries of Scotland* 123, 355–362.

Edwards, K. 2000. Bay of Moaness, Rousay, *Discovery and Excavation in Scotland 2000*, 124.

Fairhurst, H. 1984. *Excavations at Crosskirk Broch, Caithness.* Edinburgh: Society of Antiquaries of Scotland Monograph 3.

Fairhurst, H. and Taylor, D.B. 1970–1. A hut-circle settlement at Kilphedir, Sutherland, *Proceedings of the Society of Antiquaries of Scotland* 103, 65–99.

Feachem, R. 1966. The Hill-Forts of Northern Britain, in A.L.F. Rivet (ed.), *The Iron Age in Northern Britain*, 59–87. Edinburgh: Edinburgh University Press.

Gentles, D. 1993. Vitrified forts, *Current Archaeology* 133, 18–20.

Gilmour, S. and Church, M. 1999. Uig landscape survey – Gob Eirer, *Discovery and Excavation in Scotland 1999*, 115.

Greig, J.C. 1972. Cullykhan, *Current Archaeology* 32, 227–231.

Guido, M. 1974. A Scottish crannog re-dated; *Antiquity* 48, 54–56.

Guilbert, G. C. 1981. Double-ring roundhouses, probable and possible, in prehistoric Britain, *Proceedings of the Prehistoric Society* 47, 299–317.

Guttman, E. 2002. Time and tide at East Wemyss; excavations on the foreshore 1980–1995, *Tayside and Fife Archaeological Journal* 8, 111–124.

Hale, A.G.C. 1994. Redcastle (Killearnan parish): intertidal crannog, *Discovery and Excavation in Scotland 1994*, 39.

Hale A.G.C. 1995. Redcastle (Killearnan parish): intertidal crannog, *Discovery and Excavation in Scotland 1995*, 44.

Hale A.G.C. 1996a. Redcastle Fish Trap, Beauly Firth, *Discovery and Excavation in Scotland 1996*, 139.

Hale A.G.C. 1996b. Carn Dubh, Beauly Firth, *Discovery and Excavation in Scotland 1996*, 139.

Hale, A.G.C. 2000. Marine crannogs: previous work and recent surveys, *Proceedings of the Society of Antiquaries of Scotland* 130, 537–558.

Halliday, S.P. 1993. Marginal agriculture in Scotland, in T.C. Smout (ed.), *Scotland since Prehistory: Natural Change and Human Impact*, 64–78. Aberdeen: Scottish Cultural Press.

Halliday, S.P. 2001. Arisaig to Kinsadel Site 8, *Discovery and Excavation in Scotland* (NS) 2, 124.

Hamilton, J.R.C. 1956. *Excavations at Jarlshof, Shetland.* Edinburgh: HMSO, Ministry of Works Archaeological Reports 1.

Harding, D.W. (ed.) 1982. *Later Prehistoric Settlement in South-east Scotland.* Edinburgh: University of Edinburgh Department of Archaeology Occasional Paper 8.

Haselgrove, C. and McCullagh, R. 2000. *An Iron Age Coastal Community in East Lothian: the Excavation of two Later Prehistoric Enclosure Complexes at Fishers Road, Port Seton, 1994–5.* Edinburgh: Scottish Trust for Archaeological Research Monograph 6.

Hedges, J.W. 1987. *Bu, Gurness and the Brochs of Orkney. Part I, Bu.* Oxford: British Archaeological Reports British Series 163.

Herrmann, J. 1989. Burgen und befestigte Siedlungen der jüngeren Bronzezeit und frühen Eisenzeit, in J. Herrmann (ed.), *Archäologie in der Deutschen Demokratischen Republik 1*, 106–118. Stuttgart: Konrad Theiss Verlag.

Hill, P.H. 1982a. Settlement and chronology, in Harding 1982, 4–43.

Hill, P.H. 1982b. Broxmouth hillfort excavations 1978–1982: an interim report, in Harding 1982, 141–188.

Hingley, R. 1992. Society in Scotland from 700 BC to AD 200, *Proceedings of the Society of Antiquaries of Scotland* 122, 7–53.

Hingley, R. 1998. *Settlement and Sacrifice.* Edinburgh: Canongate Books.

Holley, M.W. and Ralston, I.B.M. 1995. Radiocarbon dates for two crannogs on the Isle of Mull, Strathclyde Region, Scotland, *Antiquity* 69, 595–596.

James, H. 2001. Excavations at Kingsbarns, Fife, in 1997–8: an Iron Age short cist burial, prehistoric pits, and a buried eighteenth century bridge within the designed landscape of Cambo, *Tayside and Fife Archaeological Journal* 7, 16–27.

James, S. 1999. *The Atlantic Celts: Ancient People or Modern Invention?* London: British Museum Press.

Jobey, G. 1978. Burnswark Hill, *Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society* 53, 57–104.

Jope, E.M. 2000. *Early Celtic Art in the British Isles.* Oxford: Clarendon Press.

Kendrick, J. 1995. Excavation of a Neolithic enclosure and an Iron Age settlement at Douglasmuir, Angus, *Proceedings of the Society of Antiquaries of Scotland* 125, 29–67.

Kilian M.R., Van der Plicht, J. and Van Geel, B. 1995. Dating raised bogs: new aspects of AMS wiggle matching, a reservoir effect and climatic change, *Quaternary Science Reviews* 14, 959–966.

Kristiansen, K. 1998. *Europe before History.* Cambridge: Cambridge University Press.

Lowe, C.E. 1992. The excavation of plough-truncated features at Loanleven, Perthshire, *Proceedings of the Society of Antiquaries of Scotland* 122, 127–136.

Lowe, C.E. 1998. *Coastal Erosion and the Archaeological Assessment of an Eroding Shoreline at St Boniface Church, Papa Westray, Orkney.* Stroud: Sutton.

MacKie, E.W. 1976. The vitrified forts of Scotland, in D.W. Harding (ed.), *Hillforts: Later Prehistoric Earthworks in Britain and Ireland*, 205–235. London: Academic Press.

McCullagh, R. 1997. Lairg Watching Brief, Lairg, *Discovery and Excavation in Scotland 1997*, 114.

McCullagh, R. and Tipping, R. (eds) 1998. *The Lairg Project 1988–1996. The Evolution of an Archaeological Landscape in Northern Scotland.* Edinburgh: Scottish Trust for Archaeological Research Monograph 3.

McGill, C.E. in preparation. *The Prosaic Material Culture of Non-Atlantic Scotland South of the Moray Firth in Later Prehistory.* Unpublished Ph.D. thesis, University of Edinburgh.

Mann, L.M. 1915. Report on the relics discovered during excavations in 1913 in the cave at Dunagoil, Bute and in 1914 in the fort of Dunagoil, Bute, *Transactions of the Buteshire Natural History Society* 8, 61–86.

Mercer, R.J. 1985. *Archaeological Field Survey in Northern Scotland, Vol. III, 1982–83.* Edinburgh: University of Edinburgh Department of Archaeology Occasional Paper 11.

Morrison, I.A. 1981a. The extension of the chronology of the crannogs of Scotland, *International Journal of Nautical Archaeology and Underwater Exploration* 10, 344–346.

Morrison, I.A. 1981b. The crannog off Ederline, Loch Awe, Argyll, *International Journal of Nautical Archaeology and Underwater Exploration* 10, 347–349.

Owen, O.A. 1992. Eildon Hill North, in Rideout *et al.* 1992, 21–71.

Owen, O.A. and Lowe, C. 1999. *Kebister: The Four-thousand-year-old Story of one Shetland Township.* Edinburgh: Society of Antiquaries of Scotland Monograph 14.

Parker Pearson, M. 1996. Cladh Hallan, *Discovery and Excavation in Scotland 1996*, 142.

Parker Pearson, M. 2002. Cladh Hallan, *Discovery and Excavation in Scotland* (NS) 3, 151–152.

Parker Pearson, M., Mulville, J. and Smith, H. 2002. Cladh Hallan (South Uist Parish), *Discovery and Excavation in Scotland* (NS) 3, 121–122.

Parker Pearson, M. and Sharples, N. 1999. *Between Land and Sea: Excavations at Dun Vulan, South Uist.* Sheffield: Sheffield Academic Press.

Peltenburg, E. 1982. Balloch Hill, Argyll, *Proceedings of the Society of Antiquaries of Scotland* 112, 142–214.

Piggott, S. 1958. Native economies and the Roman occupation of North Britain, in I.A. Richmond (ed.), *Roman and Native in North Britain*, 1–27. Edinburgh: Nelson.

Pollock, R. 1992. The excavation of a souterrain and roundhouse at Cyderhall, Sutherland, *Proceedings of the Society of Antiquaries of Scotland* 122, 149–160.

Pollock, D. 1997. The excavation of Iron Age buildings at Ironshill, Inverkeilor, Angus, *Proceedings of the Society of Antiquaries of Scotland* 127, 339–358.

Pope, R.E. 2003. *Prehistoric Dwelling: Circular Structures in North and Central Britain c. 2500 BC–AD 500.* Unpublished Ph.D. thesis, University of Durham.

RCAHMS 1956. (Royal Commission on the Ancient and Historical Monuments of Scotland) *The County of Roxburgh.* Edinburgh: HMSO.

RCAHMS 1990. *North-East Perth: an Archaeological Landscape.* Edinburgh: HMSO.

RCAHMS 1997. *Eastern Dumfriesshire: an Archaeological Landscape.* Edinburgh: HMSO.

Ralston, I.B.M. 1986. The Yorkshire Television vitrified wall experiment at East Tullos, City of Aberdeen District, *Proceedings of the Society of Antiquaries of Scotland* 116, 17–40.

Ralston, I.B.M and Sabine, K.A. 2000. *Excavations of Second and First Millennia BC Remains on the Sands of Forvie, Slains, Aberdeenshire.* Aberdeen: Department of Geography and the Environment, University of Aberdeen, O'Dell Memorial Monograph 28.

Rees, T. 1998. Excavation of Culhawk Hill ring-ditch house, Kirriemuir, Angus, *Tayside and Fife Archaeological Journal* 4, 106–128.

Renfrew, C. 1979. *Investigations in Orkney.* London: Reports of the Research Committee of the Society of Antiquaries of London 38.

Reynolds, P. 1994. Butser Ancient Farm, in A.P. Fitzpatrick and E.L. Morris (eds), *The Iron Age in Wessex: Recent Work*, 11–14. Salisbury: Trust for Wessex Archaeology.

Rideout, J.S. 1992. Gillies Hill, Stirling, Central, in Rideout *et al.* 1992, 127–137.

Rideout, J.S. 1995. Carn Dubh, Moulin, Perthshire: survey and excavation of an archaeological landscape 1987–90, *Proceedings of the Society of Antiquaries of Scotland* 125, 139–195.

Rideout, J.S. 1996. Excavation of a promontory fort and a palisaded homestead at Lower Greenyards, Bannockburn, Stirling, 1982–5, *Proceedings of the Society of Antiquaries of Scotland* 126, 199–269.

Rideout, J.S., Owen, O.A. and Halpin, E. 1992. *Hillforts of Southern Scotland.* Edinburgh: AOC Scotland Ltd Monograph 1.

Sanderson, D.C.W., Placido, F. and Tate, J.O. 1988. Scottish vitrified forts: TL results from six study sites, *Nuclear Tracks and Radiation Measurements* 14, 307–316.

Saville, A and Hallén, Y. 1994. The 'Obanian Iron Age': human remains from the Oban cave sites, Argyll, Scotland, *Antiquity* 68, 715–723.

Selkirk, A. 2002. Cladh Hallan, *Current Archaeology* 179, 455.

Sharples, N. 1984. Excavations at Pierowall Quarry, Westray, Orkney, *Proceedings of the Society of Antiquaries of Scotland* 114, 75–125.

Shepherd, I.A.G. 1995. The Sculptor's Cave, Covesea, Moray: from Bronze Age ossuary to Pictish shrine? *Proceedings of the Society of Antiquaries of Scotland* 125, 1194–1195.

Sheridan, J.A. 1997. The National Museums of Scotland archaeological radiocarbon dating programme: dates obtained during 1997, *Discovery and Excavation in Scotland 1997*, 117.

Smith, A.N. 1995. The excavation of Neolithic, Bronze Age and Early Historic features near Ratho, Edinburgh, *Proceedings of the Society of Antiquaries of Scotland* 125, 69–138.

Terry, J. 1995. Excavation At Lintshie Gutter unenclosed platform settlement, Crawford, Lanarkshire, 1991. *Proceedings of the Society of Antiquaries of Scotland* 125, 369–427.

Tipping, R. 1994. The form and fate of Scotland's woodlands, *Proceedings of the Society of Antiquaries of Scotland* 124, 1–54.

Triscott, J. 1982. Excavations at Dryburn Bridge, East Lothian 1978–9, in Harding 1982, 117–124.

Torbrügge, W. 1970–1. Vor- und frühgeschichtliche Flussfunde, *Bericht der Römisch-Germanische Kommission* 51–2, 1–146.

Wells, P.S. 1984. *Farms, Villages and Cities: Commerce and Urban Origins in Late Prehistoric Europe.* Ithaca/London: Cornell University Press.

Wells, P.S. 2001. *Beyond Celts, Germans and Scythians: Archaeology and Identity in Iron Age Europe.* London: Duckworth.

Wildgoose M., Burney C. and Miket R. 1993. Allt a'Ghasgain, *Manchester Archaeological Bulletin* 8, 5–10.

Wildgoose, M., Burney, C. and Miket, R. 1994. Coille A'Ghasgain (Sleat parish), *Discovery and Excavation in Scotland 1994*, 42–43.

Wordsworth, J. and Clark, P.R. 1997. The excavations: Kirkhill, in M. Rains and D. Hall, *Excavations in St Andrews 1980–89: a Decade of Archaeology in a Historic Scottish Burgh*, 7–18. Perth: Tayside and Fife Archaeology Committee Monograph 1.

2005: 'Scottish roundhouses: the early chapters', *Scottish Archaeol Journ* **25.1**, 2003 (2005), 1-26.

Scottish roundhouses – the early chapters

IAN RALSTON*

SUMMARY

This paper reviews early engagements with prehistoric roundhouses from the Victorian period to the mid 20th century. Salient perspectives offered by the likes of Robert Munro, Gerhard Bersu and Gordon Childe are considered in relation to the interpretation of circular structures as revealed via excavation. The recognition of negative features was a central process in the interpretation of timber structures. The paper questions the interplay of recovery strategies and archaeological expectations in relation to rectilinear as well as circular prehistoric and specifically Iron Age structures. Other aspects of architectural variability, namely the distinctiveness of brochs and crannogs are also explored.

KEYWORDS: Iron Age, Robert Munro, Gordon Childe, Gerhard Bersu

INTRODUCTION

This paper attempts a historical review, necessarily selective in its themes, of the circular architecture of Iron Age Scotland, the ideas it has generated and the hypotheses it has supported. A reasonable guess is that there are already thousands – certainly a high four-digit figure, very probably more – of such structures known in Scotland – variously from excavation, from fieldwork, or from aerial observation. This total is not dissimilar from, perhaps even higher than, optimistic readings of the size of some classic European Iron Age datasets, such as the early Second Iron Age graves from the Champagne and adjacent areas of north-eastern France. Both these sets of evidence have accumulated over two centuries, with different components of them coming to prominence at different periods. Here, I shall try to highlight aspects of this evolving pattern with regard to Scottish roundhouses, concluding my examination with studies published just after the Second World War.

The evidence for these Scottish circular structures (a term already established in the early Victorian period: e.g. Dryden 1858; Stuart 1869) is very variable. It ranges from that produced by full excavation of imposing field monuments such as are represented by varieties of Atlantic roundhouses culminating architecturally in broch towers (Armit 2003 and forthcoming) through to tonal

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changes indicative of the stances of timber buildings (e.g. RCAHMS 1994, 43–51) on film archived in our sites and monuments records. Making sense of all these sets of structures, constructed in the main during what might be called the Metal Ages (from about Beaker times through to a fairly advanced stage of the first millennium AD), is one of the main tasks of writing the archaeology of that long span, as previous generations of archaeologists have recognised. These buildings were of course shelters, but certainly also signs and symbols with meaning for their occupants, and of their occupants' importance to friends or foes approaching these structures. They have long been used in the definition of Scotland's prehistory and its internal regional differences (e.g. Mitchell 1902, 43–44).

Buildings reconstructed on the basis of their wooden components – represented often solely by the negative traces of their former earthfast elements, mostly stake- and post-holes – are an important component of the record. Such features have thus enabled the tenuous survival of these building traditions in the archaeological record. Attention will thus be paid to the developing recognition of evidence for timber architectures in archaeological field practice. The present writer however believes that it is not possible in the Scottish context to deal with the evidence for the archaeological components of timber roundhouses in isolation: their recognition was aided by parallel developments in field archaeology, so that cognate types of structures will be mentioned as necessary. The discovery of timber roundhouses was only part of the widening appreciation of the significance of wood as a building material in later prehistory.

Late Victorian perspectives as exemplified in the writings of Robert Munro and his contemporaries

Some of the milestones in the development of this field of enquiry can be identified, using Dr Robert Munro's *Prehistoric Scotland and its place in European civilisation*, published almost exactly a century ago, as a convenient late Victorian baseline. In compiling that work, Munro was able to draw on then-recent overviews of three important categories of relevant data: those by Joseph Anderson (1901) on brochs; by Munro himself on crannogs; and by David Christison on forts. Mitchell (1902, 57), for example, clearly appreciated the lead in the study of later prehistoric architecture that had been established in Scotland by these authors at the beginning of last century. Munro's study was chosen not because it was especially innovative – many of its themes and examples echo those used for instance by Anderson nearly twenty years previously in his Rhind lectures of 1881 (Anderson 1883) – but because it is a good summary of nineteenth century achievements. Gordon Childe's *The prehistory of Scotland*, published in 1935 (Childe 1935a) and now absolutely secure as the only major single-authored synthesis of Scottish prehistory of the twentieth century, will be a touchstone *en route*; and I will end with Gerhard Bersu at Scotstarvit Covert in Fife in 1948.

It took a German refugee with a distinguished record of detecting the earthfast traces of rectangular wooden architecture in his homeland (most remarkably at the Goldberg, dug during the 1920s, although the plan evidence

from there is problematic: Härke, 1979, 46–46 and fig. 9) to unearth the first fully satisfactory plan of a timber roundhouse in Scotland. Bersu's work in Fife was of course part of his wider involvement in settlement archaeology in Britain, which stemmed from his arrival as a refugee from National Socialism in 1937. The first, and arguably the most influential, site he examined was Little Woodbury in Wiltshire (Evans 1989; 1998). Christopher and Jacquetta Hawkes (1947) contended that the excavation style promulgated by Bersu, and the intellectual context of his British work, itself derived from his background in Germany, gave rise to a *sociological school of excavation* that stressed horizontal plan over stratigraphic sequence. The latter at that time was particularly associated with the box grids favoured by Sir Mortimer Wheeler. Recent critiques (Evans 1989; 1998) lucidly demonstrate the limitations, and rapidly too the formulaic application, of this change as exhibited by Bersu's later work in the British Isles (including his Fife projects), before his repatriation in 1950. None the less, the lead provided by Bersu as an excavator, combined with the huge successes of post-War Royal Commission and other surveys, gave rise to the much-enhanced pool of data on settlement archaeology, and on domestic architecture in particular, that has characterised the last half century.

I thus offer neither beginning nor end to the story of the decipherment of Scottish prehistoric roundhouses. By 1899 there had already been solid achievements, notably in terms of both major dry-stone monuments and those from wetland locations. Contrastingly, the immediately post-War years, here exemplified by 1948, mark a significant threshold in the study of some components of this evidence. With the work of Bersu and his contemporaries, making real sense of the sparser and more fugitive evidence from dryland sites in the ploughzone and elsewhere for the first time, we enter a recognisably modern world.

As Munro readily appreciated, Scottish prehistoric architecture can, and in some instances needs to, be elucidated by external comparisons. One aspect of this that in retrospect seems remarkable is that the coexistence in the record of round and rectangular architecture occasioned so little comment in the half-century here reviewed (cf. Ralston 1997; Cowley 1999). Some remarks by way of comparison will also be offered below on the occurrence of roundhouses – and notably their relatively recent recognition in some areas – in the temperate European Iron Age outwith Britain.

What had been achieved by the end of the nineteenth century? Munro's ninth chapter was devoted to 'Abodes of the living – social life'. He was conscious that the Scottish materials were 'so scanty and fragmentary that they have to be supplemented by foreign gleanings' (1899, 329), and thus, in keeping with his broad vision – well known from his continental researches following his work on wetland sites in the South-West – he sought supporting evidence to elucidate the Scottish data wherever it could be obtained. He thus included the then-fashionable 'pit dwellings' – his examples included pits from the flint extraction site at Spiennes, Belgium – as well as continental wetland discoveries in his discussion alongside local hut-circles and crannogs. Compared to southern Britain, however, and probably as a result of the very different geologies of the North, 'pit dwellings' seem remarkable for their rarity in writings

on early Scottish settlements. They can therefore be set to one side in discussing the accumulating knowledge for Scottish prehistoric settlements studied during this period.

Munro rehearsed evidence for the possibility of both round and rectangular structures with ease. Wetland evidence is, perhaps unsurprisingly given his involvement in pioneering crannog research, very much to the fore in his treatment. Preservation conditions in that environment meant that the use of organic materials was readily evident: thatch for example could be paralleled from Swiss data already available from Niederwyl. Munro was thus acutely aware of the potential for timber, as well as for dry-stone, architecture: walls of wooden uprights sometimes interspersed with wattle and daub were already known from the Neolithic on the Continent – for example at Schussenreid in southern Germany – and had also been found in Scottish crannogs. Superimposed hearths had been recognised during his own work at Lochlee crannog, so that the concept that the repeated repair/rebuilding of structures was recoverable in the archaeological record had also already been securely established. Munro was already – and this perceptively – convinced by 1899 that 'wooden houses preceded the ordinary stone buildings of Scotland' (1899, 336). Well-versed in the Classics, Munro was also able to draw on literary references to building styles. Archaeological evidence was therefore complemented by that derived from ancient sources: he quoted Strabo on the Gauls (*Geography*, IV, 4) for example, remarking on their use of 'great houses, arched, constructed of planks and wicker, and covered with a heavy thatched roof' (1899, 336). That Munro's interests were shared by his contemporaries is illustrated by Maclellan Mann's account of his fieldwork at Mye Plantation, Stoneykirk, Wigtownshire (1903). His discoveries there of wooden piles in a series of oval pits associated with a Neolithic assemblage led to a wide-ranging discussion of pits, pile-dwellings, and the presence of round or oval as opposed to rectangular architecture (Maclellan Mann 1903, especially 401–415).

Now that we are so familiar with the concept of major timber roundhouses based on their negative traces recovered archaeologically, it is salutary to remember that, at about the time Munro was writing, field evidence for other than dry-stone architecture, including that recovered by excavation, was generally interpreted rather differently. A key idea was that of the impermanence indicated by the surviving remains. This perspective, also found in continental studies, may be caricatured as the Three Little Pigs paradigm, after the nursery story (Buchsenschutz 2001).

Evidence from various excavations undertaken early this century can be rehearsed to indicate something of the flimsiness of these structures as they were then conceived. Two examples will suffice. In 1905, Ludovic Mclellan Mann excavated a circular stained patch in a deflation area within a sand system seaward of Loch Bhasapoll, Tiree. Although small finds were plentiful, and for part of its perimeter the stain had a clear edge, neither door nor walls survived. Mclellan Mann's explication for the absence of the latter was that they had been 'portable or perishable' (1906, 372). Echoes of this perspective occur subsequently, as can be noted in Childe's comments on hut circles in the middle 1930s (see below). A few years later than Mann's work on Tiree, Alexander

Curle (1910) undertook some excavation within Bonchester Hill, Roxburghshire. Unlike Christison, who had earlier described the site (1898) without any reference to its internal structures, Curle noted the presence of numerous hut circles within the enclosure, and instructed his – apparently solitary – labourer to turn his attention to them. Curle considered that these hut circles – five of which were partially examined – were contemporary with the original occupation of the site. Although for its date quite extensive excavation of these features was undertaken, the results of this aspect of the fieldwork seem to have disappointed him. In light of their setting relative to the enclosure entrances he proposed that the hut circles formed one element in the scheme of defence. But their excavation was not fruitful: '... except the saddle querns found in three of them, there was no trace whatever of occupation noticed, nor was there the slightest evidence of the character of the superstructures' (1910, 235). Curle was clearly aware by this stage of the possibility of recognising post-holes in excavations, and indeed remarks on their apparent absence from the gateways into Bonchester, but does not seem to have considered earthfast timbers as possble components of the hut circle architecture he identified therein.

If, away from the loch margins, coherent timber domestic architecture remained rare in the archaeological record of later prehistory in late Victorian and Edwardian Scotland, the same was far from true of dry-stone building. A wide range of types and forms had already been recognised and systematised with less or greater success. As with that remarkable piece of local ethnography, Arthur Mitchell's *The Past in the Present* (1872), Munro was interested in 'beehive huts'. These had been first described in the archaeological literature by Captain Thomas (1858); Munro was aware of their relative rarity in Scotland. He noted too the remarkable dry-stone wheelhouses, as examined earlier in the century during the Hebridean researches of the said Captain Thomas, for example at Huishinish, South Uist, as a sophisticated variant of this circular tradition.

For Munro (1899, 343), the vexed question of 'Picts' Houses' – still then terminologically a potential source of huge confusion – was best reconciled by making it plain that 'eirde houses' (today's souterrains) were to be considered as the real Picts' houses. Munro had already – on the basis of work by Jervise (1874) at Tealing, Angus, where a well-built circular hearth was identified on the surface in the vicinity of the souterrain – arrived at the modern perspective: '... it is the general opinion of archaeologists that these subterranean chambers were associated with surface habitations, whose structural materials have disappeared through natural decay and changes to the cultivation of the land' (1899, 349). This view had already been developed by Dr John Stuart in relation to the Kildrummy (Aberdeenshire) examples, where he had interpreted the relatively inconsequential above-ground traces as indicative of '... the frail summer- or daylight-houses of the early population' (quoted by Munro 1899, 351) that accompanied the souterrains. It was thus established that settlements might comprise units of very variable robustness, and hence visibility, in archaeological terms, even if the sturdy souterrains themselves thereafter claimed almost the entire attention of fieldworkers and writers on these sites for several decades. At that time, the shape and form of these above-ground remains does not seem to have attracted comment.

As regards the function of these structures, Munro (1899, 356) quoted the existence of, and explanation for, apparently-equivalent structures recorded by Tacitus, *Germania* Ch 16, with seeming approval: 'They also dig subterraneous caves, and cover them over with a great quantity of dung. These they use as winter-retreats and granaries; for they preserve a moderate temperature; and upon an invasion, when the open country is plundered, these recesses remain unviolated, either because the enemy is ignorant of them, or because he will not trouble himself with the search'. Again, this view is relatively close to many modern perspectives. Some of his contemporaries, however, were not convinced by such interpretations: Lord Abercromby, for example, following the partial examination of the circular enclosures and associated souterrains near Loch Kinord at Dinnet, Aberdeenshire (1904) under his supervision, held to the view that the enclosures were cattle pounds, despite the evidence within them for the presence of hearths, with the souterrains – one fully and one partially excavated in this case – providing the residential space.

Although Christison's account of the hillforts of Scotland, then recently published (1898), was predominantly focussed on their enclosing works, Munro was well aware of associations between hill-forts and apparently domestic structures. Amongst examples he cited for example were the roundhouses recorded in the remarkable work of the pioneering female archaeologist (Christian Maclagan 1875) on the East Fort or Mither Tap o' Bennachie, Aberdeenshire (Munro 1899, 371).

Munro's observations about other hillforts are of interest here as they allowed him to observe the use of timber in a number of dryland contexts, mostly related to the defensive works encircling these sites. Particularly instructive is his visit close in date to the preparation of his book to the rampart, then under investigation, at Castle Law, Abernethy, in the Perthshire Ochils. Both longitudinal and transversal timbers were surmised within the enclosing wall: whilst the timbers themselves had decayed, the beam-sockets that had accommodated the transversals remained especially visible. They were described expressively by Munro (1899, 371) as looking like 'the port-holes of an old man-of-war' in the wall-face. He was prepared to concede that such timber-lacing – revealed too by that time in Bell's work at Castle Law, Forgandenny, also in Perthshire (1893) and in Macdonald's and then Young's excavations at Burghead, Moray in the 1860s and 1890s respectively – might have included mortised beams comparable to those encountered in the crannog building technique (Munro 1899, 375). Although not directly linked to houses, these remarks seem to me important comments, for through them Munro prepares his readers for the possibility of the recovery of significant and complex dryland timber architecture in settings other than fort walls. Its appearance in coherent, comprehensible form in the Scottish prehistoric record was however to be delayed for several decades.

In the case of the major excavations undertaken at Traprain Law, East Lothian (dug before and after World War I) for example, the recovery of evidence for such structural remains – as made apparent by records of earthfast timber components in the published accounts – was desultory. From the outset, it appeared that the identification of building evidence at this key site was

going to be less straightforward than had been originally anticipated. None the less both wattle and daub, and iron nails, of a size potentially useful in construction, were found along with some structural remains in the initial field explorations (Curle 1915: fig 10, p.155 for wattle and daub; fig 46, p. 200 for nails). In the following season, 'pole sockets' and curved spreads of charcoal (Curle and Cree, 1916, 84 and fig 15) were recorded. In the later work at this site, there were a few additional accounts, for example of '. . . post-holes, but the remains of posts were not noticeable, although a small amount of carbonised wood was found . . . ' (Cree and Curle 1922, 205; cf. also Cree 1923, e.g. 188). As others have remarked (e.g. Jobey 1976) the restricted structural evidence recovered from these campaigns at Traprain was very disappointing, more particularly compared to the relatively plentiful and diverse artefact record recovered from the hill which continues to draw attention to this important site (e.g. Armit 2001). A significant breakthrough was however made in 1920 – and thus contemporary with the fieldwork at the major East Lothian site – by A O Curle at the broch of Dun Troddan in Glenelg, discussed further below, but, as the Traprain work intimates, this does not seem directly to have influenced these contemporary researches. (see Fig 1)

Although prehistorians may reasonably contend that the discovery of satisfactory timber buildings from negative earthfast features had not been achieved in Scotland by the early part of the twentieth century, it is salutary to note that archaeologists working on Roman military sites had already overcome such problems and were regularly identifying timber buildings. By Edwardian times, certainly, the identification of structural timberwork on Roman sites seems to have become routine. Christison's work on the signal station tower sites west of Gask in Perthshire included accounts not only of post-holes but also of sleeper beams (1901, 30 and especially fig. 7). Forts on the Antonine frontier were providing similar information. For example, Christison and others clearly recognised timber structures by 1903 at Castlecary; and similar evidence came to light at Bar Hill, as described in the account by George Macdonald and others (1906), of the work undertaken there by Alexander Whitelaw. This perspective may have been assisted by classical references to building in timber (e.g.Vitruvius: *de Architectura*), and by the presence of a resolutely rectilinear architecture, but it remains interesting that the archaeological detection of earthfast timber structures in Scotland should have taken quite some time to transfer from Roman military archaeology to the 'native sector'. In any case, Vitruvius' account (more particularly his Book II), drawing on what would now be termed ethnographic evidence and theoretical precepts, argued for the substantial use of timber in what might loosely be termed 'primitive architecture', as encountered around the fringes of the early Roman Empire (Granger 1931; Callebat *et al* 1999). Compared to Tacitus' account, clearly well-known in Scottish later prehistoric circles at the end of the nineteenth century, this text, although admittedly not directly pertaining to Scotland, seems not to have been in the repertory of the early field archaeologists here.

Amongst other forms of circular architecture, the distinctiveness of the brochs of Scotland had already been firmly established in Victorian times, Mitchell (1902, 22) for example in his fifty-year perspective remarking on

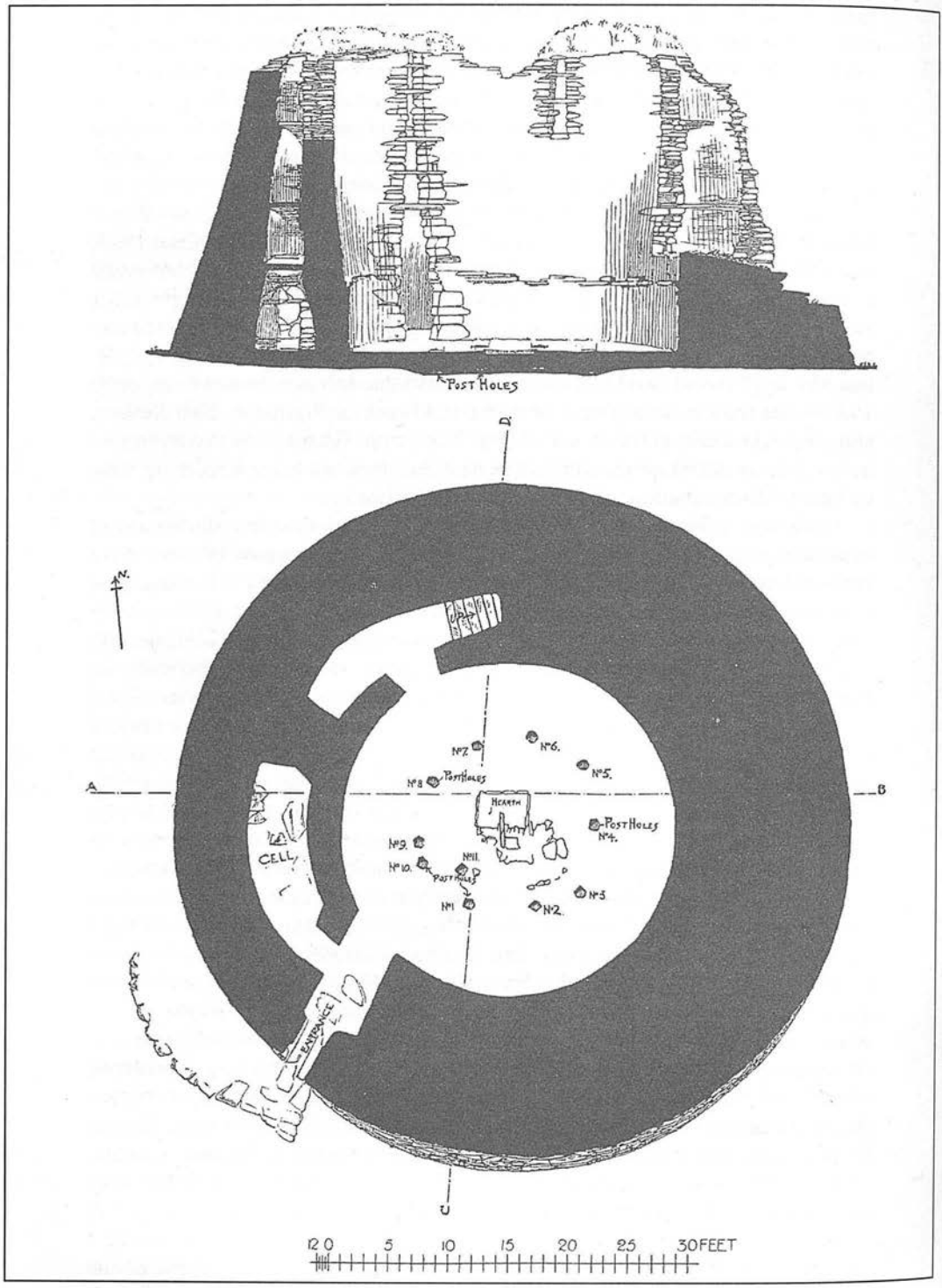


Fig 1 Dun Troddan, Inverness-shire: circle of post-holes within the broch as recognised by Alexander Curle (after Curle 1921, 86 fig. 3).

them as '. . . a thing so specially Scottish'. By that time, the controversial view propounded by James Fergusson (1877), advocating a Scandinavian origin for the type, had successfully been countered by Joseph Anderson (1878). For Anderson, whose views Munro endorsed, brochs had two main objects: 'shelter and defence' (Munro 1899, 394). Despite the rapidly accumulating evidence – this is the period of Anderson's account on Tress Barry's work on a whole suite of brochs in coastal Caithness (1901) for example – views about how these structures were used remained wholly dominated by the stone components of their architecture. At that time, even the presence of scarcements – surely the strongest and most readily-visible structural indication without excavation of the former presence of substantial internal timber components – seems to have attracted little attention. Indeed, Anderson's fourth Rhind lecture on the architecture of the brochs comments in detail on a wide variety of the dry-stone features of these structures – from drains and wells to galleries, cells and door fittings – with hardly a mention (apart from the possibility of wooden doors, although stone slabs were also allowed to have fulfilled this function) of the possible inclusion within them of timber components (1883, 174–208). How was the use of these idiosyncratic roundhouses then envisaged? Anderson is again quoted approvingly by Munro: 'The clever constructive idea of turning the house outside in as it were, placing its rooms within its walls, and turning all the windows towards the interior of the edifice, implies boldness of conception and fertility of resource . . . ' (Anderson 1883, 203). The same view – of inhabitation essentially within the thickness of the wall – occurs in Fergusson's contribution, with apartments at ground level and berths '. . . as in a steamship . . . ' higher up, although Fergusson seems prepared to allow the internal courts to have been roofed, albeit perhaps not as an original feature (1877, 8). He does not elaborate on this statement. In most treatments, however, these structures were considered to have lacked roofs, and we need to wait well into the twentieth century for an extended treatment of the possible means of roofing brochs. Angus Graham's important study considered both timber roofs and, in some considerable detail before it was rejected, the possibility of false domes achieved by corbelling (Graham 1947, 71–75).

Munro devoted a whole chapter (Ch XI: 1899, 404–441) to the study of lake dwellings, and it is undoubtedly the most confident piece of 'settlement archaeology' in his treatment. He ranged over the history of research, from George Petrie's and William Wilde's initial work at Lagore in County Meath, Ireland, where the remains were identified in 1839, through to the mid-nineteenth century explorations of the Neolithic and Bronze Age *palafittes* of the Swiss lakes, and on to consider ethnographic *comparanda* in the Far East and elsewhere. Lagore, with its evidence of preserved oak timbers including examples with mortise holes and the discovery there of iron nails, early furnished direct evidence of the potential structural complexity of such sites. Munro records that attention was first drawn to Scottish crannogs in a paper of 1857 delivered to the Society of Antiquaries by Dr Joseph Robertson, which however focussed on historical references to them, rather than field observations. According to Munro, the initial fillip to fieldwork within Scotland was provided by Sir William Maxwell's partial draining in 1863 of Dowalton Loch, Wigtownshire,

which revealed indications of at least five such structures (Munro 1882; Stuart 1866; Morrison 1985), although in fact other observations on crannogs – including the first mention of mortised beams in their construction (1863) – marginally precede that account. This is not the place to review in detail crannog research, ably summarised in print by Morrison (1985) and Holley (2000, especially 18). Notably through the work of Munro himself at Lochlee crannog and subsequently elsewhere in Ayrshire and Galloway from 1878–79, massive progress had been made by the end of the nineteenth century in interpreting these sites, and in recognising the variability represented amongst them. By then, artificial islets had been recognised not only in Scotland's freshwater lochs, but also in marine locations, as at the isle of Eriska at the mouth of Loch Creran near Lismore (Munro 1885).

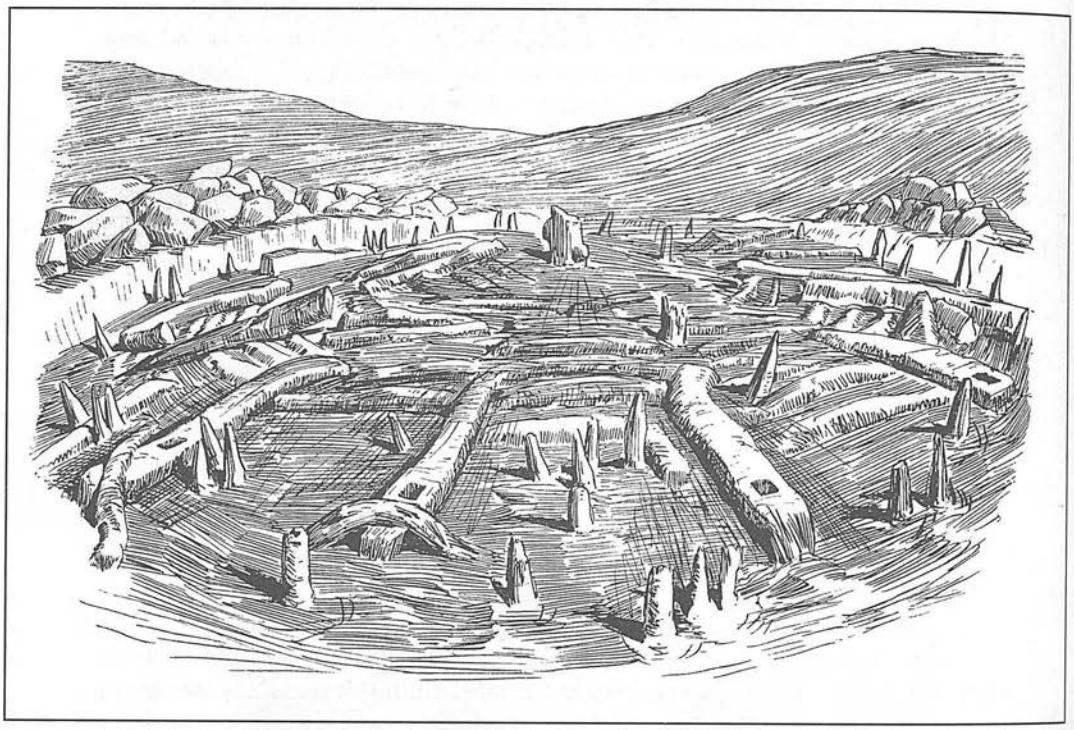
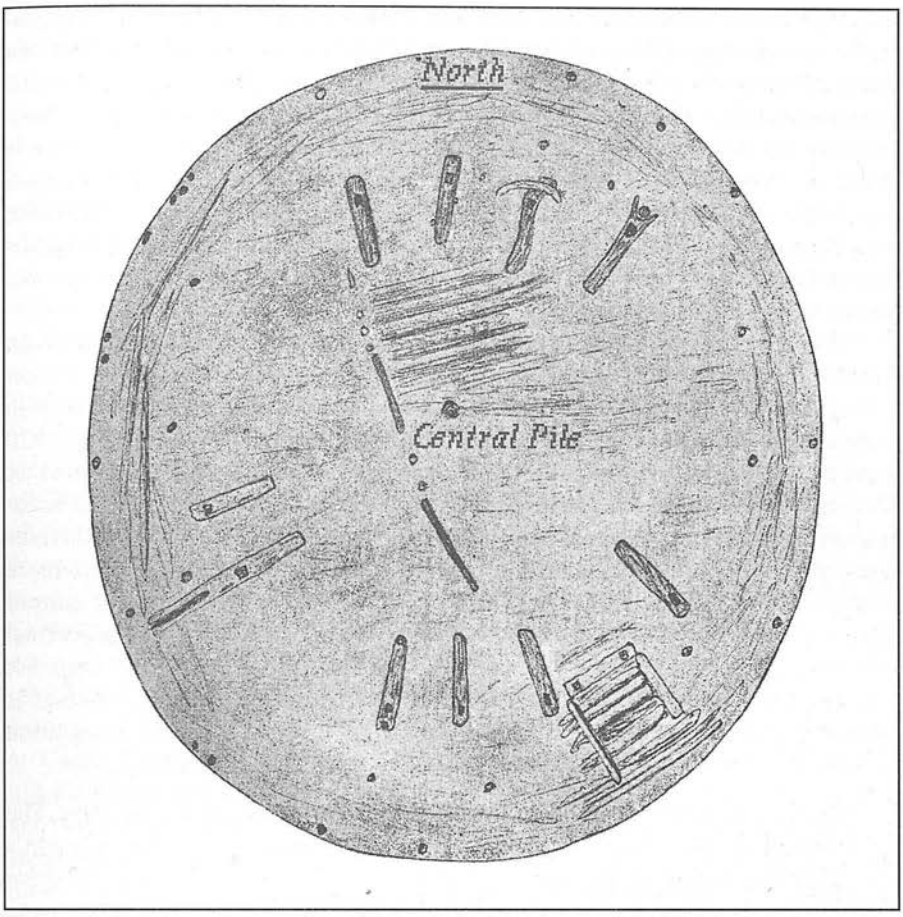


Fig 2 Circular architecture on one of two crannogs at Lochan Dughaill, Argyll. A. (above) sketch by Lockhart Bogle, B. (opposite) plan view (after Munro 1893, 214–15, figs. 1 and 2).

It was by that time also clear that some at least of these sites had contained, or consisted of, circular wooden houses. In 1899, for example, Munro focussed on the results of excavations on one of two crannogs in Lochan Dughaill, Argyll, (Munro 1899, 334 and 415–16), which he had first reported – following local investigations spurred by a scheme to drain the loch – some years earlier (Munro 1893, 211–222 and figs 1–2). Although some of the finds from its vicinity are certainly medieval, Lochan Dughaill merits being better known (see Fig 2) as the '... first in Scotland which has yielded clear evidence as to



the kind of dwelling-house erected by the crannog builders', as it appeared to Munro (1893, 221) at the time. Crannog research declined both quantitatively and qualitatively in the years following the controversy over the significance of the finds from Dumbuck on the Clyde (Holley 2000), although evidence of elaborate timberwork continued to come to light during a range of water supply or drainage schemes. For example, Fleming (1915, fig 1) reported evidence for complex mortise holes in beams recovered from Loch Vennachar, a loch impacted by Glasgow Council's scheme to extract water from the Trossachs. The dichotomy that was apparent by World War I between what was known from the wetlands and what was surmised elsewhere in the Scottish landscape in terms of later prehistoric architectural complexity was to endure for some time yet.

Evidence for structural timberwork, especially post-holes, from dry-land sites initially accumulated relatively slowly and unevenly. Such data becomes rather more common only from the middle 1930s. It is clear that earlier legacies with regard to the characteristics of buildings, their assumed permanence or otherwise, and their habitability, still permeate even Childe's magisterial overview of 1935, considered further below. In the same issue of the Society of

Antiquaries of Scotland's *Proceedings* as Fleming's Loch Vennachar observations of elaborate timberwork were published, Angus Graham's account of the partial examination of the interior of Dun Breac, Skipness, Argyll, includes mention of what may have been postholes and a possible socket stone. These features are described in relation to paved areas within this dun – but little is made of their possible purpose (Graham 1915, 53–54). Professor Watson's contemporary description of his excavation at Borenich, one of the Perthshire ring-forts, now more usually considered as aggrandised houses, equally makes mention of 'shapely flat stones', potentially post-pads, within this structure, but he too felt unable to speculate on their function (1915, 31).

The next decade is however heralded by the earliest description of an unambiguous ring of postholes within a Scottish monument known to the present writer. The site in question is the broch at Dun Troddan in Glenelg, already in state care by that time. The later stages of its excavation in the summer of 1920 were supervised by A O Curle (also concurrently one of the excavators of Traprain, discussed above) and consisted of the removal of a substantial accumulation of soil from the central court of the monument. Curle's report devotes attention to the sequence of stratified hearths and other materials within these deposits, before describing the discovery of a small pit cut into the subsoil adjacent to the entrance passage. Something of the excitement of the proverbial coin dropping is apparent in his account (Curle 1921, 90–92 and fig. 3 on p. 86: fig. 1) of the interpretation of this feature and its consequences: this text is worth extensive quotation as a record of a seminal moment in the recognition of coherent timber architecture in the Scottish prehistoric record.

> The full significance of this discovery did not dawn on me at once. The channel leading into the pit . . . suggested drainage. . . . After a night's reflection, however, the presence of flags in the bottom {of the pit} gave the clue, and I returned to the broch, found the centre, took a radius from there to the pit, and drew out a circle with the point of a pick on the surface. On this line, 4ft 9in to the eastward of the first pit, we struck a second at the same distance as the first . . . from the inner face of the wall. Thereafter, either on or to one side or other of the line of the circumference we located ten others. Though brown spongy matter was observable in several, . . . in one hole . . . the remains of decayed wood, recognisable by its fibrous character, were still visible.

Curle thereafter described the disposition of the postholes in plan in some detail, before considering their purposes. Apart from those adjacent to the entrance passage, for which he assumed a particular function, the remainder were seen as roof supports, for a wooden structure otherwise maintained by the scarcement noted within Dun Troddan. What Curle classed as the 'hypethral or roofless theory' (1921, 92) in relation to brochs here received a sustained and compelling challenge. This Inverness-shire site is important both for heralding the fuller exploitation of patterned negative traces as indications of the presence of coherent upstanding timber architecture, and for providing the first comprehensive illustration (Fig 3) of such structural remains in Scotland.

Within a matter of years, increasing numbers of excavators were aware of the need to search for negative features, especially post-holes, as important clues to wooden buildings. Other contemporary work however seems still to have gone ahead with little or no consideration of the possibilities of recovering such evidence. The possibility of any such traces does not seem to have been entered in the re-examination of Dunadd at the end of the 1920s for instance (Craw, 1930); and the near-total absence of such detail from the Traprain results has already been remarked. If Thorneycroft's initial work at the Dalrulzion, Perthshire hut-circles, contrastingly, failed to identify post-holes, they were undoubtedly looked for at the time (1933, 196). Post-holes were certainly recognised subsequently on this upland Perthshire site, for example in Hut Circle Q, and were clearly considered almost unremarkable by the time just after the Second World War that these structures were finally reported in detail (Thorneycroft 1946).

In light of the unfavourable comments sometimes directed at his field-working capabilities, it is worth remarking that Childe's publication (1933a; 1933b) of his research at the small fort of Castle Law in Midlothian contains one of the clearest early accounts of the detection of various timber architectural components on a dry-land site in Scotland, as well as being accompanied by both plans (especially figure 3, based on a survey by John Mathieson of the Ordnance Survey) and photographs. New kinds of observation are made: Childe for example commented expressly on the differences between the various tills represented on site in terms of their suitability for the identification of negative features. It is clear that Childe's investigation of the fortification timberwork at Castle Law was informed by Dr Curwen's contemporary work at Sussex hill-forts such as the Trundle, Cissbury and Hollingbury (Curwen 1931; Curwen and Williamson 1931; Curwen, 1932 respectively), which led in the case of Hollingbury to an on-site and full-scale, albeit partial, reconstruction of the timber posts within the fortification (Curwen 1932, plate VI). Like Curwen, Childe interpreted timber features associated with the Castle Law fortifications as evidence for external timber revetments to two of the banks and also for the presence of palisade lines enveloping the site. His description of the excavated Eastern Gate distinguished amongst post-holes where the post is considered to have rotted *in situ*, those where the post is believed to have been withdrawn, stake-holes, and the former presence of angled posts which he considered to have served as buttresses. A footnote explains that Curwen's work – this time at the Trundle gateway (Curwen 1931) – was influential in determining the likely function of posts, Childe remarking (1933b, 8) that his results showed that '. . . fort builders in Caledonia faithfully followed the traditions in military architecture employed by their ancestors or relatives in Sussex'. Childe's conclusions (1933a, 387) made it plain that he appreciated the significance in a Scottish context of his recognition of the earthfast timber features associated with the enclosing works at Castle Law. However, examination of internal structures at this site remained both restricted and seemingly rudimentary. The only area excavation undertaken was adjacent to the inner ditch in the Eastern Gate, and the interpretation of the slots, post-holes and lengths of rubble walling identified here (Childe 1933a, 371–373 and figs 3–5) as rectangular house

foundations is, in retrospect, clearly problematic. Childe's abilities in the field have also been highlighted in a consideration of his wartime correspondence with Bersu (Evans 1998, 190).

A few other examples will serve to illustrate the accumulation of data during the 1930s and into the Second World War years. Although Childe's (1935b) work at Finavon, Angus was primarily directed at the vitrified wall, the excavations of 1934 found carbonised oak boughs associated with a dry-stone hearth adjacent to the north wall, and an intermittent birch bark layer placed directly on virgin soil – forming '. . . a kind of carpet . . . ' in Childe's description (1935b, 62). These wooden elements were explained as collapsed material from the superstructure of the enclosing wall. Although the finds indicated to Childe (1935b, 77) that the site had been 'regularly inhabited', little solid evidence other than the hearths could be adduced for the row of buildings imagined to have backed against the north wall. Surviving internal structural timbers – this time not carbonised and displaced, as at Finavon, but preserved by dampness and *in situ* – were identified in the form of the stumps of two oak posts towards the western margin of the internal paving, and two other displaced oak posts elsewhere, within the dun at Rahoy, Morvern (Childe and Thorneycroft, 1938a, 30 and 34). Despite the extensive internal examination of this dun, albeit hampered by the presence of tree stumps, no further associated features were recognised. Post-holes were apparently entirely absent there, the surviving posts seeming to have been set into irregularities in the bedrock or placed on stone pads at about the level of the internal paving. Despite this direct evidence for internal posts, the conclusions to this report do not address their implications, such as whether the structure may have been wholly roofed. This may be excusable, in so far as Childe and Thorneycroft (1938b) were concentrating on their experimentation on vitrified walls at that time, and the discussion of the structural record of Rahoy is accordingly wholly dominated by a consideration of the nature of its enclosure. Rahoy remains of major interest for the present subject as the first clear description known to the present author of upright, but not earth-fast, timbers, based on *in situ* evidence, on a later prehistoric site in the country.

Although not published until after the War, Miss Phoebe Keef's (1947) restricted excavations at the fort and enclosed settlement on Chester Hill, Hundleshope, in the Manor Valley of Peebles-shire (it was wooded at the time of fieldwork: cf. RCAHMS 1967, no 271) produced results of an exemplary standard for their date with regard to the identification of individual timber features. The accompanying plan (Keef, 1947, fig. 1) was prepared by A. H. A. Hogg and Stuart Cruden; comparing it with the Commission's survey (1967, fig. 86) it is apparent that work was directed primarily at the field evidence for the enclosed settlement, rather than the surrounding fort. Despite the problems of the tree cover, post-holes were identified not only at the gate into the enclosed settlement, but also in association with the wall of a near-circular hut labelled 'Gatehouse A', which could however only be very partially examined.

By the end of the 1930s, accounts of the identification of negative features, especially post-holes, in excavation became more enterprising. Horace Fairhurst for example recognised substantial numbers of postholes within the dun at

Kildonan Bay, Kintyre and ambitiously set out to phase them in relation to areas of paving in his sequence for the site (1939, 206–207). During the war, Childe (1941) was able to detect some postholes within sites – such as Cairngryfe Hill, Lanarkshire – examined under difficult conditions and displaying testing geomorphologies. There was notably progress, too, in lacustrine environments. James Ritchie's publication (1942) of the Eadarloch crannog in Loch Treig, Inverness-shire, first described by Blundell (1910) but subsequently examined when drained as part of Halcrow's water power scheme, provided fresh confirmation (particularly in its numerous plates) of how complex the structural timberwork of crannogs might be, even if the date of that particular example was far from fully established. But the plans of wholly timber-built architecture, roundhouse or other, on dry land, continued to be elusive in the excavated Scottish prehistoric record.

GORDON CHILDE'S OVERVIEW

Gordon Childe had been Abercromby Professor at Edinburgh for less than a decade when his major synthesis, *The Prehistory of Scotland*, was published in London in 1935. Its importance has already been mentioned. In light of the developments in the understanding of post-holes and their significance and other aspects of circular architecture as mentioned above, it is interesting to check now what impact the newer work had had on Childe, writing in synthetic mode in the middle of the 1930s.

There are a considerable number of references to roundhouses and to domestic architecture more generally in Childe's text. These suggest an increasing appreciation of the architectural diversity of buildings in the roundhouse tradition, coupled with a number of indications of the apparent fragility and/or temporary nature of such structures. Several comments also bear directly on perceived shortages of timber for building and especially for roofing, and will be considered below. Another contributory factor in Childe's assessment of the remains of buildings was the assumed semi-nomadic nature of life well into the Bronze Age. At the start of that period, Childe imagined a population 'far from rooted in the soil' (1935a, 122) and a very low one at that: he hypothesised, admittedly with due caution, a total average population for the Scottish mainland (based on numbers of funerary vessels) of about 2,500.

Childe's description (1935a, 118–119) of the results of Baird's (1914) and Fairbairn's (1920; 1927) excavations on sites then interpreted as hut circles at Muirkirk, Ayrshire bears out this perspective. These sites were at that time of special significance, because of the association between recognisably Bronze Age pottery and supposedly domestic structures (cf Ritchie 1970; Ritchie and Maclaren 1972 for a re-interpretation of the Muirkirk features as a ring-cairn and enclosed cremation cemeteries). One example, some 10m in diameter, with a largely featureless interior aside from what was initially interpreted as a central cooking hole, was surmised to have been surmounted by a skin tent. The potential ramifications of such seemingly temporary structural arrangements for later prehistoric architecture were shared, in part at least, by several of Childe's contemporaries. Thus in the initial publication of the Jarlshof hut

circle subsequently termed Dwelling VI of Village II (Hamilton 1956, 34–36), A O Curle (1936, 247) envisaged much of its interior being an open court, with 'a portion . . . set aside and roofed with skins as a hut and sleeping place for the inhabitants'. Despite the discovery of two postholes, the assumed shortage of timber on the Shetland Islands was considered sufficiently grave to have precluded the roofing of a space only some 6m in diameter.

Childe was however very aware of architectural variability, even amongst hut circles (for which see now Halliday 1999), as well of their comparative rarity in some areas of the country. Using Sutherland inventory evidence, and information from Aberdeenshire and Perthshire, he was already proposing sundry variants (1935a, 216–217) within this architectural tradition. Childe also argued, from the small quantities of material culture recovered, that the type dated back at least to the Late Bronze Age, although others were acknowledged to be of more recent date. For instance, he proposed that the space between the double concentric walls of an example excavated by Thorneycroft at Dalrulzion, Perthshire (1933) represented a penannular gallery, and that the same structural type could also be recognised in the Howe of Cromar in Aberdeenshire. Some hut circles were already known to have produced iron, as had been found for example during relatively careful excavation of an example at Ackergill, Caithness (Cree 1911, especially fig. 2).

Inward migration of course played a substantial role in Childe's interpretation of the Scottish archaeological record, and many of the architectural series he recognised were attributed either to the autochthonous population or to incomers. As regards groups of hut-circles, for example, he concluded that '. . . on the whole, these villages could be attributed to descendants of the Bronze Age population, undisturbed by the problems of the migrations and the Roman conquest or driven thereby to the high ground above the oak-woods' (Childe 1935a, 217). Elsewhere, however, he was prepared to hypothesise that the relatively common occurrence of open villages of hut circles in some areas (e.g. the Howe of Cromar in Aberdeenshire) might be an indication of greater political complexity. Noting too the relative rarity of forts in the North-East of the country, he went on to question whether '. . . this type of unfortified settlement reflects a better unified political organisation – an approximation to a State – or merely the greater security enjoyed by the inhabitants of regions remote from the theatre of the Romans' operations and the depredations of the castle-folk?' (Childe 1935a, 256).

Elsewhere in *The Prehistory of Scotland*, there are detailed speculations on the relationships between domestic architecture and social considerations. For example, Childe (p. 248) hypothesised that '. . . the decline in architecture and the unintelligent reconstructions of the brochs denote an absorption of the castle-builders by the older inhabitants of the north, probably already by 200 AD; perhaps indeed the broch-lords simply sailed away, leaving their towers to their subjects'. Hypotheses in which inward migration is postulated as a catalyst for the full development of Atlantic roundhouse architecture are relatively familiar, if today out of fashion: is Childe's the earliest argument for emigration being directly correlated with their architectural decline? He voices too unambiguous perspectives on the relationships between technology and

architecture. It was thus his view in 1935 (p. 255) that '... the refugees living in the crannogs ... appear with a full la Tène culture and complete mastery of iron; it is impossible to imagine the building of a crannog without iron axes'. Although, in light of Sands' work (1997), this complete reliance on iron edge tools in crannog construction can now be discounted, the importance of the technological capabilities of tools in relation to the types of buildings recoverable in the archaeological record remains of considerable significance.

POST-WAR DEVELOPMENTS: SCOTSTARVIT

With hindsight, it can perhaps be argued that, at least in the treatment of the interpretation of building remains – more especially circular architecture – Childe's perspectives as exemplified by *The Prehistory of Scotland* stand on the cusp of a new age for the study of Scottish later prehistoric architecture. For those who favour 'Great Divide' models, the publication of the 82nd volume of the *Proceedings of the Society of Antiquaries of Scotland* (1947–48) is arguably the key event. This records not only Gerhard Bersu's Fife excavations, undertaken with the assistance of St Andrews University students, at Scotstarvit Covert, but also the trial excavations he undertook at Green Craig in the same county (Bersu 1948a; 1948b). Another site that has proved to be hugely influential in considerations of later prehistoric architecture (although not for its contained buildings) in lowland Scotland – Hownam Rings in Roxburghshire – was also published there (Piggott 1948; cf. Armit 1999).

It would not be appropriate in the present context fully to re-examine the Scotstarvit report and the evidence for the sequential circular buildings proposed by Bersu on the basis of the post-holes and circular slots he identified. It is certainly true now, as it was apparent to Bersu at the time, that some of the features put together to identify individual buildings, seem less secure than others – in the case of the Phase III building for example. The Scotstarvit buildings are by no means unique in this regard: the structural function of aspects of the architecture of the Little Woodbury house too have been re-assessed, notably the unusual rectangular central post setting, which some would discount as part of the building at all. Some of the Scotstarvit features too might now be reinterpreted, e.g. the slightly sunken area of paving (Bersu, 1948a, 249 and fig. 5 'g1') of Phase 2 (see Fig 3). To do so here would inevitably distract from the key contribution in the Scottish context made by the examination of these buildings, which was, for the first time, to produce evidence for coherent roundhouse timber architecture, and moreover for sequential buildings on the same site.

Scotstarvit, although still displaying a little relief, was clearly a heavily damaged site in 1946 when Bersu embarked on its study. Aside from woodland clearance, apparently clumsily executed during the First World War, other problems encountered by Bersu's volunteer team have a thoroughly modern ring, including the complicating impacts of bracken and of rabbit infestation and associated control measures. The achievements of the excavation team are thus all the more remarkable. Following the cutting of narrow intersecting trial trenches across the site, almost the entire area of the successive central buildings,

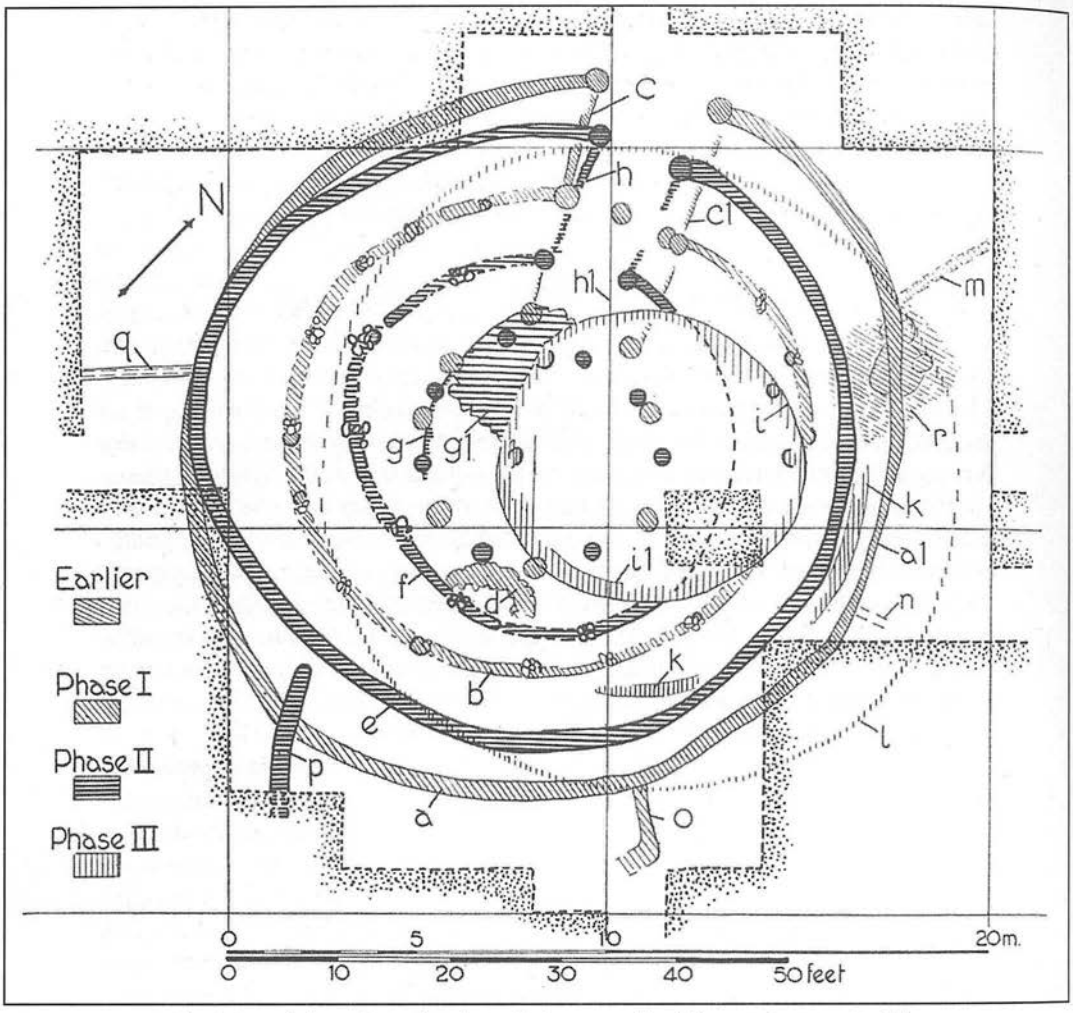


Fig 3 Bersu's interpretative plan of the central building at Scotstarvit, Fife (after Bersu 1948, 247, fig. 5).

occupying a sloping setting, was excavated, although the enveloping works were only examined in a more limited way. This is a repeat of an excavation strategy employed elsewhere by Bersu, for example on the Isle of Man. It is important to stress that the stripping of the central area was achieved over two successive seasons and that the entire layout of the structures was never apparent on the ground (Evans 1989, fig. 4, illustrates the sequential clearance of hand-dug strips at Little Woodbury). The nature of, and patterning of, postholes and slots in the central area of the Scotstarvit excavation are well presented in the published account.

The impact of the Scotstarvit excavation is certainly further enhanced by the qualities – especially the clarity – of Bersu's graphics, more particularly his plans (Fig 3). It may not have been to the site's disadvantage that – possibly because of immediately post-War austerity conditions – no photographs of the

fieldwork were published, so that the dual thrust of Bersu's account of these buildings, with text reinforcing line drawings, is never clouded. Evans (1998) has elsewhere commented on the graphicate qualities of Bersu's fieldwork. Major timber buildings were postulated from the negative features, their reconstructions proposed, ethnographic comparanda sought (again, the background to this aspect of Bersu's approach is critically examined by Evans). Bersu's general concentration in his excavations on the largest of the roundhouses led to arguments for their roofing with low-pitched sod-covered roofs, and this hypothesis, now fallen from favour, is taken over for Scotstarvit with little comment (Bersu 1948a, fig. 9). Wider comparanda were drawn with important buildings further south, most importantly at Little Woodbury.

Alongside the perspectives on southern Scottish enclosed sites presented by Childe (see above: on Castle Law) and Mrs Piggott, it may be contended that this focus on timber roundhouses redirected study of the Scottish Iron Age on its real or imagined southern links, after a period when its more geographically distinctive monuments had been more prominent. In light of the subsequently dominant view of the significance of pastoralism in the economies of the Scottish Iron Age (e.g. Piggott 1958), it is however salutary to note that Bersu's admittedly largely speculative logic led him to propose that '. . . corn growing was the main occupation of the owner. . . .' of Scotstarvit (1948a, 260), not least since space for corralling livestock within the enclosure but outwith the main building was restricted.

The concluding paragraph of the Scotstarvit Covert report provides Bersu's justifications for the way in which he presented and thereafter interpreted his field data. His ultimate aim was to contribute to '. . . the social history of the Iron Age . . . ' (1948a, 261). This report both literally and metaphorically laid the foundations not only for the rapid burgeoning of structural sub-types of buildings, as a new-found confidence in exploring field remains developed, producing elaborate classifications of structures in the work of the Royal Commission's investigators in the Borders Counties (RCAHMS 1956; 1967) and in Chapter 4 of Richard Feachem's synthesis derived from that work (1965). These studies in essence elaborated the framework for the east of Scotland and the lowlands more generally, complementing the long-recognised richness and variability of western Scottish dry-stone architecture (e.g. Armit and Ralston 1997). Of course, since that time, new theoretical overlays and interpretations have been applied to these structures, and Scotstarvit itself figures much less prominently amongst the 'substantial houses' (Hingley 1992) of the Scottish Iron Age in recent discussions. It is none the less suggested that Bersu's work has stood the test of time as a seminal paper and that it stands out amongst the contributions to the 1948 volume in announcing the transition to a recognisably modern world in the study of Scottish roundhouses.

CONCLUSION

Christopher Evans's contributions (1989; 1998) are the fundamental jumping-off point for any wider consideration of Bersu's contribution to the reformulation of British archaeology which gathered momentum in the years immediately

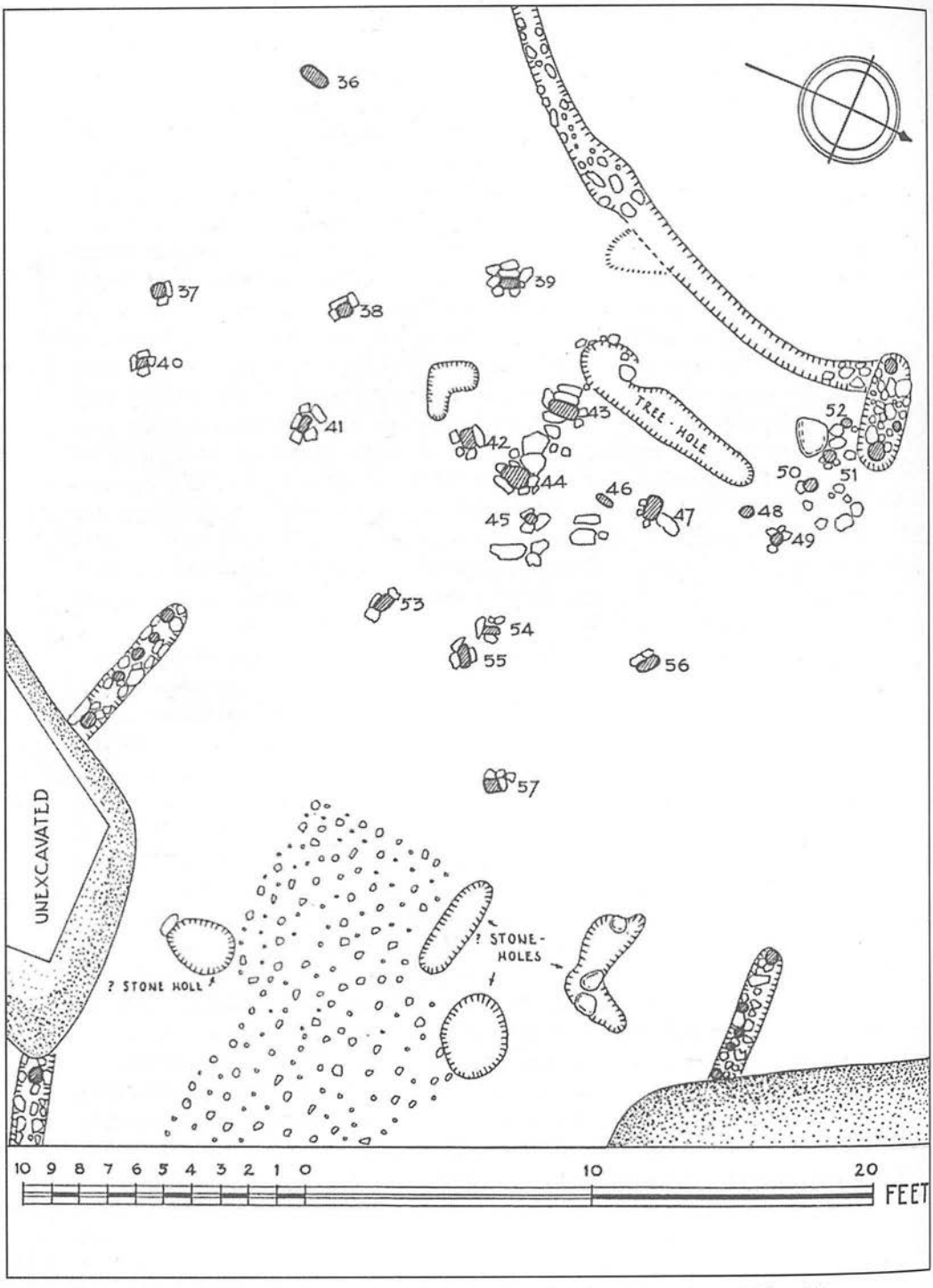
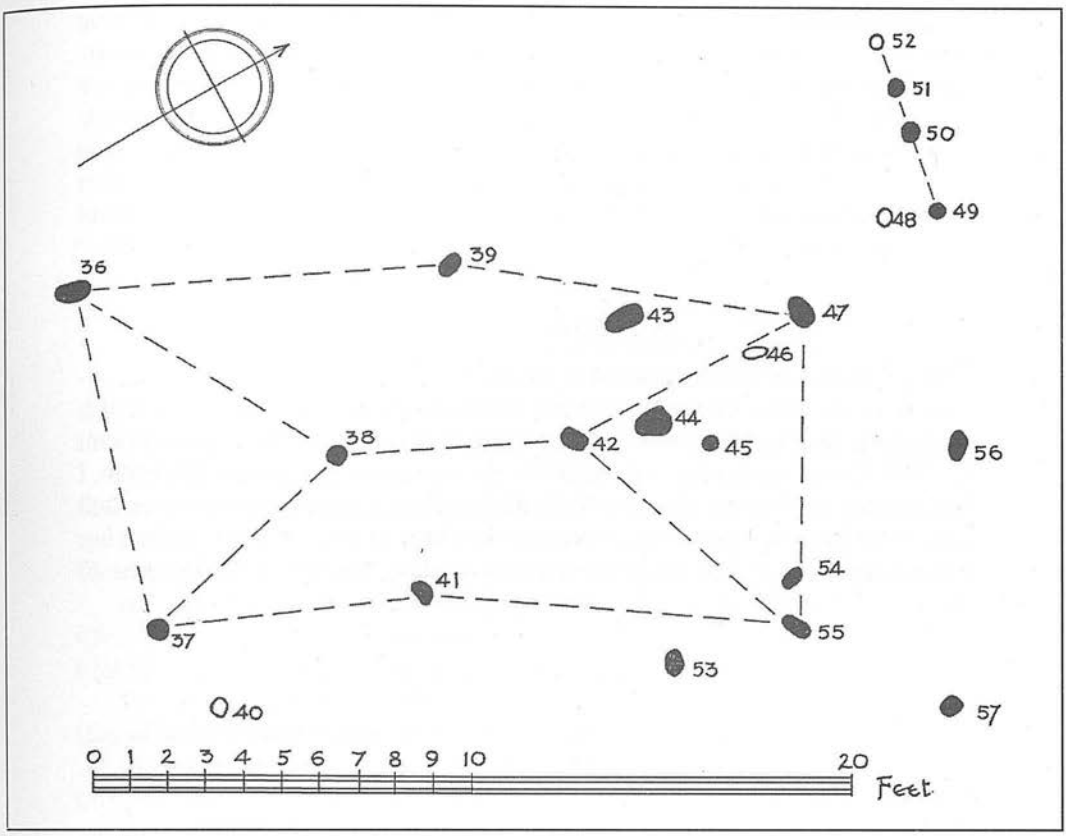


Fig 4 A candidate for a rectangular building: the 'byre' at West Plean, Stirlingshire. A. (above) excavation plan, B. (opposite) conjectural outline of the 'byre' (after Steer 1956, 236–7, figs. 4 and 5).



after the Second World War. Bersu's interpretations were necessarily historically situated, as Evans has rightly insisted, and some fifty years later it is appropriate that the evidence and the models that have accreted over the half century since they were propounded continue to be scrutinised.

The fundamental theme of this paper has been to consider the detection of varying kinds of evidence, and of patterns within that evidence, for domestic structures on Scottish sites. The primary focus has of course been on the identification of roundhouses, especially those of timber. Initial progress, as identified above, was perhaps surprisingly faltering, and must reflect in part an underestimation of how such structures might survive in the archaeological record for later prehistory – the precocious identification of buildings from post-holes on Roman sites would seem to support this. Since its first appearance, each issue of *Discovery and Excavation in Scotland* now charts the detection and examination of further later prehistoric examples. It may be time to question whether the interplay between recovery strategies and archaeological expectations is such that the potential occurrence of rectilinear architecture for this chronological span in Scotland has been underestimated. In southern Britain, by the immediately pre-Roman Iron Age in particular, rectilinear architecture is certainly recognised. Contrastingly, on the nearer continent, large scale rescue excavations have in recent years revealed the presence of both individual examples and

series of roundhouses, in areas where Iron Age domestic architecture has long been considered wholly rectilinear in form. Some of these buildings in Normandy are more convincing than others, but it is far from possible to discount all the examples (Dechezleprêtre *et al* 2000; Jahier *et al* 2000). As yet, leaving aside a few four posters, little evidence for rectangular buildings in the pre-Roman Iron Age of Scotland has been presented – although the postulated byre at West Plean, Stirlingshire, recognised over forty years ago, (Steer 1956, 235–7 and fig. 5: Fig 4) is at least one possibility.

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BIBLIOGRAPHY

Abercromby, J. 1904 Notice of circular enclosures and an underground house, near Dinnet, on Deeside, Aberdeenshire, *Proc. Soc. Antiq. Scot.* 38, 102–122.

Anderson, J. 1878 Notes on the structure, distribution and contents of the brochs with special reference to the question of their Celtic or Norwegian origin, *Proc. Soc. Antiq. Scot.* 12, 314–355.

Anderson, J. 1883 *Scotland in pagan times: the Iron Age*. Edinburgh (= the Rhind Lectures for 1881).

Anderson, J. 1901 Notice on nine brochs along the Caithness coast from Keiss Bay to Skirza Head, excavated by Sir Francis Tress Barry, Bart., M.M., of Keiss Castle, Caithness, *Proc. Soc. Antiq. Scot.* 35, 112–148.

Armit, I. 1999 Life after Hownam: the Iron Age in south-east Scotland, in B. Bevan (ed.) *Northern exposure: interpretative devolution and the Iron Ages of Britain*, Leicester, 65–79.

Armit, I. 2001 Great sites – Traprain Law, *British Archaeology* 57, 8–11.

Armit, I. 2003 *Towers in the North: the brochs of Scotland*, Stroud.

Armit, I. forthcoming Atlantic roundhouses: a beginner's guide, in V. Turner (ed.) *Tall stories*.

Armit, I. and I. B. M. Ralston 1997 Chapter 10: The Iron Age, in K. J. Edwards and I. B. M. Ralston, (eds) *Scotland: environment and archaeology 8000 BC – AD 1000*, Chichester, 169–193.

Baird, J. G. A. 1914 Account of the excavation of two hut-circles of the Bronze Age, in the parish of Muirkirk, Ayrshire, *Proc. Soc. Antiq. Scot.* 48, 373–381.

Bell, E. W. 1893 Notes on the British fort on Castle Law, at Forgandenny,

Perthshire, partially excavated in the summer of 1892, *Proc. Soc. Antiq. Scot.* 27, 14–22.

Bersu, G. 1948a 'Fort' at Scotstarvit Covert, Fife, *Proc. Soc. Antiq. Scot.* 82, 241–263.

Bersu, G. 1948b Rectangular enclosure on Green Craig, Fife, *Proc. Soc. Antiq. Scot.* 82, 264–275.

Blundell, O. 1910 On further examination of artificial islands in the Beauly Firth, Loch Bruaich, Loch Moy, Loch Garry, Loch Lundy, Loch Oich, Loch Lochy and Loch Treig, *Proc. Soc. Antiq. Scot.* 44, 12–33.

Buchsenschutz, O. E. 2001 De la hutte à la maison, de Vitruve aux trois petits cochons, in *From huts to houses: transformations of ancient societies, Colloquium of the Norwegian and Swedish Institutes in Rome, 1997*, Stockholm.

Callebat, L., P. Gros, and C. Jacquemard 1999 *Vitruve. De l'architecture. Livre II*, Paris.

Childe, V. G. 1933a Excavations at Castlelaw fort, Midlothian, *Proc. Soc. Antiq. Scot.* 67, 362–388.

Childe, V. G. 1933b Excavations at Castlelaw, Midlothian, and the small forts of North Britain, *Antiquaries Journal* 13, 1–12.

Childe, V. G. 1935a *The prehistory of Scotland*, London.

Childe, V. G. 1935b Excavation of the vitrified fort of Finavon, Angus, *Proc. Soc. Antiq. Scot.* 69, 49–80.

Childe, V. G. 1941 Examination of the prehistoric fort on Cairngryfe Hill, near Lanark, *Proc. Soc. Antiq. Scot.* 75, 213–218.

Childe, V. G. and W. Thorneycroft 1938a The vitrified fort at Rahoy, Morvern, Argyll, *Proc. Soc. Antiq. Scot.* 72, 23–43.

Childe, V. G. and W. Thorneycroft 1938b The experimental production of the phenomena distinctive of vitrified forts, *Proc. Soc. Antiq. Scot.* 72, 44–55.

Christison, D. 1898 *Early fortifications in Scotland; motes, camps and forts*, Edinburgh.

Christison, D. 1901 Excavation undertaken by the Society of Antiquaries of Scotland of earthworks adjoining the 'Roman road' between Ardoch and Dupplin, Perthshire, *Proc. Soc. Antiq. Scot.* 35, 15–43.

Christison, D., M. Buchanan, J. Anderson 1903 Excavation of Castlecary fort on the Antonine vallum, *Proc. Soc. Antiq. Scot.* 37, 271–346.

Cowley, D. 1999 Squaring the circle: domestic architecture in later prehistoric Sutherland and Caithness, in P. Frodsham, P. Topping and D. Cowley (eds) *We were always chasing time, papers presented to Keith Blood. Northern Archaeology* 17/18, 67–75.

Craw, J. H. 1930 Excavations at Dunadd, and at other sites on the Poltalloch Estates, Argyll, *Proc. Soc. Antiq. Scot.* 64, 111–146.

Cree, J. E. 1911 Notice on the excavation of a hut-circle near Ackergill Tower, Wick, Caithness, *Proc. Soc. Antiq. Scot.* 45, 181–186.

Cree, J. E. 1923 Account of the excavations on Traprain Law during the summer of 1922, *Proc. Soc. Antiq. Scot.* 57, 180–226.

Cree, J. E. and A. O. Curle 1922 Account of the excavations on Traprain Law during the summer of 1921, *Proc. Soc. Antiq. Scot.* 56, 189–259.

Curle, A. O. 1910 Notice on some excavation of the fort occupying the summit of Bonchester Hill, parish of Hobkirk, Roxburghshire, *Proc. Soc. Antiq. Scot.* 44, 225–236.

Curle, A. O. 1915 Account of the excavations on Traprain Law in the Parish of Prestonkirk, county of Haddington, in 1914, *Proc. Soc. Antiq. Scot.* 49, 139–202.

Curle, A. O. 1921 The broch of Dun Troddan, Gleann Beag, Glenelg, *Proc. Soc. Antiq. Scot.* 55, 83–94.

Curle, A. O. 1936 Account of the excavation of a hut-circle with an associated earth-house at Jarlshof, Sumburgh, Shetland, conducted on behalf of H.M. Office of Works in 1935, *Proc. Soc. Antiq. Scot.* 70, 237–251.

Curle, A. O and J. E. Cree 1916 Account of excavations on Traprain Law in the parish of Prestonkirk, county of Haddington, *Proc. Soc. Antiq. Scot.* 50, 64–144.

Curwen, E. C. 1931 Excavations at the Trundle: second season 1930, *Sussex Archaeological Collections* 72, 100–149.

Curwen, E. C. 1932 Excavations at Hollingbury Camp, Sussex, *Antiquaries Journal* 12, 1–16.

Curwen, E. C. and R. P. R. Williamson 1931 The date of Cissbury Camp, *Antiquaries Journal* 11, 14–36.

Dechezleprêtre, T., P. Cousyn, G. Léon, L. Paez-Rezende, and R. Rougier 2000 Architecture des bâtiments de l'âge du Fer en Haute-Normandie, in S. Marion, S. and G. Blancquaert (eds) *Les installations agricoles de l'âge du Fer en France septentrionale*, Paris, 321–338.

Dryden, H. 1858 An account of a circular building and other ancient remains discovered in South Uist, *Proc. Soc. Antiq. Scot.* 3 pt 1,124–126.

Evans, C. 1989 Archaeology and modern times: Bersu's Woodbury 1938 & 1939, *Antiquity* 63, 436–450.

Evans, C. 1998 Constructing houses and building context: Bersu's Manx roundhouse campaign, *Proc. Prehist. Soc.* 64, 183–201.

Fairbairn, A. 1920 Further discoveries of Bronze Age urns in hut-circles in the parish of Muirkirk, Ayrshire, *Proc. Soc. Antiq. Scot.* 54, 210–212.

Fairbairn, A. 1927 Notes on excavations of prehistoric and later sites at Muirkirk, Ayrshire, *Proc. Soc. Antiq. Scot.* 61, 269–289.

Fairhurst, H. 1939 The galleried dùn at Kildonan Bay, Kintyre, *Proc. Soc. Antiq. Scot.* 73, 185–228.

Feachem, R. W. 1965 *The North Britons: the prehistory of a Border people*, London.

Fergusson, J. 1877 *The ages and uses of the brochs and the rude stone monuments of the Orkney Islands and the north of Scotland*, London.

Fleming, J. S. 1915 Notes on the remains of a crannog on Loch Vennachar, *Proc. Soc. Antiq. Scot.* 49, 341–342.

Graham, A. 1915 Report on the partial excavation of Dun Breac, Skipness, *Proc. Soc. Antiq. Scot.* 49, 50–55.

Graham, A. 1947 Some observations on the brochs, *Proc. Soc. Antiq. Scot.* 81, 48–99.

Granger, F. 1931 *Vitruvius on Architecture*, London.

Halliday, S. P. 1999 Hut-circle settlements in the Scottish landscape, in P. Frodsham, P. Topping and D. Cowley (eds) *We were always chasing time, papers presented to Keith Blood. Northern Archaeology* 17/18, 49–65.

Hamilton, J. R. C. 1956 *Excavations at Jarlshof, Shetland*, Edinburgh.

Härke, H. G. H. 1979 *Settlement types and settlement patterns in the West Hallstatt province. An evaluation of evidence from excavated sites*. Oxford.

Hawkes, J. and C. F. C. Hawkes 1947 *Prehistoric Britain*, London.

Hingley, R. 1992 Society in Scotland from 700 BC to AD 200, *Proc. Soc. Antiq. Scot.* 122, 7–53.

Holley, M. W. 2000 *The artificial islets/crannogs of the Central Inner Hebrides,* Oxford.

Jahier, I., C. Besnard-Vauterin, H. Lepaumier, P. Paris, V. Renault, G. San Juan, J-L. Dron, V. Hincker and N. Forfait 2000 Les bâtiments des habitats de l'âge du Fer en Basse-Normandie: panorama, in S. Marion and G. Blancquaert (eds) *Les installations agricoles de l'âge du Fer en France septentrionale*, Paris, 339–358.

Jervise, A. 1874 Notice regarding a Pict's House and some other antiquities in the parish of Tealing, Forfarshire, *Proc. Soc. Antiq. Scot.* 10, 287–93.

Jobey, G. 1976 Traprain Law: a summary, in D. W. Harding (ed.) *Hillforts: later prehistoric earthworks in Britain and Ireland*, London, 191–204.

Keef, P. A. M. 1946 Excavations at Chester hill fort, Hundleshope, in Manor parish, 1939, *Proc. Soc. Antiq. Scot.* 80, 66–73.

Macdonald, G., A. Park and T. Ross 1906 The Roman forts on the Bar Hill, Dumbartonshire excavated by Mr Alexander Whitelaw of Gartshore, *Proc. Soc. Antiq. Scot.* 41, 403–546.

Maclagan, Christian 1875 *The Hill Forts, Stone Circles and other structural remains of ancient Scotland*, Edinburgh.

Maclellan Mann, L. 1903 Report on the excavation of prehistoric pile-structures in pits in Wigtownshire, *Proc. Soc. Antiq. Scot.* 37, 370–415.

Maclellan Mann, L. 1906 On the exploration of the floor of a prehistoric hut in Tiree, *Proc. Soc. Antiq. Scot.* 41, 372–378.

Mitchell, A. 1880 Lecture III – the black houses and the beehive houses of the Hebrides, in *idem The Past in the Present*, Edinburgh, 48–72.

Mitchell, A. 1902 The pre-history of the Scottish area – fifty years' work of the Society of Antiquaries of Scotland, *Proc. Soc. Antiq. Scot.* 3, 11–65.

Morrison, I. A. 1985 *Landscape with lake dwellings. The crannogs of Scotland*, Edinburgh.

Munro, R. 1882 *Ancient Scottish lake dwellings or crannogs*, Edinburgh.

Munro, R.1885 Notice on an artificial mound or cairn situated fifty yards within the tidal area on the shore of the island of Eriska, Argyllshire, *Proc. Soc. Antiq. Scot.* 19, 192–202.

Munro, R. 1893 Notes of crannogs or lake-dwellings recently discovered in N Argyllshire, *Proc. Soc. Antiq. Scot.* 27, 204–222.

Munro, R. 1899 *Prehistoric Scotland and its place in European civilisation*, Edinburgh.

Piggott, C. M. 1948 The excavations at Hownam Rings, Roxburghshire 1948, *Proc. Soc. Antiq. Scot.* 82, 193–225.

Piggott, S. 1958 Native economies and the Roman occupation of north Britain, in I. A. Richmond (ed.) *Roman and native in north Britain*, Edinburgh, 1–27.

R.C.A.H.M.S. 1956 *An inventory of the ancient and historical monuments of Roxburghshire with the fourteenth report of the Commission*, Edinburgh.

R.C.A.H.M.S. 1967 *Peebles-shire: an inventory of the ancient monuments*, Edinburgh.

R.C.A.H.M.S. 1994 *South-East Perth: an archaeological landscape*, Edinburgh.

Ralston, I. B. M. 1997 Pictish homes, in D. Henry (ed.) *The worm, the germ and the thorn: Pictish and related studies presented to Isobel Henderson*, Balneaves, 18–34.

Ritchie, J. 1942 The lake-dwelling or crannog in Eadarloch, Loch Treig: its traditions and its construction, *Proc. Soc. Antiq. Scot.* 76, 8–75.

Ritchie, J. N. G. 1970 Beaker pottery in south-west Scotland, *Trans Dumfries Galloway Nat. Hist. Antiq. Soc.* 3 ser 47, 123–46.

Ritchie, J. N. G. and A. MacLaren 1972 Ring-cairns and related monuments in Scotland, *Scot. Archaeol. Forum* 4, 1–17.

Sands, R. 1997 *Prehistoric woodworking. The analysis and interpretation of Bronze and Iron Age toolmarks,* London.

Steer, K. A. 1956 An early Iron Age homestead at West Plean, Stirlingshire *Proc. Soc. Antiq. Scot.* 89, 227–251.

Stuart, J. 1866 Notice of a group of artificial islands in the Loch of Dowalton, Wigtonshire, and other artificial islands or 'crannogs' throughout Scotland, *Proc. Soc. Antiq. Scot.* 6, 114–178.

Stuart, J. 1869 Notice of a circular structure, known as 'Edin's Hall' on Cockburn Law, one of the Lammermoor Hills, *Proc. Soc. Antiq. Scot.* 8 part 1, 41–46.

Thomas, F. W. L. 1858 Notice of beehive houses in Harris and Lewis, *Proc. Soc. Antiq. Scot.* 3 part 1, 127–144.

Thorneycroft, W. 1933 Observations on hut-circles near the eastern border of Perthshire, north of Blairgowrie, *Proc. Soc. Antiq. Scot.* 67, 187–208.

Thorneycroft, W. 1946 Further observations on hut-circles, *Proc. Soc. Antiq. Scot.* 80, 131–135.

Watson, W. J. 1915 Circular forts in Lorn and north Perthshire; with a note on the excavation of one at Borenich, Loch Tummel, *Proc. Soc. Antiq. Scot.* 49, 17–32.

2004 (with a contribution on the poetry by Vincent Megaw): 'Beyond barbarian Europe: Stuart Piggott 1910-1996: an appreciation', in *eds* Shepherd, I. A. G. and Barclay, G. J., *Scotland in ancient Europe: the Neolithic and Bronze Age of Scotland,* 13-27. Edinburgh: Soc Antiq Scot.

Part 1

BEGINNINGS – NARRATIVES, ENVIRONMENT, SETTLEMENT AND CHRONOLOGY

Chapter 2

Beyond Barbarian Europe: Stuart Piggott 1910–96: an appreciation

IAN RALSTON
with a contribution on the poetry by Vincent Megaw

The following piece is presented very largely as it was given on the occasion of the dinner during the conference, the proceedings of which are reported in this volume. We have preferred to do this rather than to present a text substantially different in its tone and scope, one designed ab initio *to be read rather than spoken. On a few points, however, we have allowed ourselves the liberty of ranging more widely than was possible at the end of a lively and instructive day of papers, and in competition with the sounds of a working restaurant. The Acknowledgements thank the individuals and outline the sources we have consulted in compiling this piece. We have here mainly used footnotes, rather than the standard author-title system, to guide the curious towards some aspects of Stuart's life and contributions to archaeology, drawing on the biographical notes others have put together, personal reminiscences, and material in Stuart Piggott's archive in the Institute of Archaeology, University of Oxford. The main text was written by one of us (IBMR); the other's contribution is identified by his initials (JVSM). Some of the photographs illustrating this piece are also from JVSM's collection.*

Our remit is to say something about the second, very distinguished holder of the Abercromby Chair of Archaeology at Edinburgh University. We are conscious that there are colleagues and friends who knew Stuart Piggott better than we did, and we are not going to try to emulate the thorough biographical portraits already produced by Roger Mercer, Graham Ritchie and Trevor Watkins amongst others.[1] We write – one of us being a Scot and the other having had the good sense to be educated at a Scottish university – as students of Stuart's, who have followed him in working both on home territory and in continental Europe, in the Edinburgh tradition.

To begin – nearly – at the beginning. It was on a late November morning in 1945 that an envelope dropped through the letterbox of Colonel Piggott, then an Oxford postgraduate student, working towards his BLitt on William Stukeley.[2] The handwriting – including the 'Extremely confidential' emblazoned on it – was that of Vere Gordon Childe. Responding to the Colonel's questions, the contents made it plain that Stuart would be in contention for the Chair that Childe would vacate were he offered the Directorship of the Institute of Archaeology in London. As Stuart remarked in his retrospect,[3] Grahame Clark – '... with teaching experience and four excellent books' (the phrase is Childe's[4]) – was clearly the front runner to be the second Abercromby. Stuart at that stage had only a single published book to his name – *The Progress of Early Man*[5] – which Childe reminded him had not been a great success (and which Childe confessed not to have read). Although the first holder of the Abercromby chair listed for Stuart's benefit other names he intended to draw to the attention of the University authorities, in the event it seems that only these two were seriously considered. Stuart was preferred and thus began – duly formalized in a letter of invitation from the Secretary of the University in 1946 – Stuart's Edinburgh period. Having survived the trauma of being driven north by Childe, who seems to have been as unfamiliar with the *Highway Code* as he was with *The Progress of Early Man*, Stuart gave his inaugural on 11 October of that year. It is the distinguished outcome of his association with the University, this Society, this city and much besides, which we celebrate on this occasion.

In this piece I wish to focus on what, in terms of the archaeology of Scotland and Europe were – to borrow a phrase of Philip Larkin's – Stuart's 'fillet steak years'.[6] In my view, these comprised most of his tenure of the Abercromby chair, a span that totalled a little over three decades after the Second World War. This was a period that saw in reality the establishment (not without a struggle) in Edinburgh of a Department of Archaeology at least on a par in size with those elsewhere in Britain.[7] Through the distinction of Stuart's contribution and of those recruited to join him, it was in some ways markedly ahead of the then still-small pack. Important as these are in the making of the man and the scholar, I must simply leave to one side any account of Stuart's upbringing and early career. Any consideration of O G S Crawford, Eliot Curwen, Alexander Keiller, Thurlow Leeds, Harold Peake and other early influences – beyond remarking that for better or for worse, two of the key individuals were Scots – is here excluded.[8]

Richard Bradley has outlined many of the major intellectual achievements of Stuart's tenure of the Abercromby chair (Bradley, this volume). I hope, in what follows, that we can amplify a little at least some of these; and provide some outline of this hugely scholarly, witty, sometimes irreverent, man who clearly struggled intermittently at least with a melancholy disposition which could render him, from time to time, very low. To his undergraduate students he was, as Graham Ritchie and Trevor Watkins have remarked, 'a figure who could be distant and could be fun'.[9] He had, amongst many other gifts, the talent of assuming his Honours students might be as amusedly sophisticated as he was. Much closer relationships were obviously forged with a number of his doctoral students, and with several of his university colleagues during his Edinburgh years.

In many ways, in considering his archaeological output, it is easier to focus on Stuart's European contribution, for that range of peaks has a very clear, conspicuous Everest – *Ancient Europe*, published in 1965 and still in my view the best single-authored multi-period survey of European prehistory. Will there ever be another? One suspects not.[10] Translations into Italian, German, Portuguese and Hungarian subsequently appeared.[11]

Ancient Europe was the *point culminant* of a voyage on which Stuart had embarked in his mid-twenties – to my knowledge his first expressly archaeological continental trip was to Brittany, to the Morbihan and to Le Rouzic in Finistère. Undertaken in the company of his new wife Peggy,[12] the initial planning of this first excursion across the Channel seems to have occasioned many a problem with her family. Promptly written up in *Antiquity*,[13] his first quest for the background of British long barrows – this is his period as Assistant Director of Alexander Keiller's Morven Institute – saw him expatiating more widely on Neolithic tombs and discussing parallels in pottery as far north as Lindsay Scott's sites in the Hebrides – Scotts before Edinburgh, rather than *Scotland Before History*, of which more anon.

The journey continues by way of visits to UISPP conferences and his voluminous reading of continental material – this now looks a rather quirky non-Germanic selection of French, Spanish and Scandinavian sources – in relation to the upgrading of *Neolithic Cultures*, finished in 1951 and despatched to Cambridge University Press.[14] It was reinforced by the more systematic, indeed epic, voyages into the continental heartland of the old eastern bloc from the late 1950s,[15] and his time as visiting Professor at Harvard in 1961. This last was prefaced by a particularly rough sea crossing: 'hell and a hurricane' is uncharacteristically scrawled (not at all his usual elegant hand) on consecutive days in his university diary for January of that year.

It is hard now to envisage the combination of excitement and apprehension that characterized these immediately post-war gatherings in continental Europe, but something of these times is marvellously recounted in Stuart's letters home to Peggy, not least the discomforts of riding to continental sessions in Richard Atkinson's car, on one occasion (in August 1950), having met up with Nancy Sandars on the Channel ferry, down through eastern France towards Switzerland and the Zurich conference of UISPP. The vehicle in question was

> like an old lorry but one gets used to it and if one reclines in the back seat it's not too bad at all.[16]

By that date he was building his network of contacts in the European heartland – noting for example that his paper at Zurich had been well received by Werner and Kramer, both of whom he clearly liked personally. Mme Vogt – '*very* French and attractive' – gave a party for Robert Stevenson and Stuart amongst others who had been kind to her husband when he was in England.[17] He met too Victorine von Gonzenbach of Cortaillod culture fame, her monograph on that subject having been published in the previous year, and found her

> not a bespectacled Frau as expected ... but an enchanting petite little thing of great charm, so that explanation of *le Vindmill Hill* and *le Paterbourg* was a pleasure even if conducted in French.[17]

This also was Stuart's first encounter with that great Swiss staple, cheese fondue. From the mid-1950s, too, he encouraged his research students to work on early European topics, notably Irwin Scollar on the Michelsberg Culture in Belgium, and Beatrice Blance on Iberia.[18] It was Irwin Scollar's review of *Neolithic Cultures* which concluded biblically that it contained 'an appalling amount of labour and understanding'.[19]

Out of this world was in due course born not only *Ancient Europe*, but also in part the shared continental perspectives today enshrined in, for example, the Association of European Archaeologists, and in the themes of this weekend's conference.

The book was clearly well-received from the outset.[20] Stuart undoubtedly cherished the views of his contemporaries, for a file, atypically headed 'Comforting words on *Ancient Europe*', survives in his archive in the Oxford Institute of Archaeology. There are acute and kindly letters from, amongst others, Martyn Jope and Terence Powell. I quote Wheeler's view below. Elsewhere, Arnaldo Momigliano wrote with feeling about the 'austerity' of Stuart's approach, an austerity born of the absence of literacy which is 'what makes him the most humanistic among the prehistorians, but also,

paradoxically, so distrustful of any bold inference to be drawn from material remains'.[21] This is, as Roger Mercer has elsewhere commented,[22] Stuart's 'straightforward appreciation of the vulnerability of the evidence', assuredly an enduring legacy of his teaching that many of us have inherited.

For me, however, the unsung element in all this praise is the fact that in *Ancient Europe* Scottish material is included as exemplars where appropriate. Stuart thereby demonstrated by his written word that, whatever he might have pronounced about Scotland being 'the runt of the European litter', its archaeology could and should be integrated into wider visions. That was, of course, the purpose of the weekend conference.

It is time to turn to Stuart and Scotland. Richard Bradley has already pointed out that Niall Sharples's view that his own fieldwork focused on Scottish exemplars of largely southern British monument categories is, albeit partly true, far from the full story, not least in regard to chambered cairns.[23] It is, however, an open secret that Stuart found some of Scotland's landscapes less than wholly congenial, as he wrote to Peggy in 1949:

> it was hell driving through the bloody Highlands for hour after hour with absolutely no noticeable change of scene.[24]

We may note, in mitigation, that other distinctly more southern uplands equally earned his disapproval, notably the '*Massif bloody central*' of France. But this dislike of the landscape was not universally his view of his adopted base. Even in the Highlands, some areas, as around the Dornoch Firth, seem to have been bearable. The same letter recounts that he found Orkney's monuments terrific and, in rural Scotland at least, 'the people are charming, very forthcoming, hospitable and nice'.

He also took considerable delight in at least some of his Scottish fieldwork, as other letters home from the early campaigns – at Cairnholy for instance – make plain. From his excavation there with Terence Powell, he wrote to Peggy earlier in 1949, 'Everyone is taking an interest in the dig in the true Scots fashion'.[25]

But while he is usually enthusiastic about his student teams on excavations, it is equally plain that the labour force at Cairnpapple drove him to distraction: recruited by the Ministry of Works, they were 'the ultimate dregs of Bathgate ... who spend most of their time brewing tea'.[26]

Stuart's university diaries, held in the Oxford Institute, demonstrate that his early time in Edinburgh was marked by quite a lively social round, as he met those that were to be his colleagues, and not only the archaeologists. He also travelled beyond the city, out to Penicuik to see Sir John Clerk, and to St Andrews to meet Bruce Mitford (styled 'Brusque Mitford' in his letter to Peggy)[27] and F T Wainwright, who Stuart seems immediately to have liked and found stimulating, and with whom in due course he was to work on Scottish Summer Schools until the latter's untimely death.

Fieldwork also provided opportunities to encounter other Scottish archaeologists. Some of his senior Scottish contemporaries are beautifully delineated in the correspondence sent south to Peggy. For example, a senior figure arriving at Cairnpapple to meet Howard Colvin (who was acting as Site Assistant) and Stuart was marvellously described as:

> Cracked as a coot, he ambled around the site, measuring it up in ancient Craftmen's measures, and discoursed largely of azimuths and declinations. 'It's no' a saircle, Professor, it's an aigg,' he pronounced oracularly, 'pointing south an' that means the beginning of a New Era'. It was like listening to Stukeley in 1760, but not so entertaining.[28]

Not all fieldwork here was as pleasurable. Some sites undoubtedly failed to live up to expectations. A splendid bit of doggerel amongst his papers parodies the wartime favourite, *Much Binding in the Marsh*, recounting work at 'Much Squalor in the Glen', the chambered cairn at Corrimony:

> ... We think our predecessors have been really most unkind,
> They've hogged the bloody chamber and they haven't left a find,
> And the poor old Abercrumble's getting softened in the mind ...[29]

Another letter recounts being in a car with Hester Atkinson at the foot of Tap o' Noth (Scotland's second highest hill fort) one cold, wet, windy, Aberdeenshire August day, with a half-dug high-altitude site on its skirts to complete:

> 'Oh hell,' says Stuart, 'let's smoke a cigarette in the car first to pull ourselves together to face up to this.'[30]

Which of us has not reacted similarly, faced with the horrors that can constitute Scottish summer weather?

In regard to Scotland, and more particularly Edinburgh University, there is also a telling passage about the development of archaeology as an academic subject here in the manuscript version of Stuart's 'Archaeological retrospect'.[31] This was excised from the final publication:

> Less successful was my running battle with the University authorities for adequate accommodation and more staff, where with one or two notable individual exceptions I found a total incomprehension of the needs of a modern archaeological department ... From time to time too I sensed that greater encouragement might have been forthcoming had Scottish archaeology (prehistory is scored through: IBMR) played a predominant part in the teaching and research programme of the Department.[32]

Of course, his aim was to try to 'make Edinburgh a centre of excellence in international old world prehistory side-by-side with Cambridge, London and Oxford', perhaps really the only model of a University department then on offer.[33] And yet, despite this nominally European focus, and the downplaying of the contribution to local archaeology, there is plenty of evidence that a complementary domestic orientation fostered by Stuart co-existed happily alongside other contributions in the output of the Department during his tenure of the Abercromby chair. In his own case, in almost all the years of Stuart's time in the North, from fieldwork with Peggy in the Hebrides towards the end of the War through to the publication of the Dalladies long barrow when Stuart was in his early sixties, there is at least one, and sometimes several, publications of specifically Scottish material each year, as Marjorie Robertson's impeccable bibliography makes plain.[34] *Three Centuries of Scottish Archaeology* is a late codicil to the series;[35] and one only he could have compiled.

Dennis Harding has written that his predecessor as Abercromby Professor 'over the years was subject to criticism for not being a more positive force in Scottish archaeology'.[36] But for all that has been said about Stuart's actions and influence in this regard, I think the significant statistic is this. Stuart's *Scotland Before History* of 1958, and his edited *Prehistoric Peoples of Scotland* published four years later, maintained Gordon Childe's record as Abercromby Professor of providing syntheses of the Scottish material, as Richard Bradley has discussed in his keynote address (Bradley, this volume). Since the appearance of the first of these in 1935 – nearly seven decades ago! – I think it remains true that all the single-volume multi-period syntheses of Scottish material written by archaeologists have been wholly or largely written and/or edited by graduates or staff of his Department.[37]

Stuart was the recipient of not one, but two *Festschriften*, which again reflect both the local and the international dimensions of his archaeological interests, and more besides.[38] The second has an introductory poem from Sir John Betjeman (quoted below); and the frontispiece is a painting by John Piper. It is clear that these gave him considerable delight, if not always for the highest of motives: 'I may as well confess,' he wrote to a colleague following the publication party for *Studies in Ancient Europe*, edited by two of the three presiding figures at this conference, 'that some of my own pleasure is the envious thoughts I hope have been aroused in the bosoms of my colleagues.'[39] He was also (with Grahame Clark and Christopher Hawkes) one of the dedicants of Colin Renfrew's edited *British Prehistory*,[40] prompting a humorous response in verse:

> Three wise men of Albion we,
> Grahame, Christopher and me,
> Come to see a little stranger,
> Christ! It's Colin in the manger!

Here, I have not touched on Stuart as caricaturist, as watercolour artist, as *bon viveur* and as contributing author to a 1960s' cookery column in *The Scotsman*, 'Off the Beeton Track'. Of course, too, he dutifully carried out with distinction a range of administrative roles both within and beyond Scottish archaeology.[41] A recurrent feature of his university diaries year after year is a note of the train fare (including, it has to be said, first class sleeper) to London. For all that little touch of luxury, several of these committee responsibilities must have represented gruelling commitments.

But Stuart's poetry cannot be omitted, because it encompasses parts of the man in ways – serious and distinctly not so serious – that other material cannot match.

The following paragraphs are contributed by JVSM.

Stuart, that paradoxically very private but by the same token impressively public of men, once responded in conversation to a question, 'I have been messing about with paints and scribbling verse for as long as I can remember'. While an assessment of his qualities as an artist remains undocumented, the poetry of this friend of many artists, notably David Jones and John Piper (see the frontispiece to his 1976 *Festschrift*)[42] is better known. Stuart's first, and only, published collection was written during World War II very much in the manner of A E Housman.[43] Precious few of a modest print-run seem to have been sold.[44] Some poems were privately circulated during Stuart's lifetime; many more remain hidden in his own private papers and others in the papers of the delighted recipients.[45] While a stern critic might regard some of Stuart's poetry as little more than clever pastiche, when looked at as a whole the poems do suggest that here was not just light relief from the depression and self-doubt which often afflicted him, but also yet further proof, if proof was needed, of that superb wordsmith which appears on the pages even of what might be seen to be the most pedestrian of site reports.

One of Stuart's earliest poems, which has in fact made it into print, is his *Ballade to a prehistorian*, dedicated to Vere Gordon Childe:[46]

> When sounds of verbal conflict fill the air,
> And archaeologists, that curious few,
> Debate some problem or in turn prepare
> To build whole cultures on the slightest clue –
> Then soon or late is heard the speaker who
> Says to the questing novice – shy, forlorn
> And diffident – 'I can't explain to you:
> You'll find it in a footnote in "The Dawn"'.

Are Frankfort's views on Erösd really fair;
And what says Peet of Anghelu Ruju?
What kind of necklace did the Minyans wear,
Or what did Blegen find at Korakou?
Is *Studie o českém neolithu*
The book to read on harpoon-heads of horn?
Is Tallgren's Fatynovo theory true?
You'll find it in a footnote in 'The Dawn'.

All secrets of the past are here laid bare –
What beer the Beaker-folk were wont to brew,
The answer to a Lausitz maiden's prayer,
The recipe for Magelmose fish-glue,
What style of beard the Michelsburgers grew,
The songs they sang when gathering in the corn
At harvest-homes in Late Danubian II –
You'll find them all in footnotes in 'The Dawn'.

[Envoi]

Prince – to your learning be all honour due!
How will eternity treat man, its pawn?
Leaving the past, do you then turn and view
Man's end as but a footnote to his Dawn?

c 1934–5

I have remarked on the ephemeral nature of the way that Stuart distributed his poetry. Thus, I have a letter written in 1959 on notepaper of the *Proceedings of the Prehistoric Society*, of which he was one of two Assistant Editors under the austere hand of the Honorary Editor, Grahame Clark.

It might be pointed out that this was written at a time when, following an interview carried out at Stonehenge in the presence of Stuart, Walter Neurath, founder of the publishing house of Thames & Hudson, and Glyn Daniel, Archaeological Adviser and General Editor of the series *Ancient Peoples and Places*, I became the (self-styled) Archaeological Assistant at the London publishers. For some three years from 1958 my main task was to assist in the preparation of what in effect was to be the first – and hugely successful – of a series of multi-language, co-published, multi-authored volumes in which text and illustrations were integrated as never before in archaeological publishing.[47] Hardly surprising with such an enterprise, the way was not always smooth:

17 September 1959

Dear Piglet,

How well the early Eliot can be adapted (nay, edited), to meet the case:

Mélange Adultère de Tout
ou
Le Redacteur

Malheur à la malheureuse Tamise
Et Hudson, et les Fondateurs.
Le rédacteur
Conservateur
Des Fondateurs
Empeste la brise ...

En Edinbourg, là je me coiffe
Casque noir de jemenfoutiste ...

On montera mon cénotaphe
A trente, rue de Bloomsbury ...

I will now turn again to my own scripts (because I do not hope to turn again ...) and see what I can do, afflicted though I am by accidia, angst, cafard and pneumatic drills operating under my window.

Yours
Toad[48]

We have – we hope – dispensed with the *canard* that Stuart made no real contribution to archaeology in Scotland. Notwithstanding, there cannot be denied that throughout his long tenure of the Abercromby chair many, though by no means all, of his Scottish academic colleagues regarded him with disfavour. Stuart never hid his disdain for some of those he was once overheard to describe as 'tartan trews'd old farts' any more than he was ever reconciled to the new archaeological theory which was beginning its seemingly inexorable march.

In a letter dated 18 January 1959 and written this time on headed writing-paper courtesy of the Midland Hotel, Birmingham, Stuart informed me that he was:

Off to Aberdeen this Afternoon Oh My God to lecture to O'Dell's hideous students on (self-chosen title) THE DISCIPLINE of Archaeology. No slides, no compromises, lots of conceptual models of the past as never was, ascending orders of difficulty and so on. If it doesn't depress them, Nothing will.[49]

An ever-so-slightly anti-Scottish tinge certainly pervades the following poem, undated but probably contemporary with the period of the two letters just cited:

Ane New Scots Ballat[50]

The wee lass cam' to the lecture ha'
Sing hey, ma linkumdoodle,
To learn o' the Picts an' Celts an' a –
Or eh! She's a wee Scots body.

But the lecturers in the lecture ha'
Sing hey, ma linkumdoddle,
Were Englishmen, not yin but twa!
Which affronted the wee Scots body.

She didna hear o' the Picts sae free
Sing hey, ma linkumdoodle,
But muckle o' Hallstatt A and B –
Which fuddled the wee Scots body.

She didna hear o' the Celts sae fine
Sing hey, my linkumdoddle,
Except that they cam' frae east o' the Rhine –
Which shocked the wee Scots body.

So she's awa' tae her Hieland glen
Sing hey, ma linkumdoddle,
An' wickedly laugh those Englishmen –
Hurrah for ane less Scots body!

There is no doubt but that Stuart revelled in the art of gentle parody; here, clearly written after the 1975 local government restructuring, is a kinder view of a well-known Scottish rite:

Mr Betjeman Joins the Summer School[51]

Once again we meet, and meeting,
Eagerly renew the thrills,
Summer School-mates all, repeating
Last year's fun among the hills:
Plodding through the soaking stubble,
Peering hopefully at rubble
Remnants of a ruined broch,
As again the northern summer
Sends the rain-clouds down the loch.

Archaeologists! We're tougher
Than the average lot of chaps,
See how cheerfully we suffer,
Faced with distribution-maps,
Plans of hill-forts, stone cists, castles,
Scotland's past done up in parcels
Neatly tied by expert hands,
When upon the classroom platform
Lecturer after lecturer stands.

Cracking jokes about the Legions
As we have our buns and tea,
Out of all the local Regions,
Ours the only one for me!
We're the heirs of all the ages,
Scampering through History's pages,
Indoors, outdoors, back and forth:
Borders, Lowlands, Highlands, Islands –
Oh, wha's like us in the North?

Is this merely clever parody or, as we art-historians prefer to say, 'a work in the manner of'? Compare John Betjeman imagined in Scotland with the Poet Laureate's own Dedicatory Poem to Stuart's second *Festschrift*.[52]

STUART, I sit here in a grateful haze
Recalling those spontaneous Berkshire days
In straw-thatched,
chalk-built,
pre-War
Uffington

Before the March of Progress had begun,
When all the world seemed waiting to be won,
When evening air with mignonette was scented,
And 'picture-windows' had not been invented,
When shooting foxes still was thought unsporting,
And White Horse Hill was still the place for courting,
When church was still the usual place for marriages
And carriage-lamps were only used for carriages.

How pleased your parents were in their retirement
The garden and yourself their chief requirement.
Your father, now his teaching days were over,
Back in his native Berkshire lived in clover.
Your cheerful mother loyally concealed
Her inward hankering for Petersfield.
For Hampshire Downs were the first Downs you saw
And Heywood Sumner taught you there to draw.

Under great elms which rustled overhead
By stile and foot-bridge village pathways led
To cottage gardens heavy with the flower
Of fruit and vegetables towards your tower
St Mary, Uffington, famed now as then
The perfect Parker's Glossary specimen
Of purist Early English, tall and pale.
– To tourists the Cathedral of the Vale
To us the church, I'm glad that I survive
To greet you Stuart, now you're sixty-five.

Stuart's keen ear for rhythm and choice of the *mot juste*, be it in verse or prose, had one odd gap – he seems to have been, if not totally uninterested in music, music of any sort, then to have no serious desire to listen to it. I remember in the Great King Street flat a small pile of LPs, Mozart, some Johann Sebastian Bach – safe choices, the Brandenburgs, the better known Mozart piano concertos, no 21, KV467 – the 1962 Géza Anda recording, of course. Had this been bought at the time of the release of *Elvira Madigan*? Maybe, but again Stuart rarely, if ever, went to the cinema. Certainly, when, in the mid-1970s I had returned from Prague with some Supraphon recordings which I thought might fit in with Stuart's antiquarian interest in the 17th and 18th centuries – Mysliveček, the Bendas, Stamitz – the gift was met with a polite 'How thoughtful, most interesting!' But I don't believe the records were ever taken out of their sleeves.

Fixed in his ways – this unkind opinion has been levelled at Stuart the archaeologist as much and even more than the same may have been thought of his private life. Certainly in old age he became more and more impatient of the changing fashions in archaeological theory; as he said to me once, 'I'm past all those "posts"!' This view he expressed forcibly in a review written in his 75th year. He concluded:

The prehistoric Europe of this book's title is inhabited not by human beings – stinking likeable witless intelligent incalculable real awful *people* – but by the pale phantoms of modern theory, who do not live, but just cower in ecological niches, get caught in catchment areas, and are entangled in redistributive systems. I started reading this book with high hopes, but as, snow-bound, I finished its inexorably arid and artificial portrayal of antiquity, I almost feel I could crazily rush to the opposite extreme as an escape from deterministic systems of regular human behaviour and rather with W B Yeats (writing in a blizzard),

> *think that I*
> *And even Cicero*
> *And many-minded Homer were*
> *Mad as the mist and snow.*[53]

In many ways – and unsurprisingly so – Stuart Piggott's poetry reflects the man, particularly as he was in his later years. Despite all the international plaudits he remained uncertain that he had ever produced anything that really mattered, more and more convinced that archaeology, to which he had devoted almost his entire life, really was a case of learning more and more about less, seemingly little comforted or at the best only briefly so by the affection in which he was held and the eagerness expressed to him by so many of his students.

In 1994 when gathering material for a *Festschrift* for Ian Stead, knowing that Stuart regarded Ian as 'a real archaeologist' – one whose principal interest was with the study of the material remains of Iron Age Europe – I asked Stuart if he could contribute something. In his mid-eighties, increasingly house-bound, and more and more suffering from 'melancholia and accidia', he wrote to me in that beautiful and distinctive hand that he must be excused if he had nothing new to say – about anything – but he had found the following unpublished quatrain:

> *Lecturing on the Palaeolithic: Edinburgh 1946*
>
> Nostalgic in the muffs and fur
> Through my mind glide Les Patineurs
> As on thin glacial ice I skate
> Do flints and I both patinate?[54]

Alpha and Omega, beginning and end; might not this be said to be Stuart's own epitaph?

IBMR: I know I speak for both Vincent and myself when I say that our dilemmas have centred on what to exclude from this contribution. In the space of a few pages, it is of course not possible to convey a fully rounded picture of the life of this long-lived gentleman and scholar.[55] I would like to conclude with three direct quotations from Stuart's work, remarks that to me reveal something of his range as a human being but, of course, are far from encapsulating the scholarship and humanity sometimes hidden behind that complex personality.

The first is an extract from the final paragraph of 'The Celtic World and Its Aftermath', the last chapter of *Ancient Europe*, and thus one describing a universe markedly, but not entirely, different from that with which we were primarily focusing during the conference.

Stuart concluded – his words in effect an extended caption to his last illustration:

> As men, the barbarians elude us, early and late; we have tried to glimpse something of their workmanship, their art, their movement and settlement, even of their social order. To the Romans, they were the wild men of the woods, to be crudely caricatured in humiliating defeat, whether in Britain, Gaul or Dacia. But there is one most moving work of art from the ancient world into which one could read an epitome of the final situation, the great silver birthday-present dish of Theodosius I, of 388 AD. The emperor sits flanked by the youths of his barbarian guard ... whose institution went back to Claudian times; bewildered boys whose anxious eyes look out, away from the Byzantine world, beyond the barbarian Europe that was theirs, and into that of the Middle Ages, and of our own time.[56]

Now there is archaeological writing to knock into a cocked hat much of the, by comparison, arid theorizing of more recent times.

As Auden put it in one of his last poems, on the subject of archaeology:

> Knowledge may have its purposes,
> but guessing is always
> more fun than knowing ...[57]

And when guessing leads to inspirational writing like that we can but concur. Mortimer Wheeler wrote, with his newly arrived copy of *Ancient Europe* in front of him:

> What is there left for me to say? – except that you are ... almost the only working archaeologist who can write English as literature. Praise be![58]

My second example is from a very different sector of the Piggott spectrum. It dates from the early 1970s, when he was already a very senior professor of the University. The occasion was the address to the new graduates and their parents, which Stuart was charged with giving as Promotor one July day in 1971.[59] (To set the scene for the youngsters among us, this was a time when the novelties were the Pill, mini-skirts, student protest (albeit the mild Edinburgh variety), the indignation of Malcolm Muggeridge, and worthy Edinburgh councillors fulminating over students' morals, or the absence of them.) As one would expect, the merits of intellectual curiosity (for him the central reason for a university) loom worthily large in Stuart's address and then, and for this one needs to imagine Stuart with

that anticipatory, slightly wicked look on his face, there is a change of tack:

> And when I talk of the intellect, I do not mean an arid ... and pointless quest pursued in unreal seclusion by remote and ineffectual dons. Scholarship has far more to it than that. I am whole-heartedly with the first Marquis of Halifax in the seventeenth century, who wrote '... the struggling for knowledge hath a Pleasure in it like that of wrestling with a fine Woman'. More of this spirit, and tutorials would be far less of a bore than they are now.

I am told that the proverbial pin could have been heard dropping in the vastness of the MacEwan Hall. Stuart undoubtedly delighted in pricking the occasional balloon along the way, as he made his major and lasting contributions to our discipline.[60] He would certainly have hugely enjoyed the occasion of which these inadequate tributes formed a part. Not for him at such a time, I would suggest, his description of the London antiquaries of a former generation:

> ... vaguely afraid, vaguely distrustful,
> Of the young men who are making their hobby a science
> Conscious that they were the sowers, yet doubting the harvest ...[61]

Lastly, the conclusion to his first statement on 'Methods and aims', in *The Progress of Early Man*: this must have been composed when Stuart was still in his early twenties:

> We have to reconstruct man from his works, and the oddments he has left behind for us to study. The essential humanity has gone; in reconstructing the life of a remote period we are sometimes despondent, as who might look at an abandoned dinner-table and attempt to visualize, from the vacant chairs, the empty coffee-cups, the cigarette-ash, and the blandly uncommunicative table, something of the personality of the diners, their conversation, their appearance. It is, after all, the people themselves who mattered, and tools and tombs are the means by which we try, however imperfectly, to recapture the lives of our remote ancestors.[62]

That is assuredly still the case.[63]

Notes

1. Bradley 1996; Megaw 1997a; 1997b; 1998; Mercer 1998; Neustupný & Turek 1997; Ritchie & Watkins 1996; Sharples 1999; 2001.
2. Towards the end of the War, Piggott was accepted by St John's College, Oxford, under a scheme that allowed ex-service personnel accelerated entry. The influence of his BLitt research, duly published in 1950 and in a revised version in 1985, has been considered by, for example, Sharples 1999. Tom Rider, one of two archaeologists who appears in a Penelope Lively novel (1979) in which Stuart is explicitly named, is also researching William Stukeley and his contemporaries. The character, however, was not based on Stuart (Penelope Lively, pers comm), since they did not meet until much later. 'I can see him,' Mrs Lively writes, 'sitting out in the garden, drinking red wine and telling scurrilous stories'. Stuart was also very proud, according to Jessica Mann (pers comm) of his appearance in fiction in Ann Bridge's 1948 novel *And then you came*. In her novels, Jessica Mann's fictional archaeologist, Thea Crawford, also from time to time voices an opinion on the point of archaeology close to those held by Stuart.
3. Piggott 1983.
4. Typescript letter Childe to Piggott, 20 November 1945. Stuart Piggott Archive, Institute of Archaeology, University of Oxford (hereafter SPA).
5. Piggott 1935. This slim volume, illustrated by the author, already displays some of Stuart's archaeological passions. The selection of books to read, in this volume intended for the general public (in A & C Black's 'How and Why' series), notes, for example, that Kendrick's 1927 study of the Druids 'is the only sane book ever written on the subject' (p 96) (cf Piggott 1968). The copy Stuart inscribed (28 February 1935) with a generous tribute to his parents 'from whom I have always been sure of ready encouragement and sound criticism' survives in the SPA.
6. Richard Brooks 'Tape reveals the trouble with Larkin's dad', *The Sunday Times*, 26 January 2003.
7. At the outset, Stuart's only teaching assistant was Mr H J H Drummond, who was seconded from the University Library to deal with the Palaeolithic for the Department's students.
8. Much early correspondence to Stuart survives in SPA, as do some of his letters to his future wife ('Peggy') while he was employed as Assistant Director to Alexander Keiller in the Morven Institute. The present writer believes this material will be a very valuable resource for anyone researching the ambience of inter-War archaeology in Britain. The following, rather random, selection, imparts something of the flavour of these times. Eliot Curwen sent the 16-year-old Piggott *Celtic Man on the South Downs*, and encouraged his interest in earthwork survey in Hampshire, pointing out the interest of a certain Buster Hill. 'Dear Piggott, I am very glad you have settled at Reading, and hope you will stick to archaeology ...', was the start of a letter sent to the Museum there by O G S Crawford in January 1927. Six months later, the youngster was being scolded by the Assistant Keeper of the Ashmolean (E T Leeds) for requesting information on finds from Uffington: 'Did it not strike you ... that you might have profitably saved your time and other peoples' by devoting your fleeting visit to making your own sketches and taking down particulars for yourself'. That was assuredly a lesson rapidly learned. In that autumn more advice followed from Crawford: 'I am glad that you are taking up archaeology, but hope you will not remain permanently in museums. A little field work abroad later on will be an invaluable training, and should not be difficult to pull off'. A further private and confidential letter from the

same mentor in the summer of 1933 weighed up the pros and cons of staying with the Welsh Royal Commission or throwing in his lot with Keiller, advocating the latter course of action, 'Keiller is erratic and at times infuriating, but he is a genuine enthusiast and really loves archaeology and survey'.

9. Ritchie & Watkins 1996, xvi.
10. I am less than wholly convinced that Glyn Daniel's (1965) prediction has been entirely borne out: 'In ... *The Idea of Prehistory* ... we said that "we still await a good book telling the public what went on in Europe before the Roman conquest." We await it no longer: Professor Piggott's courageous, ambitious and admirable *Ancient Europe* tells the public what went on in Europe before the Roman conquest. *There will be many books of this kind – though not necessarily of this quality – in the next quarter-century* [my emphasis]; they must all be indebted to this book ... It needed a bold and a learned man to attempt the complete picture'. In fact, subsequent English-language, single-authored surveys of this chronological and geographical scope have been remarkable for their rarity. Patricia Phillips's (1980) overview is one exception that comes to mind; another is Milisauskas 1978.
11. Piggott 1965 (paperback 1973). Also Piggott 1974 *Vorgeschichte Europas: von Nomadentum zur Hochkultur.* Munich: bei Kindler = Kindlers Kulturgeschichte Europas, 1. Translated by Renate von Schaewen and with revisions to the bibliography etc by Franz Fischer. Piggott 1976 *Europa antica, dagli inizi dell'Agricoltura all'Antichita classica.* Turin: Giulio Einaudi Editore. Piggott 1981 *Europa antiga, a do início da Agricultura à Antigüidade classica.* Lisbon: Fundação Calouste Gulbenkian. Piggott 1987 *Az európai civilizáció kezdetei: Az őskori Európa az első földművelő któl a klasszikus ókorig.* Budapest: Gondolat Könyvkiadó.
12. Stuart Piggott's wife was Mrs C M Piggott (née Preston), Margaret, known as Peggy (hereafter CMP). They married in 1936; the marriage ended in the mid-1950s. Many of his hand-written letters to her survive in SPA and are revealing of the man on a personal level, while at the same time containing much of archaeological interest.
13. Piggott 1937.
14. The work went slowly through the press: Piggott 1954. JVSM remembers a well-thumbed set of page proofs during his first year at Edinburgh (1953–4). The volume was then usually referred to both by its author and amongst his students as 'Neolothic Vultures', thanks to a particularly unfortunate typographic error in a PhD thesis then current. Mercer (1998, 434) offers another recension of this renaming; by the late 1960s, I think the unforced error was blamed on an un-named American.
15. Stuart travelled very widely in Europe. Some information regarding particular trips is contained in his university diaries held in SPA, and other voyages are recorded in his correspondence and other sources. He travelled often with kindred archaeological spirits – Nancy Sandars, John Cowen and his wife, Terence Powell, Richard Atkinson, Glyn and Ruth Daniel, and famously to Russia with his students Ruth Tringham and Bruce Chatwin – but also on his own. He visited Portugal in 1947 (sailing back from Oporto to Liverpool), and France on a number of occasions between 1949 and 1952, continuing to Switzerland in 1950. He travelled to Malta in 1953 and was at the international congress in Spain in 1954. Earlier in that year, too, he was in the United States to receive his honorary doctorate from Columbia. He seems first to have visited Holland and Germany with Terence Powell in 1955, reaching the Heuneburg on 13 April of that year; in that August and September he visited Turkey. In 1957 he spent part of the summer on a Swan's Hellenic cruise in the Mediterranean. From the Hamburg UISPP conference in 1958 he went on to what was then the German Democratic Republic; 1959 saw him accompanied by students from Edinburgh and Cambridge in Sicily and the Lipari Islands, then cruising around some of the major sites of the Aegean – and in the same year he visited Prague and key Czech sites, notably Bylany. The 1960s were marked by more adventurous journeys east. In the company of Nancy Sandars, Terence Powell and John Cowen he visited Hungary, Bulgaria and Rumania in 1960; six years later he travelled to the Caucasus and Iran (including Tehran, Tiblisi and Erevan) with John and Rhoda Cowen and Terence Powell. The Chatwin/Tringham visit to Poland (Warsaw and Cracow) and on to the USSR (Leningrad – now again St Petersburg, Moscow and Kiev) was in 1968, and he was back in Moscow at the behest of the British Academy in 1971. His first Scandinavian trip may have been to Norway and Denmark in 1960; he had certainly returned from Copenhagen only three weeks before setting out for Budapest and points east in late April of that year. Something of the flavour of these days is I hope captured in the quotations in the main text, but also noteworthy is a letter from Christopher Hawkes to the participants in the 1960 voyage – Piggott, Sandars, Cowen and Powell (in SPA; dated 27 January 1964) 'Your epic journey across the continent in 1960 remains one of the great events in British archaeological enterprise of the post-Gordon era. Your travellers' tales of it, and the superb summarizing in *Antiquity* ...'. There are also recurrent trips to northern France with the Daniels, often profiting from the convenience of the Southend-Boulogne air service.
16. SP in a letter home to CMP, dated 10 August (1950), sent from Raon-les-Etapes in the Vosges – another upland territory (*vide infra* on Scotland) with "orrible foothills', it may be noted (in SPA).
17. Extracts from an enthusiastic letter from SP to CMP, dated 19 August (1950) and sent from Neuchâtel (in SPA).
18. Irwin Scollar arrived in Edinburgh in mid 1956 from a Belgian American Educational Foundation fellowship in Brussels. His PhD, awarded in 1959, appeared in print as a major article in that year (Scollar 1959). Two years later, a summary of Beatrice Blance's research was published (Blance 1961). Both articles were cited in *Ancient Europe.* Blance's definitive publication of her doctoral work appeared in 1971.
19. Scollar 1956.
20. Reviews of *Ancient Europe* include that by Peter Levi (1965), who described in as 'a kind of masterpiece' and 'a sharp

instrument of scholarship'. The anonymous reviewer at *The Economist* considered it 'a magnificent survey' which introduced 'new and unfamiliar evidence ... beautifully handled to produce a convincing synthesis' (Anon 1965). (In) 'its clarity, richness of detail and mastery of a large, sprawling, rapidly growing body of knowledge it is the most satisfying book of its kind in a long time,' wrote Marshall Sahlins (1966). Other American reviewers commented equally favourably: for Robert Rodden (1966) 'this landmark in archaeological writing' was 'original, closely argued and fascinating': Lamberg-Karlovsky (1967) at Harvard was only marginally less impressed. The final word here may go to Geoffrey Bibby (1966), who concluded that *Ancient Europe* was 'one of the best books of the decade on European prehistory, that its faults are more invigorating than most books' virtues, that it is required reading, inspiring reading and often inspired writing'.

21. Momigliano 1967.
22. Mercer 1998, 441.
23. Sharples 1996. Niall Sharples's critique of Stuart's apparent fieldwork focus was one component of a larger, and trenchant, review of the status of Scottish archaeology. As regards Stuart's excavations in Scotland, it is true that most had been completed by 1960 (cf Sharples 2001) – those thereafter (Croft Moraig, with Derek Simpson (Piggott & Simpson 1971); and Dalladies, with Trevor Watkins and Mary-Jane Mountain (Piggott 1972)) being collaborative efforts. But by 1960 Stuart was 50, and there are plenty of excavators who have worked in the field in Scotland early in their careers but who have definitively misplaced their trowels long before that anniversary.
24. Letter from SP to CMP, on Gloucester Place (their first Edinburgh flat) notepaper, and dated 9 October 1949 (in SPA).
25. Letter from SP to CMP, from Creetown, Galloway, dated 22 June 1949 (in SPA).
26. Undated ('Sunday') typescript letter from SP to CMP at Rockbourne, their Hampshire home, sent from St Michael's Hotel, Linlithgow. Of the students, Stuart remarks 'They are a nice crowd (none from Glasgow – there were two due on the 12th, but they didn't turn up ...) and they have done an amazing lot of hard and unrewarding digging ... they are amazingly cheerful. There is good undergraduate conversation in the hut at lunch, with a strong classical element ... and the school is littered with archaeological books and works of Greek philosophy'. *Autres temps, autres moeurs.* This letter is one of several about Cairnpapple, arguably Stuart's most revolutionary Scottish excavation (cf Barclay, 1999 for a half-century re-assessment), held in the SPA in Oxford.
27. Two letters of 6 and 10 December 1946 from SP to CMP in SPA convey something of this early enthusiasm. In the earlier, he reports that 'Edinburgh has been doing its stuff magnificently, with the Castle looking quite magic in the late afternoon and I've survived so far very well'; in the latter he records a splendid story of the finding of a food vessel at Penicuik during the war, and the local minister being dragooned by Sir John Clerk's wife into giving the cremated remains a Christian re-burial within the churchyard. In early 1947, there was the prospect that Terence Powell might join him in the north, as the Secretaryship of the Royal Commission had been advertised. It was not to be. And the 'hellish cold' he recorded in a letter south on 9 January 1947 (also in SPA) may have begun to diminish his enthusiasm for his newly adopted city and its denizens.
28. Letter from SP to CMP during the Cairnpapple fieldwork, simply headed 'St Michael's, Linlithgow: Friday night' (in SPA).
29. This verse was prompted by the discovery of a willow-pattern sherd within Corrimony, during the July 1952 excavations. The site was definitively reported in Piggott (1956).
30. This was during the excavation of the Cairn of Milduan, originally taken to be an eastern example of the Clava passage-grave series, and dug at the same time as Richard Atkinson's excavation at East Finnercy. Reported in a letter from SP to CMP 'written *chez* Calder in the famous Morayshire' in July 1952 and held in SPA.
31. Piggott 1983.
32. This text was found amongst notes that Stuart had got together to write his 'Archaeological Retrospect' for *Antiquity*, and this material is now held in a labelled folder in SPA.
33. The quotation is from the source identified in note 32. Stuart also remarked (1983, 35): 'I therefore decided to teach my students European prehistory, as I would like to have been taught it myself'.
34. Robertson 1976.
35. Piggott & Robertson 1977. This is the catalogue prepared to accompany an exhibition (in Edinburgh University Library) of books and manuscripts to mark the half-centenary of the Abercromby Chair in 1977. In 2002, a further quarter-century had passed since the establishment of this prestigious Chair, held since Stuart's retirement by Professor D W Harding, FRSE. Sadly, the Edinburgh University Department of Archaeology did not acquit itself with particular distinction in the Research Assessment Exercise of that date, and the milestone passed unmarked. The 1977 account focused on materials from George Buchanan's *Rerum Scoticarum Historiae* of 1582 to Lord Abercromby's testamentary writings of 1916, determining the nature and scope of the Abercromby Chair, and discussed in this conference by Richard Bradley.
36. Harding, D W 1996 'Obituary: Professor Stuart Piggott, CBE, FBA'. *The Guardian* 30 September 1996.
37. In chronological order these are (by date of first appearance): Childe, V G 1935 *The Prehistory of Scotland*; Childe, V G 1946 *Scotland Before the Scots*; Piggott, S 1958 *Scotland Before History*; Piggott, S (ed) 1962 *The Prehistoric Peoples of Scotland* (with contributions by R J C Atkinson, G E Daniel, T G E Powell and C A R Radford, as well as Stuart); Menzies, G (ed) 1971 *Who Are the Scots?* (Archaeological contributions from Stuart, Anna & Graham Ritchie, and Charles Thomas, all with Edinburgh connections; also Anne Robertson, Isabel Henderson and David Wilson); Laing, L 1976 *Ancient Scotland: a Guide to the Remains*; Ritchie, G & Ritchie, A 1981 *Scotland: Archaeology and*

Early History; Edwards, K J & Ralston, I B M 1997 (eds) *Scotland: environment and archaeology 8000 BC – AD 1000* (Archaeological contributions from Bill Finlayson, Gordon Barclay, Trevor Cowie, Ian Shepherd, Ian Armit and Ian Ralston, all 'Edinburgh products'; also Kevin Edwards, Bill Hanson, and John Hunter); and Armit, I 1998 *Scotland's Hidden History*. Stroud: Tempus.

Historians too have ranged over Scotland's earlier past, for example, Simpson, W D 1965 *The Ancient Stones of Scotland*; and Oram, R 1997 *Scottish Prehistory*.

38. Coles & Simpson 1968; Megaw 1976.
39. SP quoted by JVSM, *in litt* 4 March 2003.
40. Renfrew 1974.
41. These roles included: Member, Ancient Monuments Board for Scotland 1954–74; Member, Ancient Monuments Board for England 1964–74; Commissioner, Royal Commission on the Ancient and Historical Monuments of Scotland 1946–76; Trustee, National Museum of Antiquities of Scotland 1954–77; Vice-President, The Society of Antiquaries of London, 1955–8; President, The Prehistoric Society 1962–6; President, The Society of Antiquaries of Scotland 1967–71; President, the Council for British Archaeology 1967–70; and Trustee of the British Museum 1968–74.
42. Megaw 1976, 2.
43. Piggott 1948.
44. I am grateful to Hilary O'Shea of Oxford University Press for this information. Despite only a handful of the 600 copies having been sold, this work seems to be both rare and curious. See Daniel 1986, 159.
45. The task of bringing together Stuart's poetic opus has been commenced by yet another 'Piggins' peephole', Duncan McArdle; I owe knowledge of several of the poems reproduced here to copies kindly supplied by this acknowledged expert on the Highland pony. Alison and Stewart Sanderson, Stuart Piggott's literary executors, have kindly granted permission for the publication here of this small selection of 'Songs of Toad'.
46. Quoted in Green 1981, 158–9: the version here follows the typescript in SPA. The first edition of Childe's *The Dawn...* was published in 1925; my copy of the third edition (1939) is inscribed 'Stuart Piggott 1939 d.d. V. G. C.'
47. Piggott 1961; for a sympathetic but far from uncritical review of *The Dawn of Civilization* (aka *Down with civilization* by SP) see R J Braidwood, *Antiquity*, 36 (1962), 67–9.
48. The reference to Eliot is to the 1920 poem of the same name: Eliot 1963, 49.
49. In the same vein that Stuart, who in public could stand on his honour with the best of them, in private was happy to be regarded as Toad, driver of Small Fast Cars, this letter to me was addressed to 'Mabel' and signed 'Doris'. Mabel and Doris were two maiden ladies of A Certain Age who, from such correspondence as is still extant, were more than a little taken by the ever-so-handsome Professor from Edinburgh. As I recall, this was initially a ruse to cloak some of the more extreme altercations which used to be part of everyday life at Thames & Hudson – or 'Thumbs and Handscrews' to adopt Stuart's preferred styling.
50. Undated typescript in SPA. The 'Englishmen, not yin but twa' are obviously Stuart and Richard Atkinson, which narrows the time frame to between 1951 and 1958, when Atkinson left Edinburgh to take up the Foundation Chair of Archaeology at the then University College, Cardiff. In defence, it should be recorded that this is the period when I, as a mere Sassenach, was an undergraduate at Edinburgh and I can recall no such outrageous nationalist intolerance on the part of either of our teachers.
51. There are two typescript versions, both undated, the second being entitled simply *The Scottish Summer School* (in SPA).
52. Megaw 1976, 11: Betjeman's poem was reprinted, with a positive note by the Editor, in *Antiquity*, 50 (1976), 180–1. Roger Mercer's sympathetic memorial to a complex man includes another poem, 'As neat a parody as one could wish of his friend and neighbour John Betjeman...' written from Edinburgh but recalling a much earlier visit to Cyril and Aileen Fox (Mercer 1998, 418).
53. *Antiquity*, 59 (1985), 145–6, reviewing Champion *et al* 1984. The reference from Yeats is to his poem, xviii in the sequence 'Words for Music Perhaps' from 'The Winding Stair and Other Poems 1933': Finneran 1983, 265–6. David Ridgway reminded me of this review previously cited by him in Ridgway 1997.
54. Raftery *et al* 1995, xi.
55. Another dimension of his humane outlook can be seen in his tributes to deceased colleagues and friends, most notably in his writing about Sir Cyril Fox (Piggott 1967; see Robertson, this volume).
56. Piggott 1965, 260. The boys with their anxious eyes seem to me an echo of the 'murdered boys' with 'strained pale faces' of his unpublished and distinctly scathing 1944 poem to Sir Mortimer Wheeler (in SPA). Roger Mercer (1998) has remarked on the volatility of their relationship. It is altogether in Stuart's character that none of this comes across in his generous published tribute to Wheeler (Piggott 1977).
57. Auden 1991, 894–7: 'Archaeology', written in 1973.
58. Letter from Sir Mortimer Wheeler, then at the British Academy, to SP, 4 October 1965. A gloriously poorly typed, but hugely enthusiastic, letter from Nancy Sandars on the same subject (20 October 1965) amusingly notes, 'The self-portrait on the dust-jacket may cause some surprise ...: the Professor has grown a beard and changes a wheel between lectures'. This is a reference to the silhouette, derived from one of the panels of the Gundestrup cauldron, that adorns the front cover of both the original hardback and paperback editions (both letters in SPA).
59. Address to the graduates 16 July 1971. Printed, with handwritten *corrigenda* by SP (in SPA).
60. Despite failing health in the 1990s, Stuart continued to write in his cottage in West Challow – a cottage almost dwarfed by the huge extension he had built to hold his library of some 15,000 items (de Jersey, pers comm). His last monograph (Piggott 1992) and his final published article (1995) both relate to vehicles and vehicle-building, a life-long passion: 'when George Sturt was writing his *Wheelwright's Shop* of 1923 in Farnham, I, as a small boy, was watching traditional

wagon-building as he described it in a village only 15 miles away' (Piggott 1983, 36).

61. Extracted from a handwritten letter from 'Diana', sent from The Old House, Chesterton on 20 July 1988 in which this poem of Stuart's is quoted *in extenso*. Diana is Diana Bonakis Webster, wife successively of Leonard Cottrell and of the archaeologist Graham Webster, and biographer of Professor Christopher Hawkes.
62. Piggott 1935, 17–18.
63. Stuart Piggott, 28 May 1910 (Petersfield, Hampshire) – 23 September 1996 (Wantage, Oxfordshire). Assistant, Reading Museum 1927; Typist, subsequently junior investigator, Royal Commission on Ancient Monuments, Wales, but London-based 1928–33; Assistant Director, Morven Institute for Alexander Keiller from 1933 to 1938; freelance excavator (for example, at Sutton Hoo) 1938–9; War Service, first with territorial army, then at Central Air Photographic Service, Medmenham, where he was commissioned, to Egypt and on to India; attained rank of Lieutenant-Colonel; BLitt research at St John's College, Oxford from 1945; Abercromby Professor of Prehistoric Archaeology, Edinburgh University 1946–77.

    BLitt (Oxford) 1950; Fellow of the British Academy 1953; Corresponding Member, German Archaeological Institute 1953, subsequently *Ordentlisches Mitgleid*; DLitt Hum, Columbia, New York 1954; Fellow of the Royal Society of Edinburgh 1956; Honorary Member, Royal Irish Academy 1956; Honorary Member, American Academy of Arts and Sciences 1960; Visiting Lecturer, Harvard 1961; Commander of the British Empire 1972; President, Society of Antiquaries of Scotland 1967–72; Honorary Fellow, Society of Antiquaries of Scotland 1977; Gold Medallist, Society of Antiquaries of London 1983; S C Chakravatry Medal of the Asiatic Society 1983; Hon DLitt, Edinburgh 1984; and Grahame Clark Medal in Prehistoric Archaeology, The British Academy, 1993.
64. Commentary on photographs in illustration 2.1: 1. with R J C Atkinson at Prehistoric Society, Edinburgh meeting, Old Quad, 1954. This is part of a photo which has also appeared in Trigger (1980), Neustupný & Turek (1997) and Champion (1997). Photo: SPA; 2. Stuart being filmed for BBC's *Who are the Scots?* at his last excavation, Dalladies long barrow, Kincardineshire, 1971. The interviewer is Gordon Menzies. Photo: Ian Shepherd; 3. at the Neolithic settlement of Bylany, Czechoslovakia, UISPP Congress 1966. Photo: per Dr M Midgley; 4. and 5. the BBC men meet their dreaded rival – ITA (the Independent Television Authority) – or was it? A hoax perpetrated on the occasion of BBC tv making a programme in the *Buried Treasure* series on the excavations at West Kennet Long Barrow, Wiltshire, 1955. The van, parked beside the BBC Outside Broadcast trailers, was a battleship blue Bedford belonging to Charles Thomas; 4. The 'ITA team', left to right: Charles Thomas; Nicolas Hawkes; Cynthia Warhurst, later Mrs Gaskell Brown, Plymouth City Museum; Elizabeth Burley (now Fowler); the fifth figure is unidentified; 5. The BBC team, left to right: Paul Johnstone (producer); Richard Atkinson (co-director of West Kennet excavations); Glyn Daniel (presenter); Stuart Piggott (co-director). See Johnstone 1957 (where the date of the excavations is incorrectly given as 1954). Photograph 5. has previously appeared with variant descriptions: Jordan 1981, illustration 6 ('... Stuart Piggott on location'); Daniel 1986, illustration on p 323 below ('A break in filming at Stonehenge [*sic*] ... a joker has daubed the van'). The source for both photographs was the same print, given to Stuart by the photographer in 1956. Photo: J V S Megaw. 6. 'The grave's a fine and private place'. At Croft Moraig, Perthshire, stone circle; used by Stuart Piggott as Christmas card, 1965. See Piggott and Simpson 1971. Photo: M J M Murray.

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I am grateful to Barry Cunliffe, Philip de Jersey, Penelope Lively, Duncan McArdle, Arthur MacGregor, Jessica Mann, Vincent Megaw, Roger Mercer, Graham Ritchie, Niall Sharples, Ian and Alexandra Shepherd, and Charles Thomas for discussion of, and information on, aspects of Stuart's life and works. Thanks are due in particular to Debi Harlan who made me welcome in the Piggott archive in the Institute of Archaeology in Oxford, facilitating access before cataloguing of the collection was complete, and forwarded photocopies to me. She also very kindly checked various pieces of information that emerged after my visit (including the details of Stuart's medals, held by the Institute). Stuart Midgley at Edinburgh University Press provided the first clues that enabled the identification of the other editions of *Ancient Europe*. Ron Dalziel and Suzanne Waters of Historic Scotland and English Heritage respectively verified the information on Stuart's AMB service north and south of the border. Erin Osborne-Martin chased up many of the more hard-to-locate sources on my behalf.

References

Anon 1965 'Ancestors', *The Economist*, 217, 1219–20 (no 6380 for 11 December 1965). [Review of *Ancient Europe*]

Armit, I 1998 *Scotland's Hidden History*. Stroud.

Auden, W H 1991 *Collected Poems*, 1976. Rev edn, Mendelson, E, 1991. London.

Barclay, G J 1999 'Cairnpapple revisited: 1948–1998', *Proc Prehist Soc*, 65, 47–82.

Bibby, G 1966 Review of *Ancient Europe* (1965), *American Anthropol*, 68, 1299–1301.

Blance, B 1961 'Early Bronze Age colonists in Iberia', *Antiquity*, 35, 192–202.

Blance, B 1971 *Die Anfänge der Metallurgie auf der Iberischen Halbinsel*. Bonn. (Studien zu den Anfängen der Metallurgie, 6).

Bradley, R 1996 'Obituary: Stuart Piggott', *British Archaeol*, 19, 5.

Bridge, Ann [Lady Mary O'Malley] 1948 *And then You Came.* London.

Champion, S 1997 'A plethora of Presidents', *PAST*, 27, 15.

Champion, T C, Gamble, C, Shennan, S & Whittle, A 1984 *Prehistoric Europe.* New York & London.

Childe, V G 1925 *The Dawn of European Civilization.* London.

Childe, V G 1935 *The Prehistory of Scotland.* London.

Childe, V G 1946 *Scotland Before the Scots.* London.

Coles, J M & Simpson, D D A 1968 (eds), *Studies in Ancient Europe. Essays presented to Stuart Piggott.* Leicester.

Daniel, G E 1965 'Editorial', *Antiquity*, 39, 243–44.

Daniel, G E 1986 *Some Small Harvest.* London.

Edwards, K J & Ralston, I B M 1997 (eds) *Scotland: Environment and Archaeology 8000 BC – AD 1000.* Chichester and New York.

Eliot, T S 1963 *Collected Poems 1909–62.* London.

Funneran, R J (ed) 1983 *W B Yeats: the Poems – a New Edition.* London.

Green, S 1981 *Prehistorian: a Biography of V Gordon Childe.* Bath.

Johnstone, P 1957 *Buried Treasure.* London.

Jordan, P 1981 'Archaeology and television', *in* Evans, J D, Cunliffe, B & Renfrew, C (eds), *Antiquity and Man: Essays in Honour of Glyn Daniel*, 207–13. London.

Laing, L 1976 *Ancient Scotland: a Guide to the Remains.* Newton Abbot.

Lamberg-Karlovsky, C C 1967 Review of *Ancient Europe* (1965), *American Antiquity*, 32, 117–18.

Levi, P 1965 'The bones of prehistory', *New Society*, 168, 26 (16 December 1965). [Review of *Ancient Europe.*]

Lively, Penelope 1979 *Treasures of Time.* London.

Megaw, J V S 1997a 'Stuart Piggott', *Anthropol Newsletter (American Anthropol Assoc)*, 38.6, 43.

Megaw, J V S 1997b 'Stuart Piggott, 1910–1996', *World Archaeological Congress Newsletter*, 5.1, 7–8.

Megaw, J V S 1998 'Nécrologie: Stuart Piggott', *Studia Celtica*, 30, 1996 (1998), 299–303.

Megaw, J V S 1976 (ed) *To Illustrate the Monuments. Essays on Archaeology presented to Stuart Piggott on his sixty-fifth Birthday.* London.

Menzies, G 1971 (ed) *Who Are the Scots?* London.

Mercer, R J 1998 'Stuart Piggott 1910–1996', *Proc Brit Acad*, 97, 412–42.

Milisauskas, S 1978 *European Prehistory.* New York.

Momigliano, A 1967 'A silent world', *The New York Review of Books*, 23 February 1967. [Review of *Ancient Europe.*]

Neustupný, E & Turek, J 1997 'Zemřel Stuart Piggott', *Archeologické Rozhledy*, 49, 178–9.

Oram, R 1997 *Scottish Prehistory.* Edinburgh.

Phillips, P 1980 *The Prehistory of Europe.* Harmondsworth.

Piggott, S 1935 *The Progress of Early Man.* London. (The 'How and Why' series edited by Gerald Bullett).

Piggott, S 1937 'The long barrow in Brittany', *Antiquity*, 11, 441–56.

Piggott, S 1948 *Fire Among the Ruins 1942–1945.* Oxford.

Piggott, S 1950 *William Stukeley: an Eighteenth Century Antiquary.* Oxford.

Piggott, S 1954 *The Neolithic Cultures of the British Isles.* Cambridge.

Piggott, S 1956 'Excavations in passage-graves and ring-cairns of the Clava group 1952–3', *Proc Soc Antiq Scot*, 88, 173–207.

Piggott, S 1958 *Scotland Before History.* Edinburgh.

Piggott, S 1965 *Ancient Europe: from the Beginnings of Agriculture to Classical Antiquity.* Edinburgh and Chicago.

Piggott, S 1967 'Sir Cyril Fox 1882–1967', *Proc Brit Acad*, 53, 399–407.

Piggott, S 1968 *The Druids.* London (Ancient Peoples and Places 63).

Piggott, S 1972 'Excavation of the Dalladies long barrow, Fettercairn, Kincardineshire', *Proc Soc Antiq Scot*, 104, (1971–2), 23–47.

Piggott, S 1977 'Robert Eric Mortimer Wheeler', *Biographical Memoirs of the Royal Society*, 23, 623–42.

Piggott, S 1983 'Archaeological retrospect 5', *Antiquity*, 57, 28–37.

Piggott, S 1985 *William Stukeley: an Eighteenth-century Antiquary.* London. 2nd edn.

Piggott, S 1992 *Wagon, Chariot and Carriage: Symbol and Status in the History of Transport.* London.

Piggott, S 1995 'Wood and the wheelwright', *in* Green, M (ed), *The Celtic World*, 321–7. London.

Piggott, S & Robertson, M 1977 *3 centuries of Scottish archaeology.* Edinburgh.

Piggott, S & Simpson, D D A 1971 'Excavation of a stone circle at Croft Moraig, Perthshire, Scotland', *Proc Prehist Soc*, 37, 1–15.

Piggott, S (ed) 1961 *The Dawn of Civilization.* London.

Piggott, S (ed) 1962 *The Prehistoric Peoples of Scotland.* London. (Studies in Ancient History and Archaeology (ed) F T Wainwright)

Raftery, B with Megaw, V and Rigby, V (eds), 1995 *Sites and Sights of the Iron Age: Essays on Fieldwork and Museum Research presented to Ian Mathieson Stead.* Oxford. (Oxbow Monogr, 56)

Renfrew, A C (ed) 1974 *British Prehistory: a New Outline.* London.

Ridgway, D 1997 'Nestor's Cup and the Etruscans. In Memory of Stuart Piggott', *Oxford J Archaeol*, 16, 325–44.

Ritchie, G & Ritchie, A 1981 *Scotland: Archaeology and Early History.* London.

Ritchie, J N G & Watkins, T F 1996 'Obituary: Stuart Piggott', *Proc Soc Antiq Scot*, 126, xiii–xviii.

Robertson, M 1976 'Bibliography of Stuart Piggott's Publications', *in* Megaw 1976, 320–31.

Rodden, R J 1966 'European prehistory', *Science* ns 152, 66 (issue 3722 for 29 April 1966). [Review of *Ancient Europe.*]

Sahlins, M 1966 Review of *Ancient Europe* (1965), *Scientific American*, 214 (no 6), 140–2.

Scollar, I 1956 Review of *The Neolithic Cultures of the British Isles* (1954), *American J Archaeol*, 60, 188–9.

Scollar, I 1959 'Regional groups in the Michelsberg culture', *Proc Prehist Soc*, 25, 52–134.

Sharples, N M 1996 'Nationalism or internationalism: the problematic Scottish experience', *in* Atkinson, J A, Banks, I & O'Sullivan, J (eds), *Nationalism and Archaeology*, 77–88. Glasgow.

Sharples, N M 1999 'Stuart Piggott, 1910–1996', *in* Murray, T (ed), *Encyclopaedia of archaeology: The great archaeologists*, vol 2, 615–33. Santa Barbara, California.

Sharples, N M 2001 'Stuart Piggott, 1910–1996', *American Anthropol*, 103, 798–800.

Simpson, W D 1965 *The Ancient Stones of Scotland*. London.

Trigger, B G 1980 *Gordon Childe: Revolutions in Archaeology*. London.



2.1 A Stuart Piggott collage (*clockwise from top left*): 1. at the Prehistoric Society 1954 meeting, Old Quad, Edinburgh (photo: SPA); 2. being filmed at Dalladies long barrow excavation, 1971 (photo: I A G Shepherd); 3. visiting Bylany, Czechoslovakia, UISPP Congress, 1966 (photo: per M Midgley); 4. and 5. during filming at West Kennet long barrow excavations, 1955 (photo J V S Megaw); 6. his Christmas card, 1965, taken at Croft Moraig, Perthshire (photo M J M Murray). For full details of these photographs, and the explanation of the confusion surrounding 5, see note 64.

1999: 'The Iron Age: aspects of the human communities and their environments', *Quaternary Proceedings* 7, 501-512. = *eds* Edwards, K. J. and Sadler, J. *Holocene environments of prehistoric Britain*. Chichester: John Wiley.

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The Iron Age: Aspects of the Human Communities and their Environments

Ian B.M. Ralston

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Abstract

A partial overview of human/environment interactions and interrelations in Iron Age Britain (*c.* 800 BC–43 AD) is focused on evolving issues in the interpretation of the archaeological record, and on selected components of the environmental record. Both on-site and macroscale aspects are addressed. Some questions amenable to future collaborative work between environmentalists and archaeologists are proposed.

KEYWORDS: Iron Age; settlement; woodland; agriculture; livestock; climate; iron.

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Introduction

The Iron Age in the southern part of Great Britain occupies approximately the last eight centuries BC (Cunliffe, 1991; Haselgrove, 1999). There is little reason, however, to envisage any marked chronological disparity in its inception from south to north within these islands (Armit and Ralston, 1997). Conventionally, its end coincides with the Roman Conquest which ushers in, or perhaps rather consolidates, social, political and economic systems of a new stamp, and sees Britain more firmly brought within the ambit of that Empire. The participation of these islands in the Roman world-system was however only partially achieved; generally speaking, the further north and west one progresses, the less wholehearted are the changes. Beyond the civil province of *Britannia* lies an area dominated by the influence of the Roman military machine, in which successive advances and retreats may in considerable measure be attributed to geopolitical considerations occurring outwith these islands (Breeze, 1988), rather than to local circumstances.

In the northernmost third of the country, beyond the Forth-Clyde isthmus, direct Roman involvement is intermittent and seemingly very temporary. Here, the 'Iron Age' in conventional archaeological parlance evolves largely uninterrupted, such that it has, albeit confusingly, become standard practice to refer to the centuries broadly contemporary with the Roman presence as the 'Middle Iron Age' in Atlantic Scotland. The terminology used for the later stages of the Iron Age in the far North West of these islands thus implies a radically different timescale from that in which it is employed in southern Britain. Archaeological practice in northern Britain thus stresses continuities in numerous fields – some site types and locations, and aspects of material culture, for example – into the first millennium AD. Whilst thereby emphasising the internal variation in the nature and duration of the British Iron Age, the use of identical terms to imply different subdivisions is unfortunate. In what follows, chronological indications will be based on approximate historical spans, and the primary focus will be on the pre-Roman Iron Age.

This paper, in considering some human-environment relationships during the Iron Age, seeks to identify some of the research concerns of archaeologists working on the British Iron Age that may be amenable now or in the nearer future to clarification with the assistance of the batteries of techniques available to Quaternary scientists. The present author takes a pluralistic stance with regard to the future development of our abilities to reconstruct Iron Age societies. All archaeological interpretation for prehistoric periods depends ultimately on the inference of process from pattern. It thus follows that any single research paradigm is unlikely uniquely to provide incontrovertible insights into environmental, economic, and socio-political conditions during the period under consideration. Progress in interpretation, it may therefore be contended, will depend on the judicious juxtaposition of the results of complementary approaches to the surviving remains – archaeological, environmental and textual – of this distant timespan.

The archaeological record of the Iron Age, whether that of settlement sites or of material culture, displays very considerable variation. Before its inception, agriculture and woodland management had been practiced for several millennia in Britain. It is therefore to be anticipated that considerable diversity will be identifiable in human-environment relationships during this period (*e.g.* Bell, 1996a; Jones & Dimbleby, 1981). This may be attributed, on the one hand, to factors such as farmers' accumulated experience of climatic, edaphic and other conditions, the depletion or

degradation of certain resources through human mismanagement or environmental change, and the impacts of technological innovations. Equally, on the other hand, socio-political, economic, cosmological and ritual practices and beliefs will also have been significant.

The use of iron

The use of iron for key technologies, not least the production of edge tools, is, prosaically, a unifying element during the last three quarters of the first millennium BC, justifying the continued separation of this last segment of British prehistory as a distinct entity. British soil conditions, however, are frequently not propitious to the survival of that material, which appears to have remained relatively rare and of relatively unsophisticated manufacture until the centuries around 300–200 BC, and arguably longer in some areas. In the far North, for example, some cutting implements – notably sheep shears – appear still to have been made of copper alloys at the turn of the millennium.

The indebtedness of Iron Age societies to their Bronze Age antecedents is wholly accepted. The transition to the use of iron as the primary technology remains most clearly manifested archaeologically in terms of the different treatment of bronze. The uses (for display as well as more commonplace functions) of copper alloys and the ways that material enters the archaeological record serve to distinguish these two 'Ages'. It follows that many of the concerns with the deliniation of settlement functions, agricultural strategies and landscape exploitation are shared with the preceding period. In general, since the 1960s in particular, stress has been on the indigenous character of much of the British Iron Age, rather than on perspectives in which successive inward migrations from the nearer Continent were a major factor in driving archaeologically-visible change.

Key elements of the settlement record, including the construction of substantial round buildings and the demarcation of enclosed sites – including hillforts – already occur in Later Bronze Age contexts. Most authors however advocate a considerable increase in population during the last millennium BC (Cunliffe, 1978; Hill, 1995a), with population figures, inevitably a guesstimate, ranging from the order of a million to perhaps five million at the end of the pre-Roman Iron Age. Even adopting a lower figure, it follows from the evidence of intensification of settlement that the scope for human impacts on the natural resources of Britain, whether woodland removal or in the management or depletion of soils, should increase markedly during this period.

A noteworthy feature in terms of iron's use is the much wider range of agricultural equipment made in that material than had been the case earlier for copper alloys. Absolute numbers remain small, but of particular significance in regard to possible environmental impacts is the occurrence of iron tips for ard-shares (Rees, 1979). Amongst other equipment, it may be worth noting that the scythe, which appears in the late Iron Age record of the nearer Continent, still seems a later introduction here. Whether safe inferences can be drawn from the absence of the latter in terms of Iron Age cultivation practices or harvesting methods merits further investigation, but the absence of the scythe might imply, for example, that large-scale mowing of grassland for hay-making was not practiced. Experimentation has demonstrated the enhanced efficiency of metal-tipped ards over their wooden predecessors, more particularly in the cultivation of heavier soils (Reynolds, P., 1995).

Interpretative frameworks

Emphases within the study of the British Iron Age have altered rapidly in recent decades. Models of the Iron Age framed in terms of continental invasions and native responses, including significant internal migrations, have fallen from favour. These were first replaced by perspectives which focused on the economic, social and political developments discerned within the country, founded on evidence recovered more particularly from the examination of the prolific and still-burgeoning settlement record (Hodson, 1964; Cunliffe 1974). More recent reviews (Hill, 1995b; Gwilt & Haselgrove, 1997) have again led to a paradigm shift, albeit only partial, in which our ways of reading the archaeological record have come under renewed discussion. A principal emphasis of newer perspectives has lain in the fuller recognition of the selectivity, at least intermittently exercised by the Iron Age inhabitants, as to what and how material culture – ecofacts as well as artefacts – entered the archaeological record for subsequent recovery. The general tendency has been to increase the dimensions of the interpretative black box between Iron Age practices and the material retrieved by excavation, notably from deposits in pits, boundary ditches and other routine contexts on Iron Age settlements. It is now common practice to acknowledge much more fully than hitherto the role of ritual in influencing, if not conditioning, much of the archaeologically-recoverable record.

To concur with this recent realignment is not to deny that significant changes can be perceived in terms of the nature and scale of the exploitation of some of the environments of Britain during the Iron Age, but simply to suggest that recognising these in the on-site archaeological record may be less straightforwardly achievable than was hitherto imagined. There may once have been a tendency to read off, for example, the tallies of animal bones from settlement sites too simplistically as a proxy record for Iron Age husbandry practices. It would be defeatist, however, to argue that the latter are wholly concealed by the ritual dimensions of Iron Age depositional practices. The scope for deliberate human manipulation of ecofacts, for ritual or other reasons, should not be regarded as a constant either chorologically or chronologically through the Iron Age, nor will it impact equally on all aspects of the environmental record.

In examining aspects of the record for this period, the writer has chosen to focus first on the micro-scale, as represented by aspects of the record on settlement sites, before widening the enquiry to embrace landscape and general environmental conditions, such as climate. The points discussed are inevitably highly selective.

Within-site variations

Whilst there has been much interest in wider scale relationships between human communities and their landscapes during the Iron Age, one key aspect of more recent concerns has been to refocus attention on within-site variations, and on the use of domestic space. In this regard, efforts have been made for instance to characterise settlements in terms of the analysis of patterns of access, with the implication that behind these lie relations of dominance; and to consider buildings in relation to functions and characteristics not readily approachable from the archaeological record, such as power and gender relationships (*e.g.* Foster, 1989; Parker Pearson, 1996; and Hingley, 1990, 1995). Such essays in social archaeology may appear overly speculative to practitioners

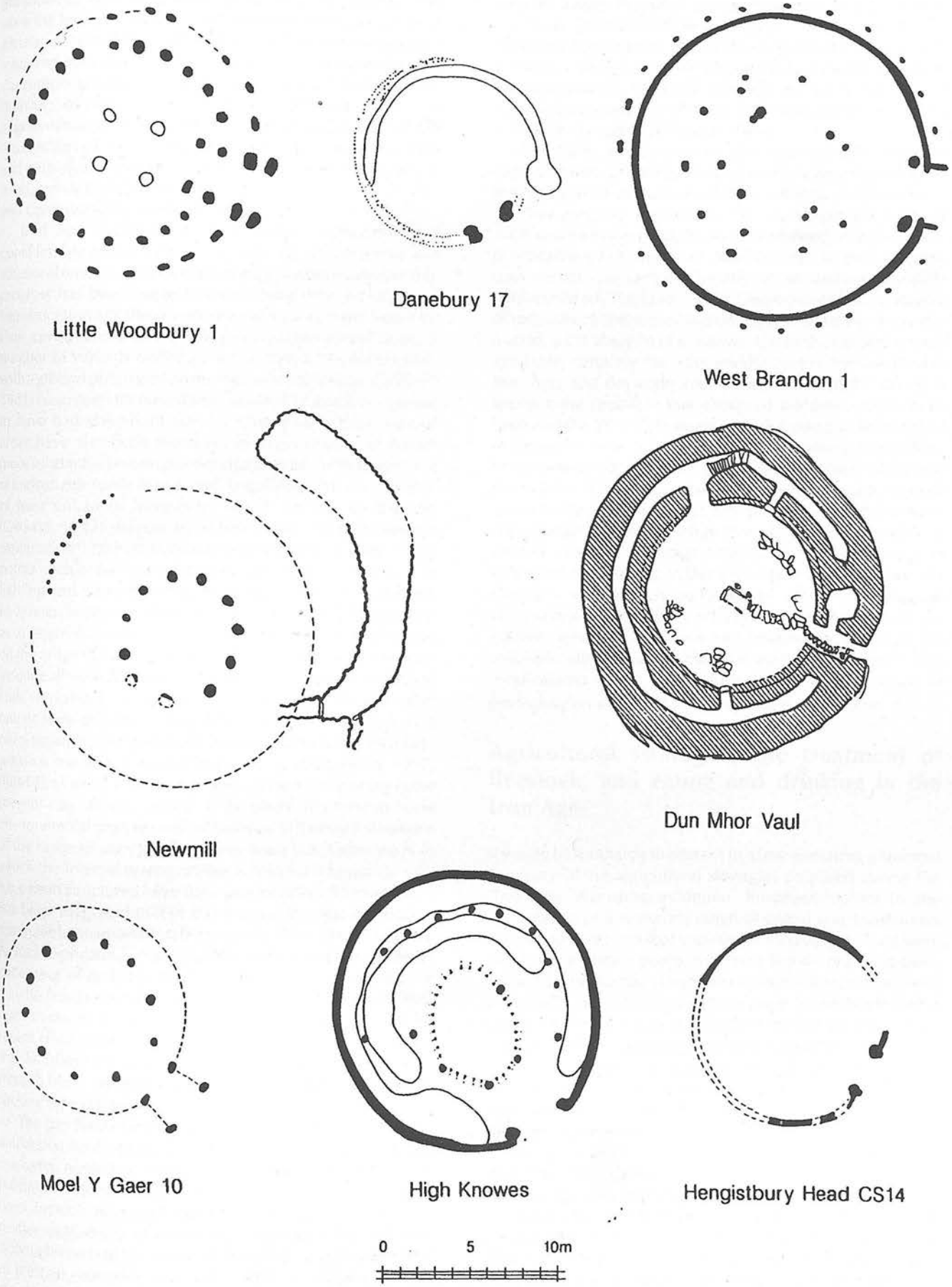


Figure 1. Selected varieties of British later prehistoric roundhouse drawn to a uniform scale: Little Woodbury 1, Wiltshire; Danebury 17, Hampshire; West Brandon 1, County Durham; Newmill, Perthshire & Kinross; Dun Mhor Vaul broch, Tiree; Moel y Gaer 10, Clwyd; High Knowes, Alnham, Northumberland; Hengistbury Head CS14, Dorset. Source: various. Drawn by Gordon Thomas

grounded in other philosophical traditions of enquiry. It is none the less conceivable that environmental data may be of assistance in the fuller exploitation of information about such inter-and intra-site arrangements, not least in regard to food consumption patterns evidenced on them. The substantial numbers of occupation sites known, and the continuing augmentation of this record by aerial photography and the prospection of new areas, for example the inter-tidal zone and indeed underwater survey in the case of Scottish artificial islets, ensure that the archaeological exploitation of such sites will continue to be quantitatively significant in future.

Iron Age settlement sites have long demonstrated a considerable complexity in their internal arrangements and structural records. If there is one category where considerable progress has been made in recognising their architectural sophistication and the environmental resources necessary for their construction, it is the near-ubiquitous roundhouse. A number of variants on the principal theme of construction, with a ground plan based on double concentric rings (Guilbert, 1981) have been identified (Fig. 1); smaller structures appear to have had stake-built walls. Differences in their internal areas have also been recorded; in many regions of Britain more substantial buildings seem characteristic of the beginning of the Iron Age rather than its end. Regularities in the orientation of their entrances have been noted, notably on the east (Oswald, 1997). Recent hypotheses favour a cosmological explanation for this, founded on sunrise positions at significant points within the year, but more practical concerns – of lighting and prevailing wind direction – may none the less have been important. There remains markedly little evidence as to internal conditions within these buildings, and indeed on the range of functions they fulfilled. There is no reason to imagine all were domestic: such structures may have contained craft workshops, storage provision for foodstuffs and other raw or semi-processed materials, and indeed livestock. It is often surmised that cattle, for instance, may have been kept within some roundhouses (Reynolds, D. 1982; Armit, 1997, illus 14). Given the degraded state in which many occur in the present-day arable zones, it is likely that micro-scale environmental analyses will provide one of the best intimations of the range of uses to which they were put. Other ways in which the internal arrangements within such buildings may have been structured have been propounded: for example, it has been suggested that in this too, cosmological concerns may have been uppermost (Fitzpatrick, 1994; Oswald, 1997). As such explications depend on the recognition of the internal patterning of activities within individual buildings, then it may be feasible to offer some support for such speculations from micro-scale environmental analyses. Analogies with recent ethnographic records equally allows the proposition that buildings themselves may have changed in function through time – from domestic accommodation to livestock shelters for example.

The pre-Roman Iron Age structural record from Britain, unlike that on some settlements around the southern North Sea basin, meantime seems to lack specialised buildings for holding livestock, but it is clearly possible that the known types include examples that were used in this way. The readier availability of wheeled transport in the Iron Age (although much of the extant archaeological evidence refers to prestige examples used for warfare or display) would clearly have rendered the gathering of fodder, including barley straw and dried leaves, easier. The indoor shelter or perhaps overwintering of livestock on settlement sites would thus have been achievable, in theory at least, on a scale not possible earlier. Livestock representing particular investment – such as cattle trained to the plough – might in particular have been kept indoors. But the extent to which this happened, if indeed it did (as is widely supposed), is presently generally undemonstrable. Oakbank crannog, on Loch Tay, where voluminous quantities of sheep dung were preserved, offers a notable exception (Dickson, 1984).

Inevitably, irrespective of function, reconstructing the superstructures of such buildings, for which the archaeological remains consist exclusively of their earthfast components, is in some measure speculative. The above-ground forms of such structures are none the less constrained by engineering practicalities; but important details related to their possible uses are not approachable by this means, and are culturally determined (cf. Therkorn, 1987). One recurrent characteristic of reconstructions, actual and on paper, that strikes the writer as odd, is the absence of windows. Given the carpentry tools available, certainly from the middle part of the pre-Roman Iron Age, and the scale and sophistication of the doors, it seems quite probable that shuttered windows might have been inserted. Whilst it is appreciated that direct archaeological evidence for these is unlikely to be forthcoming, might there be ways environmentally of assessing how light or otherwise the insides of buildings may have been, for example from insect faunas? A response to this question would clearly be important in assessing whether it would have been feasible to execute some of the most detailed craft procedures – as witnessed for instance in the production of Early Celtic Art objects – within such buildings. In most archaeological circumstances, too, direct evidence for the thatch does not survive; wheat straw, reeds and heather are amongst the available alternatives. Additional evidence of which was used would assist in the assessment of the range of environments exploited from individual settlements.

Agricultural strategies, the treatment of livestock, and eating and drinking in the Iron Age

It would be foolhardy to attempt in a few sentences a national summary of the agricultural strategies practised during the Iron Age. Accruing evidence, however, points to the exploitation of a widening range of cereal and leguminous plants and to the fact that varieties of mixed agriculture were much more widely practiced across Britain than had been believed to be the case. The contrast, once advanced, between a primarily stock-raising highland zone in the North and a cereal-growing South is manifestly simplistic (cf. Fox, 1943; Piggott, 1958). As well as changes through time, there is good evidence for varying regional, or indeed, sub-regional strategies, in cereal cultivation, from the harvesting of under-ripe naked six-row barley (*Hordeum vulgare* var *nudum*) indicated in deposits attributable to the beginning of our era at the Howe broch, on mainland Orkney (Dickson, 1994, illus 79a), through the differential uptake of spelt (*Triticum spelta*) and bread (*Triticum aestivo-compactum*) wheats, hulled six-row barley (*Hordeum vulgare*), oats (*Avena* sp.) and rye (*Secale cereale*) in various regions of the country in the last millennium BC. Evidence suggests that the uptake of new crop plants was far from conforming to a wave-of-advance model of diffusion from the South to the North (Jones, 1996); for southern Britain a general model of innovative periods interspersed by relative stagnation, integrated with socio-political changes, has been proposed (Jones, 1981, fig. 6.5).

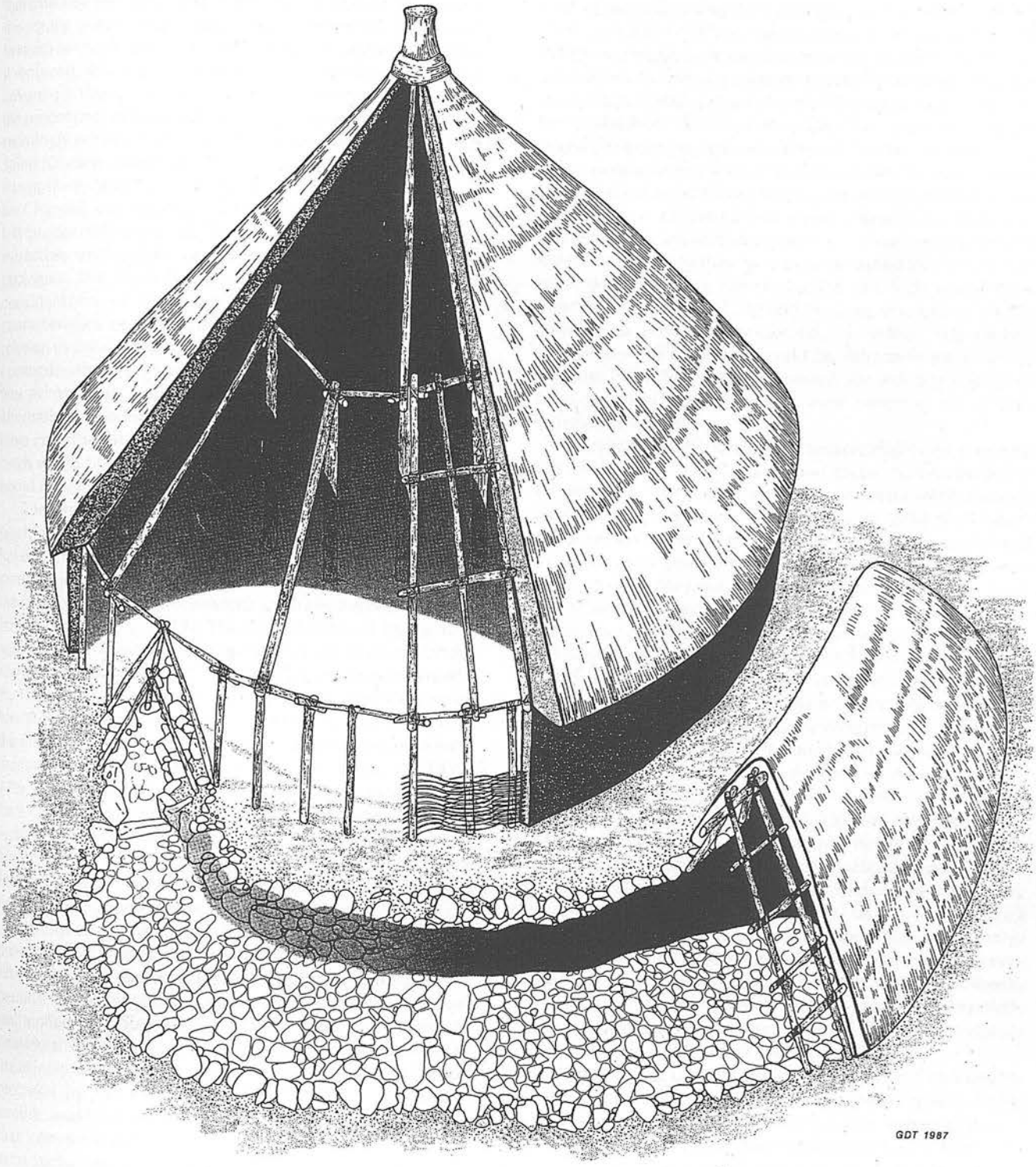


Figure 2. Reconstruction of the roundhouse and souterrain at Newmill, Bankfoot, Perthshire & Kinross.

Of particular interest is van der Veen's (1992) identification of two radically different strategies in the cultivation of cereals, especially wheats, in northern England in the late Iron Age period, contrasting the Tees lowlands with the uplands of Northumbria. In the former, spelt predominated amongst cereals, whereas elsewhere a different strategy, still based on emmer and underpinned by more extensive use of manuring, was favoured. This important study is fruitful not only in its implications for the near coexistence in space and time of different cereal strategies, for which other instances are known in the considerable range of microclimates and pedological conditions within Britain (Jones, 1984), but also because Gillian Ferrell (1995) has been able to integrate these observable differences in a wider model of social differences hypothesised from settlement configurations in the Northeast of England. This work has confirmed van der Veen's hypothesis that edaphic and climatic differences are insufficient in themselves entirely to account for the observed differences.

Whilst there are also implications in this work for the speed of acceptance of newer cereal crops, it may be noted

that one key technological innovation of the later Iron Age – the rotary quern – was rapidly disseminated the length and breadth of these islands. Compared to the saddle type which it replaced, this innovation represents a significant technical advance in the application of the principle of rotary motion to the processing of foodstuffs. Its earliest appearance in Britain seemingly occurs in about the fifth century BC at Gussage All Saints (Dorset) and doubtfully in the early phases at Danebury (Hampshire), apparently earlier than on the opposite side of the Channel, but its spread seems to be a phenomenon of the last quarter millennium BC. Studies have been made of quern extraction and supply on the basis of their recognisable geologies, but there is perhaps scope for more detailed consideration of the specifics of quern forms – in the characteristics of their grinding surfaces, for example – in relation to the dominant cereals on different sites. It could be contended that the impact of this rotary grinding technology was primarily to reduce the labour input to produce flour; alternatively, and more probably, its greater efficiency may have contributed significantly to an expansion of the cereal lands worth bringing into cultivation, because their product could now be processed within available human resources.

The attention to the recovery of evidence for cereal, fibre (such as flax, *Linum usitatissimum,* although this may also have been produced for oil) and leguminous plants – the contribution of these last still the most problematic – has been matched by the important results from the Butser experimental farm (Reynolds, P., 1979). The full calendar of agricultural activities considered by Peter Reynolds offers scope for the identification of other essential or possible practices (Reynolds, P., 1995) if suitable on-site contexts for preservation can be identified. In the preparation of fields for sowing for example, the insertion of seed drills after ard-ploughing would have a dramatic effect on germination rates (Reynolds, P., 1995, 179). These might survive, if fortuitously sealed by sandblow for example. Another such practice, potentially detectable archaeologically in exceptional circumstances, is stubble-burning. Were this identifiable, it would have ramifications for the livestock regime, in suggesting that stubble fields were not exclusively turned over to grazing.

Various storage technologies are more comprehensively demonstrable, with marked regional variations, on settlement sites of the Iron Age than had been the case during earlier periods. If the functioning of pits for cereal storage is now well-understood (Reynolds, P., 1979, 1995), there remains considerable scope for disagreement about the duration of use of individual examples. Was the incoming of each harvest preceded by the excavation of new pits, or was re-use feasible, and if so, over how many years? It seems unlikely that conventional archaeological data derived from excavations can answer such a question in general terms, although it has been noted that pits dug through some sub-soils may be particularly prone to collapse once they have been emptied. Might indications be forthcoming from environmental analyses accompanying experimental work, from which some clarification – through the assessment of the relative rates and severity of contamination of crops from new and re-used pits – might be obtained? This example is perhaps symptomatic of our problems in quantifying such everyday matters as food storage capacities; behind that, of course, lie more severe ones in estimating community sizes on individual sites, or indeed at broader scales.

Amongst other structural innovations arguably for storage (although other functions for them have been proposed), that perhaps most needing collaborative effort between environmentalists and archaeologists is the souterrain (cf. Brothwell, 1977, 187–9). Whilst, where these occur, regional variations are apparent, the absence of full-scale environmental assessment of relevant contexts within them means that the parameters of their potential usefulness for storage remain to be established. Aerial photography has demonstrated, in Angus for example, that such sites are much more numerous than previously recognised; in some instances, associations with above-ground timber houses are demonstrable (Fig. 2). The insertion of drains into certain souterrains seems to indicate problems with dampness and therefore to preclude cereal storage: may they have been designed for cheeses and other dairy products, the production of which would have been limited to the calving and lambing seasons, or meats, smoked or otherwise preserved, or indeed vegetables? Clarification of this issue would be extremely informative, because individual examples potentially indicate storage of food products, to judge from their volumes, on a very considerable scale.

Storage contexts also offer the best possibility for assessing the contribution of other potential crops: further evidence would undoubtedly assist in assessing the status of plants such as *Bromus* spp. (brooms), *Camelina sativa* (gold of pleasure) and *Chenopodium album* (fat hen), alternatively considered as weeds or as useful resources in their own right. As Jones (1981) has pointed out, however, this distinction may have been largely foreign to Iron Age cultivators. Some of these plants may have been grown as components of mixed crops, although other cereals seem to have been sown in much purer stands (Jones, 1996). Another important development, labelled 'compartmentalisation' by the same author (Jones, 1996), concerns indications that crop processing procedures, through the preparation of foodstuffs to consumption, may have taken place in settlements other than the farm where the crop was originally harvested; the geographical extent to which this occurred merits fuller exploration. That this process was not unilinear is demonstrated, for example, by the cereal remains from successive phases at Hengistbury Head, Dorset (Nye & Jones, 1987, illus. 226). In the pre-Conquest period, where we have literary testimony to cereal as well as livestock exports from Britain (see below), the identification of further evidence of the physical separation of producer from consumer deserves attention. Here, too, the appearance of *Anthemis arvensis* (corn chamomile) signals another potentially interesting feature: the accidental spread of species previously only recorded on the other side of the Channel.

Stockraising, of course, remained of very considerable importance, but the scope for it being the preserve of '...Celtic cow-boys and shepherds, footloose and unpredictable...' (Piggott, 1958, 25), with their implied freedom to roam, has been much reduced by the apparent densities of settlements and land divisions recognised through field survey and aerial photography in many British landscapes (Fowler, 1983). Problems related to the taphonomic processes controlling animal bone survival on sites have been well explored by Maltby (1985, 1996) and others, and novel and challenging interpretations of the animal remains from pits and other contexts in Wessex have been advanced most notably by Hill (1995b) and Cunliffe (1992, 1995). If there is now good reason in some instances at least to be wary of reconstituting livestock from the deadstock represented by surviving bone, opportunities to distinguish differing stages within butchery and artisanal practices, as Krausz (1993) has attempted for Levroux-les-Arènes, in central France, should be taken to complement more general perspectives on herd composition,

slaughtering regimes and the use of both primary and secondary products in workshop activities.

Whilst archaeological studies of inorganic material culture provide indications of contacts within Britain, and indeed beyond its shores, during the Iron Age, in some instances at least the interpretation of this evidence in social, economic, or indeed other terms is subject to a measure of doubt as a result of uncertainties about the 'life cycle' of relatively durable objects. The longevity of use of particular jewellery or tool types, for example, is dictated by cultural considerations, and may range from the rapid discarding of ephemeral fashions to the deliberate curation of artefacts associated with ancestors. Crudely put, the life-cycles of artefacts are often not determined by their function and composition, and this applies even to readily-breakable materials like pottery. It follows that the interpretation of such material can generally not be used to indicate strict contemporaneity; former generations of archaeologists, for example, were perhaps more ready to concede lag times in the use and discard of peripheral examples than is currently favoured. In terms of the recognition of contemporaneity and direct linkages between geographically-disparate finds, environmental approaches may be of considerable assistance, in that – leaving to one side dendrochronological contributions where appropriate material survives – relevant life-cycles are determined biologically rather than culturally.

It is perhaps within the realms of possibility that DNA studies or those of anatomical features like 'founder effects', where particular skeletal abnormalities are of congenital origin, may in future provide us with indications about how far livestock was shifted through the landscapes of Britain during the Iron Age. Such movements could be part of transhumance cycles or represent more permanent exchanges, including those for the exploitation of animal products. It may, for example, be suggested that skins might have been transported on the beast, rather than as hides. At a number of southern English Iron Age sites, for example, hornless cattle appear. This is a natural mutation, and their distribution could indicate exchange or cattle-raiding. Naturally-polled cattle appear too in the North, as at Broxmouth, East Lothian, where it is proposed that they may have been obtained from the Romans (Barnetson, 1982). A by-product of further such work would be to provide a check on issues related to timescales. At one extreme, the evidence of domestic fowl from the Crosskirk broch in Caithness is direct testimony of contacts to the South, although not certainly at a pre-Roman date (Macartney, 1984), but one wonders over what distances cattle were driven? Indications of the interbreeding of livestock from different settlements would go some way to alleviate the evidence for animal husbandry practices including apparently rough handling, and the riding of immature horses, as revealed by Brothwell's (1995) examination of the pathologies evident in some of the animal skeletal remains at Danebury. Such evidence throws some light on the treatment on livestock during the period, and complements indications already mentioned that animals were also employed in ritual practices.

The general absence of young horses from the bone assemblages of many sites has been frequently noted, and given the relatively advanced age at which it becomes feasible to train these animals, this is, on the surface at least, reasonably explained. It has been proposed that they were periodically rounded up, and the indication that the Danebury horses were predominantly male may support this (Grant, 1984). At that site, young horses only appear towards the end of the sequence, suggesting that by the last centuries BC, horse-breeding may have been taking place nearby. But the possession of horses must assuredly have been a key element in forging the more sizeable polities of the later Iron Age. Indications that tracts of land, such as those marked by the absence of apparent field systems in sectors around Gussage All Saints in Cranborne Chase (Wainwright 1979, fig. 111) - where young horses were equally absent – were used to corral young horses would be of great value. Given the likely subsequent strategic value of young horses, it does seem unlikely that they were left to roam freely, and perhaps more specialised locales associated with them remain to be detected.

In terms of the uses to which individual animal species have been put, it may be sheep that has given rise to the most controversy, given the range of products this species can furnish (meat, wool, milk, manure). Most anatomical studies of ovicaprids suggest that goats were a minor component of livestock. Wetland sites, like the crannogs on Loch Tay (Dickson, 1984), with their dense deposits of sheep droppings and potentially other material which normally decays, may be of especial value in elucidating further detail. Significant fleece changes are attributed to later prehistory by Ryder (1981, 1990), when selective breeding against moulting, shown also by the development of shears, may have become significant. Southern British evidence for example indicates that sheep were kept to maturity, indicating the importance of wool as a commodity (Grant, 1984).

The study of livestock has potentially many other contributions to make. It seems reasonable to hypothesise that, as in northern France (Meniel, 1987), the appearance of larger cattle, presumptively drawn originally from Italian stock, may precede the Roman Conquest, as part of the package of status goods which display reinvigorated, rather than wholly renewed, contact across the Channel from the second century BC. When Maltby (1981) reviewed the available evidence, this seemed to point to larger cattle being a post-Conquest phenomenon in England.

On most sites, wild animals form a small component of the animal bone assemblage. The general inference that is drawn from this is that hunting was no longer of any importance in meeting dietary requirements, although occasional sites provide exceptions, as at Dun Mor Vaul, Tiree, (Noddle, 1974) and some other Western Isles settlements. It seems possible that in future more sophisticated analysis of such material may be able to begin to address new questions: for example, had some kinds of hunting become an activity restricted to the elite, horse-borne, and accompanied by hunting dogs – as is depicted on later Pictish stones (Hughson, 1997) – or not? Such a perspective might complement the indications of drinking, feasting and driving apparent from some of the richer burials; it seems excessive to assume that hunting is necessarily an indication of a subsistence requirement and hence agricultural marginality (cf. Grant, 1981). What about the scale of the exploitation of the wild (including marine mammals, such as seals – also represented in quantity at Dun Mor Vaul) for pelts and furs (for which see Upper Delphs, discussed below), plumage, and oils, as well as the antler which appears in archaeological contexts?

Our knowledge of the extent of exploitation of marine resources at this time is very incomplete. In the far North, bottom-feeding fish are represented (*e.g.* Lockyer, 1994) which entailed fishing from boats. Cetacean bone was employed in the manufacture of a range of heavy equipment (*e.g.* Hedges, 1987). Was the latter simply the product of the exploitation of shore strandings or would it be possible to suggest from closer examination of the surviving bone whether

co-operative drives to beach whales, or – in the case of seals for instance – to deliberately kill these species on the shore, might have been undertaken?

Similarly too it is certainly possible that the exploitation of sea and river fish was much more significant that records currently suggest. It can be hoped that the new fieldwork focus on present coastal and intertidal zones, such as that in the Severn Estuary, may provide additional information on this subject. The structural record from Goldcliff, Gwent (Bell, 1996b), apparently prone to intermittent inundation, along with those from celebrated lowland sites around the Somerset Levels, most famously Glastonbury and Meare, indicate a willingness to adapt settlement strategies more intensively to exploit 'new' sectors of the landscape. The wetland site at Upper Delphs, Haddenham, Cambridgeshire has produced fascinating evidence of the integration of fenland wildlife into the local subsistence strategy, through the recovery of significant quantities of beaver (*Castor fiber* L.) bones (with evidence of removal of their skins), mute swans (*Cygnus olor*) and other wetland birds, in a precarious environment where the impacts of marine transgression were significant (Evans and Serjeantson, 1988).

Considerable progress has been made in the recognition of the transport of salt, particularly in southern Britain (Morris, 1994) and this is likely to have been an important commodity for the preservation of meat, as well as as a condiment. Coastal salt-winning sites are now identified as far north as Northeast England, and complement inland sources, like those of Cheshire. To move from the saline to the sweet, it seems to this author however that altogether less headway has been made with the detection of bees and their honey, the principal sweetening agent available in the Iron Age. Lost wax casting of copper alloys first appears in Britain during the Iron Age, and this implies the exploitation of bees and their products. The writer assumes that the analysis of residues on pottery may still provide the most likely route to detect honey itself, but other useful techniques may be in the offing. *Apis mellifera* L., the honey bee, has been recovered from an Iron Age sump in Oxfordshire (Robinson, 1984).

As well as furnishing evidence to address subsistence requirements and regimes, the Iron Age record contains for the first time evidence for the import and export of food-stuffs and other primary sector commodities. Amongst imports, wine is the substance most readily detectable archaeologically, because of the discard in elite burials and other contexts of the transport amphorae that held it. Exports from Britain are indicated by the list contained in Strabo's text (*Geography*, Book IV: James and Rigby, 1997, 79): grain, cattle, gold, silver, iron, cattle, hides, slaves and hunting dogs – 'the first written evidence of Britain's surplus produce' (Fowler, 1983, 214).

In terms of crafts and industries, some still seem radically under-represented in the archaeological record. The preparation of hides is one example and perhaps here, as with the extraction and smelting of metals, it may in due course be possible to obtain more information by proxy records, as for example in the latter case from trace elements of pollution from nearby activities in lacustrine or bog deposits.

Woodland

The significance of timber components in the architectures of the Iron Age gives new importance to woodland exploitation and management, and to that of other substances used for roofing – such as straw, reeds, or heather. Houses and fortifications, as well as stockaded and other enclosing works around sites, and bridges and trackways, would clearly have required considerable quantities of constructional timbers, of relatively standard diameters. The use of these indicates managed woodland, and the cutting of that parcel by parcel as needs arose, and as trees attained the necessary dimensions. Further insights can assuredly be provided from wetland sites where the impacts of individual axes – 'tool signatures' – on wood can be combined with dendrochronology to reveal remarkable detail of the timing and scale of exploitation (Sands, 1997).

It is of course possible, in quantitative terms, that this demand may have been less important than the requirements for domestic cooking and heating, and for pyrotechnic manufacturing processes, both of which may also have led to significant inroads into the woodland cover. In some areas, substitutes were available: peat in upland and northern regions is perhaps the obvious alternative, but locally at least sea-coal was also deliberately collected, being recovered from settlement sites in East Lothian for example (Haselgrove & McCullagh, 1996). If use of the former is often considered symptomatic of the depletion if not exhaustion of local timber supplies, might the latter convey a similar message? Such indications potentially complement geographically widespread, although not ubiquitous, palynological evidence for the dramatic decline of woodland cover. Whilst in many regions of Southern Britain widespread clearance preceded the Iron Age, and in the Hebrides, for example, woodland cover had disappeared substantially earlier, in other areas, notably northern England and southern Scotland, extensive clearance seems particularly to be characteristic of approximately the last quarter of the first millennium BC (Tipping, 1994, 1997).

The territorial expansion of fields for cereals and other crops, and/or the containing of stock in paddocks, is often envisaged as one of the principal features of later prehistoric farming. Given the degree of woodland management – for constructional and other purposes – apparent in some areas, such as the Somerset Levels, and the presence of suitable pruning instruments, it is perhaps reasonable to hope for the future wider representation of fruit trees in the environmental record. Such evidence meantime is remarkable rare (Jones, 1996). Might some of the arable lands have witnessed polyculture, with fruit trees set around the margins, or otherwise interspersed with, the arable fields?

Climate change

A major problem for this period is to assess the extent to which climatic change occurred, and how it may have constrained agricultural strategies, or alternatively provided new opportunities, for example in enabling arable cultivation in areas previously prone to dryness. Some indicators, such as those for river flooding, the extension of peatlands, peatland recurrence surfaces, and podsolisation, are not necessarily independent of the effects of human communities (Bell, 1996a; Whittington & Edwards, 1997). In southern Britain, for example, valley sedimentation in the chalklands during later prehistory has been interpreted as substantially a product of runoff from extensive ploughed lands within their catchments, rather than necessarily representing more pluvial conditions (Bell, 1983).

Peat humification studies (Barber *et al.*, 1993) appear among the most promising methods of acquiring a climate signal for our period; and palaeodendroclimatology seems to

show considerable potential. Results obtained by the former approach at Bolton Fell Moss, Cumbria, support the prevailing view that the first half of the first millennium BC was marked by increasingly wet and cool conditions. The impact of this climatic decline has been assumed to have been more severe in northern latitudes, shortening the growing season and perhaps being marked by more frequent, or more severe, Atlantic storms (*e.g.* Lamb, 1981). More recently, van Geel and others (1996) have proposed reduced solar activity as the driving factor behind a marked rise in atmospheric ^{14}C which occurred in the century from *c.* 850 BC, leading in turn to increased cloudiness and alterations in the tracking of mid-latitude depressions.

As is suggested for continental Europe (Magny & Richard, 1992), climate may have improved in the last few centuries BC (Turner, 1981). It remains the case, however, that by this stage the detection of the impact of relatively minor shifts in climate may be very substantially masked on settlement sites in particular, as a result of the technologies and widening range of subsistence strategies available to Iron Age societies. Where substantial environmental changes can be detected, local factors attributable to human practices seem meantime to have been of greater significance. Developments in palaeoclimatology and the refinement of the chronological framework of perceived changes may, however, undermine this perspective.

Conclusion

In this sketch, wider questions of soil depletion, field systems, the uses of enclosed sites at a variety of scales, midden deposits and their significance, and a whole range of similar aspects of later prehistory have not been discussed. The human populations themselves, not least Lindow Man (Stead *et al.*, 1986), have also been ignored, although skeletal remains and gravegoods – including joints of meat – are manifestly pertinent to the theme.

Agricultural regimes and products made from a wide range of natural resources underpinned a variety of complex and successful societies in Iron Age Britain. It has long been clear that there is no archetypal 'Celtic environment', which, once deliniated, can be readily transferred from region to region within these islands, still less beyond them (Bell, 1995). It is equally apparent, even for better studied areas with more extensive ecofactual records, that fuller insights into human/landscape relationships depend on developing the available databases, and on seeking new insights into their meaning. Such studies will continue to add nuances to the accumulating picture of complex and varied human decision-making and responses in the face of technological innovations, the availability of an increasing range of crops and livestock, exploitation of new areas and new resources, and the possibilities of the movement of livestock and transport of other foodstuffs, whether fully processed or not. If the recent focus on depositional practices and ritual concerns intimates that the Iron Age was less 'familiar' than appeared the case a generation ago, it is all the more important that analytical environmental studies, at micro-, meso- and macro-scales, play a major role in helping elucidate the complex characteristics of the landscapes and living places of Iron Age Britain.

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References

ARMIT, I. 1997. *Celtic Scotland.* Batsford / Historic Scotland, London.

ARMIT, I. & RALSTON, I. B. M. 1997. The Iron Age. *IN:* Edwards, K. J. and RALSTON, I. B. M. (eds) *Scotland: Environment and Archaeology 8000 BC – AD 1000,* 169–193. John Wiley, Chichester.

BARBER, K. E, DUMAYNE, L. & STONEHAM, R. 1993. Climate change and human impact during the late Holocene in northern Britain. *IN:* Chambers, F. M. (ed.), *Climate change and human impact on the landscape,* 225–236. Chapman and Hall, London.

BARNETSON, L. P. D. 1982. Animal husbandry: clues from Broxmouth. IN: Harding, D. W. (ed.) *Later prehistoric settlement in south-east Scotland,* 101–106. University of Edinburgh Department of Archaeology Occasional Paper, **8**, Edinburgh.

BELL, M. 1983. Valley sediments as evidence of prehistoric land-use on the South Downs. *Proceedings of the Prehistoric Society,* **49**, 119–150.

BELL, M. 1996a. Environment in the first millennium BC. *IN:* Champion, T. C. and Collis, J. R. (eds) *The Iron Age in Britain and Ireland: recent trends,* 5–16. Collis Publications Recent Trends Series, **4**, Sheffield.

BELL, M. 1996b. Coastal change and wetland heritage at Goldcliff, Gwent. *Monmouthshire Antiquary,* **12**, 8–14.

BREEZE, D. J. 1988. Why did the Romans fail to conquer Scotland? *Proceedings of the Society of Antiquaries of Scotland* **118**, 3–22.

BROTHWELL, D. 1977. On a mycoform stone structure in Orkney, and its relevance to possible further interpretations of so-called souterrains. *Bulletin of the University of London Institute of Archaeology,* **14**, 179–190.

BROTHWELL, D. 1995. Study 8: the special animal pathology. *IN:* Cunliffe, B. W., *Danebury: an Iron Age hillfort in Hampshire: Vol. 6: A hillfort community in perspective,* 207–233. Council for British Archaeology Research Report **102**, York.

CUNLIFFE, B. W. 1974. *Iron Age Communities in Britain.* Routledge, London. 1 edn.

CUNLIFFE, B. W. 1978. Settlement and population in the British Iron Age: some facts, figures and fantasies. *IN:* Cunliffe, B. W. and Rowley, T (eds), *Lowland Iron Age Communities in Britain,* 3–24. British Archaeological Reports International Series (Supplementary), **48**, Oxford.

CUNLIFFE, B. W.1991. *Iron Age Communities in Britain.* Routledge, London. 3 edn.

CUNLIFFE, B. W. 1992. Pits, preconceptions and propitiation in the British Iron Age. *Oxford Journal of Archaeology,*

11.1, 69–83.

CUNLIFFE, B. W. 1995. *Danebury: an Iron Age hillfort in Hampshire; a hillfort community in perspective (Vol. 6).* Council for British Archaeology Research Report, **102**, London.

DICKSON, C. 1994. Plant remains. *IN:* Ballin-Smith, B (ed.) *Howe: four millennia of Orkney prehistory. Excavations 1978-82*, 125–139. Society of Antiquaries of Scotland Monograph Series, **9**, Edinburgh.

DIXON, T.N. 1984. Oakbank crannog. *Current Archaeology*, **90**, 217–220.

EVANS, C. & SERJEANTSON, D. 1988.The backwater economy of a fen-edge community in the Iron Age: the Upper Delphs, Haddenham. *Antiquity*, **62**, 360–370.

FERRELL, G. 1995. Space and society: new perspectives on the Iron Age of North-East England. *IN:* Hill, J. D. and Cumberpatch, C. G. (eds), *Different Iron Ages; studies on the Iron Age in temperate Europe*, 129–147. British Archaeological Reports Supplementary Series **602**, Oxford.

FITZPATRICK, A. P. 1994. Outside in: the structure of an early Iron Age house at Dunston Park, Thatcham, Berkshire. IN: Fitzpatrick, A. P. and Morris, E. (eds), *The Iron Age in Wessex: recent work*, 68–72. Association française pour l'Étude de l'Âge du Fer / Trust for Wessex Archaeology, Salisbury.

FOSTER, S. M. 1989.Transformations in social space: Iron Age Orkney and Caithness. *Scottish Archaeological Review*, **6**, 34–55.

FOWLER, P. J. 1983. *The farming of prehistoric Britain.* Cambridge University Press, Cambridge.

FOX, C. F. 1943. *The personality of Britain.* National Museum of Wales, Cardiff.

GUILBERT, G. 1981. Double-ring roundhouses, probable and possible in prehistoric Britain. *Proceedings of the Prehistoric Society*, **47**, 299–311.

GRANT, A. 1981. The significance of deer remains at occupation sites of the Iron Age to the Anglo-Saxon period. *IN*: Jones, M. and Dimbleby, G. (eds), 205–213.

GRANT, A. 1984. Animal husbandry in Wessex and the Thames valley. *IN:* Cunliffe, B. W. and Miles, D. (eds) *Aspects of the Iron Age in central southern Britain*, 102–119. University of Oxford Committee for Archaeology Monograph, **2**, Oxford.

GWILT, A. & HASELGROVE, C. C. (eds) 1997. *Reconstructing Iron Age societies.* Oxbow Monograph **71**, Oxford.

HASELGROVE, C. C. 1999. The Iron Age. *IN*: Hunter, J. R. and Ralston, I. B. M. (eds), *The archaeology of Britain: an introduction from the Upper Palaeolithic to the Industrial Revolution.* 113–134. Routledge, London and New York.

HASELGROVE, C. C. & McCULLAGH, R. 1996. Excavations at Fisher's Road, Port Seton, East Lothian, 1994 and 1995. *Transactions of the East Lothian Antiquarian and Field Naturalists' Society*, **23**, 1–12.

HEDGES, J. W. 1987. *Bu, Gurness and the brochs of Orkney.* British Archaeological Reports British Series, **163**, Oxford.

HILL, J. D. 1995a. The pre-Roman Iron Age in Britain and Ireland (*ca.* 800 B. C. to A. D. 100): an overview. *Journal of World Prehistory*, **9**, 47–98.

HILL, J. D. 1995b. *Ritual and rubbish in Iron Age Wessex.* British Archaeological Reports British Series, **242**, Oxford.

HINGLEY, R. 1990. Domestic organisation and gender relations in Iron Age and Romano-British households. *IN:* Samson, R. (ed.) *The Social Archaeology of Houses*, 125–147. Edinburgh University Press, Edinburgh.

HINGLEY, R. 1995. The Iron Age in Atlantic Scotland: searching for the meaning of the substantial house. *IN*: Hill, J. D. and Cumberpatch, C. G. (eds) *Different Iron Ages; studies on the Iron Age in temperate Europe*, 185–191. British Archaeological Reports Supplementary Series **602**, Oxford.

HODSON, F. R. 1964. Cultural groupings within the British pre-Roman Iron Age. *Proceedings of the Prehistoric Society*, **30**, 99–110.

HUGHSON, I. 1997. Horses in the Early Historic period: evidence from Pictish sculptured stones. *IN:* Davies, S. and Jones, N. A. (eds), *The horse in Celtic culture: Medieval Welsh perspectives*, 23–42. University of Wales Press, Cardiff.

JAMES, S. & RIGBY, V. 1997. *Britain and the Celtic Iron Age.* British Museum Press, London.

JONES, M. 1981. The development of crop husbandry. *IN*: Jones, M. and Dimbleby, G. (eds), *The environment of man: the Iron Age to the Anglo-Saxon period*, 95–127. British Archaeological Reports British Series, **87**, Oxford.

JONES, M. 1984. Regional patterns in crop production. *IN:* Cunliffe, B. W. and Miles, D. (eds) *Aspects of the Iron Age in central southern Britain*, 120–125. University of Oxford Committee for Archaeology Monograph, **2**, Oxford.

JONES, M. 1996. Plant exploitation. *IN:*Champion, T. C. and Collis, J. R. (eds) *The Iron Age in Britain and Ireland: recent trends*, 29–40. Collis Publications Recent Trends Series, **4**, Sheffield

JONES, M. & DIMBLEBY, G. (eds) 1981. *The environment of man: the Iron Age to the Anglo-Saxon period.* British Archaeological Reports British Series, **87**, Oxford.

KRAUSZ, S. 1993. Une méthode pour l'étude de l'organisation interne des sites d'habitat: l'analyse des ossements animaux. L'exemple de Levroux, Indre. *Revue archéologique du Centre de la France*, **32**, 57–85.

LAMB, H. H. 1981. Climate from 1000 BC to 1000 AD. *IN:* Jones, M. and Dimbleby, G. (eds), *The environment of*

man: the Iron Age to the Anglo-Saxon period, 53–65. British Archaeological Reports British Series, **87**, Oxford.

LOCKYER, A. 1994. The fish remains. *IN:* Ballin-Smith, B. (ed.) *Howe: four millennia of Orkney prehistory. Excavations 1978-82*, 157–159. Society of Antiquaries of Scotland Monograph Series, **9**, Edinburgh.

MACARTNEY, E. 1984. Analysis of faunal remains. *IN:* Fairhurst, H. *Excavations at Crosskirk broch, Caithness*, 133–147. Society of Antiquaries of Scotland Monograph Series, **3**, Edinburgh.

MAGNY, M. & RICHARD, H. 1992. Essai de synthèse: vers une courbe de l'évolution du climat entre 500 BC et 500 AD. *IN:* Richard, H. and Magny, M. (eds), *Le climat à la fin de l'Âge du Fer et dans l'Antiquité*, 58–60. Les Nouvelles de l'Archéologie, **50**, Paris.

MALTBY, J. M. 1981. Iron Age, Romano-British and Anglo-Saxon animal husbandry – a review of the evidence. *IN:* Jones, M and Dimbleby, G (eds), *The environment of man: the Iron Age to the Anglo-Saxon period*,155–203. British Archaeological Reports British Series, **87**, Oxford.

MALTBY, J. M. 1985. Patterns in faunal assemblage variability. *IN:* Barker, G and Gamble, C. S. (eds), *Beyond domestication in prehistoric Europe*, 33–74. Academic Press, New York.

MALTBY, J. M 1996. The exploitation of animals in the Iron Age: the archaeozoological evidence. *IN:* Champion, T. C. and Collis, J. R. (eds) *The Iron Age in Britain and Ireland: recent trends*, 7 – 17. Collis Publications Recent Trends Series, **4**, Sheffield.

MENIEL, P. 1987. *Chasse et élevage chez les Gaulois*. Errance, Paris.

MORRIS, E. L. 1994. The organisation of salt production and distribution in Iron Age Wessex. *IN:* Fitzpatrick, A. P. and Morris, E. L. (eds), *The Iron Age in Wessex: recent work*, 14–16. Association française pour l'Étude de l'Âge du Fer / Trust for Wessex Archaeology, Salisbury.

NODDLE, B. 1974. Report on the animal bones from Dun Mor Vaul. *IN:* MacKie, E. W., *Dun Mor Vaul: an Iron Age broch on Tiree*, 187–198. University Press, Glasgow.

NYE, S. & JONES, M. 1987. The carbonised plant remains. *IN:* Cunliffe, B. W. *Hengistbury Head, Dorset. Volume 1: the prehistoric and Roman settlement, 3500 BC – AD 500*, 323–327. Oxford University Committee for Archaeology Monograph, **13**, Oxford.

OSWALD, A. 1997. A doorway on the past: practical and mystical concerns in the orientation of roundhouse doorways. *IN:* Gwilt, A. and Haselgrove, C. C. (eds), *Reconstructing Iron Age societies*, 87–95. Oxbow Monograph 71, Oxford.

PARKER PEARSON, M. 1996. Food, fertility and front doors in the first millennium BC. *IN:* Champion, T. C. and Collis, J. R. (eds), *The Iron Age in Britain: recent trends*, 117–132. Collis Publications Recent Trends Series, **4**, Sheffield.

PIGGOTT, S. 1958. Native economies and the Roman occupation of Scotland. IN: Richmond, I. A. (ed.), *Roman and Native in North Britain*, 1–27. Thomas Nelson & Sons, Edinburgh.

REES, S. E. 1979. *Agricultural implements in prehistoric and Roman Britain*. British Archaeological Reports British Series **69,** Oxford.

REYNOLDS, D. M. 1982. Aspects of later prehistoric timber construction in south-east Scotland. *IN:* Harding, D. W. (ed.), *Later prehistoric settlement in south-east Scotland*, 44–56. University of Edinburgh Department of Archaeology Occasional Paper, **8**, Edinburgh.

REYNOLDS, P. J. 1979. *Iron Age Farm*. British Museum, London.

REYNOLDS, P. J. 1995. Rural life and farming. *IN:* Green, M (ed.), *The Celtic World*, 176–209. Routledge, London and New York.

ROBINSON, M. 1984. An apicultural postscript: the honey bee in the Iron Age. *IN:* Cunliffe, B. W. and Miles, D. (eds), *Aspects of the Iron Age in central southern Britain*, 119. University of Oxford Committee for Archaeology Monograph, **2**, Oxford.

RYDER, M. L. 1981. Fleece changes in sheep. *IN:* Jones, M. and Dimbleby, G. (eds), *The environment of man: the Iron Age to the Anglo-Saxon period*, 215–229. British Archaeological Reports British Series, **87**, Oxford.

RYDER, M. L. 1990. Skin and wool textile remains from Hallstatt, Austria. *Oxford Journal of Archaeology*, **9**, 37–49.

SANDS, R. 1997. *The analysis and interpretation of Bronze and Iron Age toolmarks*. Wood in Archaeology, **1,** Institute of Archaeology, London.

STEAD, I. M., BOURKE, J. & BROTHWELL, D. 1986. *Lindow Man: the body in the bog*. British Museum Publications, London.

THERKORN, L. L. 1987. The structures, mechanics, and some aspects of inhabitant behaviour. IN: Brandt, R. W., Groenman-van Waateringe, W. and van der Leeuw, S. (eds), *Assendelver Polder Papers, 1*, 177–224. Cingula, **10**, Amsterdam.

TIPPING, R. 1994. The form and fate of Scotland's woodlands. *Proceedings of the Society of Antiquaries of Scotland*, **124**, 1–54.

TIPPING, R. 1997. Pollen analysis and the impact of Rome on native agriculture around Hadrian's Wall. *IN:* Gwilt, A. and Haselgrove, C. C., (eds), *Reconstructing Iron Age societies*, 239–247. Oxbow Monograph **71**, Oxford.

TURNER, J. 1981. The Iron Age. *IN:* Simmons, I. and Tooley, M. (eds), *The environment in British prehistory*, 250–281. Duckworth, London.

VAN GEEL, B., BUURMAN, J. & WATERBOLK, H. T. 1996.

Archaeological and palaeoecological indications for an abrupt climate change in the Netherlands, and evidence for climatological teleconnections around 2650 BP. *Journal of Quaternary Science*, **11**, 451–460.

VAN DER VEEN, M. 1992. *Crop husbandry regimes. An archaeobotanical study of farming in northern England 1000 BC–AD 500.* Sheffield Archaeological Monographs, **3**, Sheffield.

WAINWRIGHT, G. J. 1979. *Gussage All Saints. An Iron Age settlement in Dorset.* Department of the Environment Archaeological Reports, **10**, H.M.S.O., London..

WHITTINGTON, G. & EDWARDS, K. J. 1997. Climate change. *IN:* EDWARDS, K. J. and RALSTON, I. B. M. (eds.), *Scotland: environment and archaeology 8000 BC–AD 1000*, 11–22. John Wiley, Chichester and New York.

1998: (with Diana Murray) 'The excavation of a square-ditched barrow and other cropmarks at Boysack Mills, Inverkeilor, Angus', *Proc Soc Antiq Scot* **127,** 1997 (1998), 359-386.

Proc Soc Antiq Scot, 127 (1997), 359–386

The excavation of a square-ditched barrow and other cropmarks at Boysack Mills, Inverkeilor, Angus

Diana Murray* & Ian Ralston†
with contributions by P J Ashmore, M Harman, I A G Shepherd & L Thoms

ABSTRACT

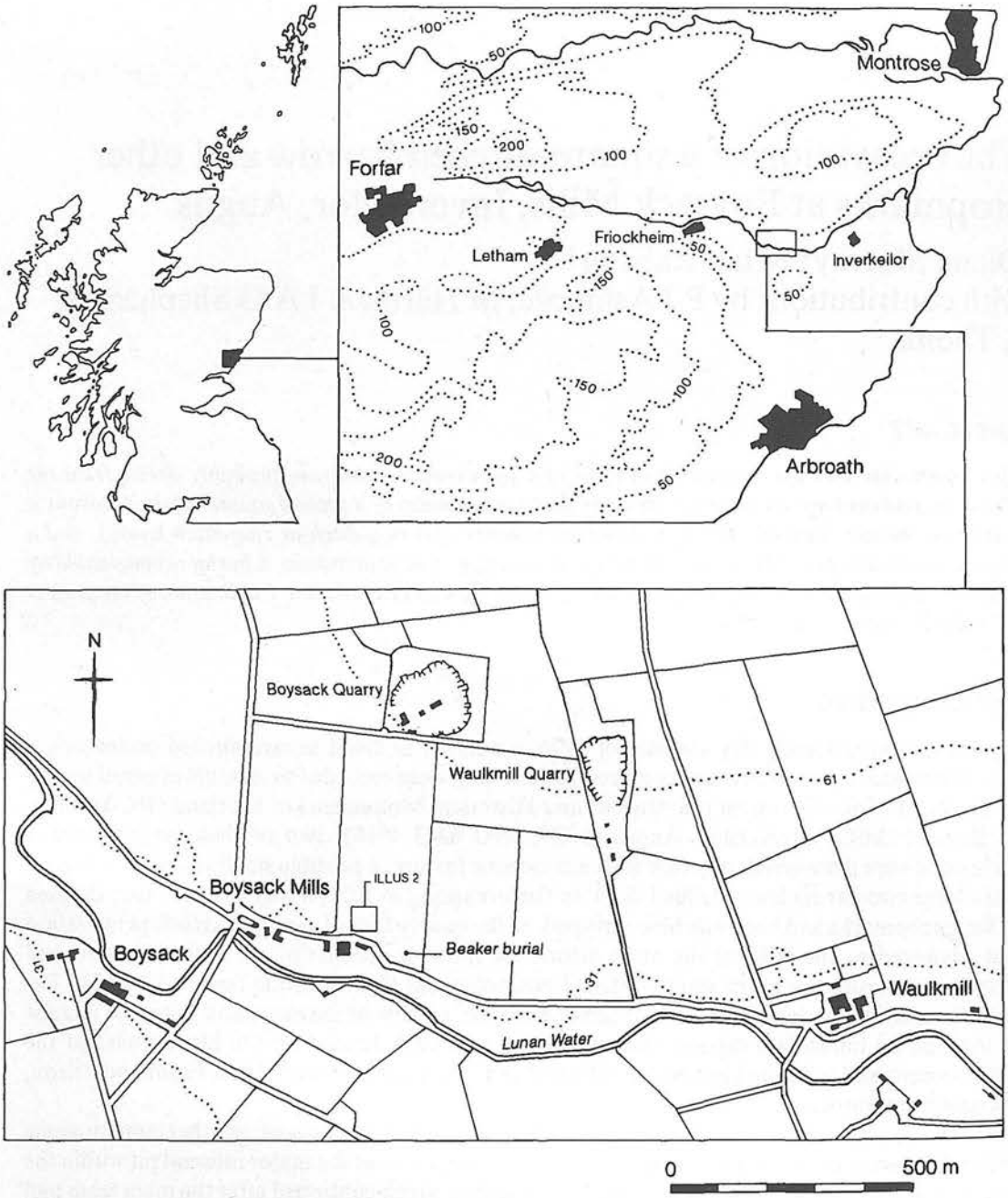
This report describes the excavation in 1977 of a square-ditched barrow, probably dating from the first or second century AD, together with the damaged remains of a second square-ditched barrow, a crescentic feature (possibly the very damaged remains of a ring-ditch or ring-ditch house), and a circular enclosure, possibly of Neolithic date, measuring 18 m in diameter. A burial accompanied by a Beaker was recovered from the quarry shortly after the main excavation. Publication of the project is funded by Historic Scotland.

INTRODUCTION

During the exceptionally dry summer of 1976, a number of small square-ditched enclosures, a type of cropmark previously unrecognized in Scotland, were recorded as a result of aerial survey by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). At Boysack Mills, Inverkeilor, Angus (NGR: NO 6263 4916), two of these square-ditched enclosures were discovered, together with a crescentic feature, a possible small circular enclosure, and a large circular enclosure (illus 1 & 2). In the late spring of 1977, it was observed that the area of these cropmarks had been machine-stripped, as the quarry face of a gravel extraction operation had advanced to the edge of the most distinct of the two square-ditched enclosures and had already cut across the other square-ditched enclosure and the crescentic feature (illus 3). The possible smaller circular enclosure had been destroyed. In view of the rarity and potential interest of the site, an immediate salvage excavation was mounted, funded by the Department of the Environment and with the kind co-operation of Mr Ramsay at Boysack Mills Farm and Tilcon, the quarry operators.

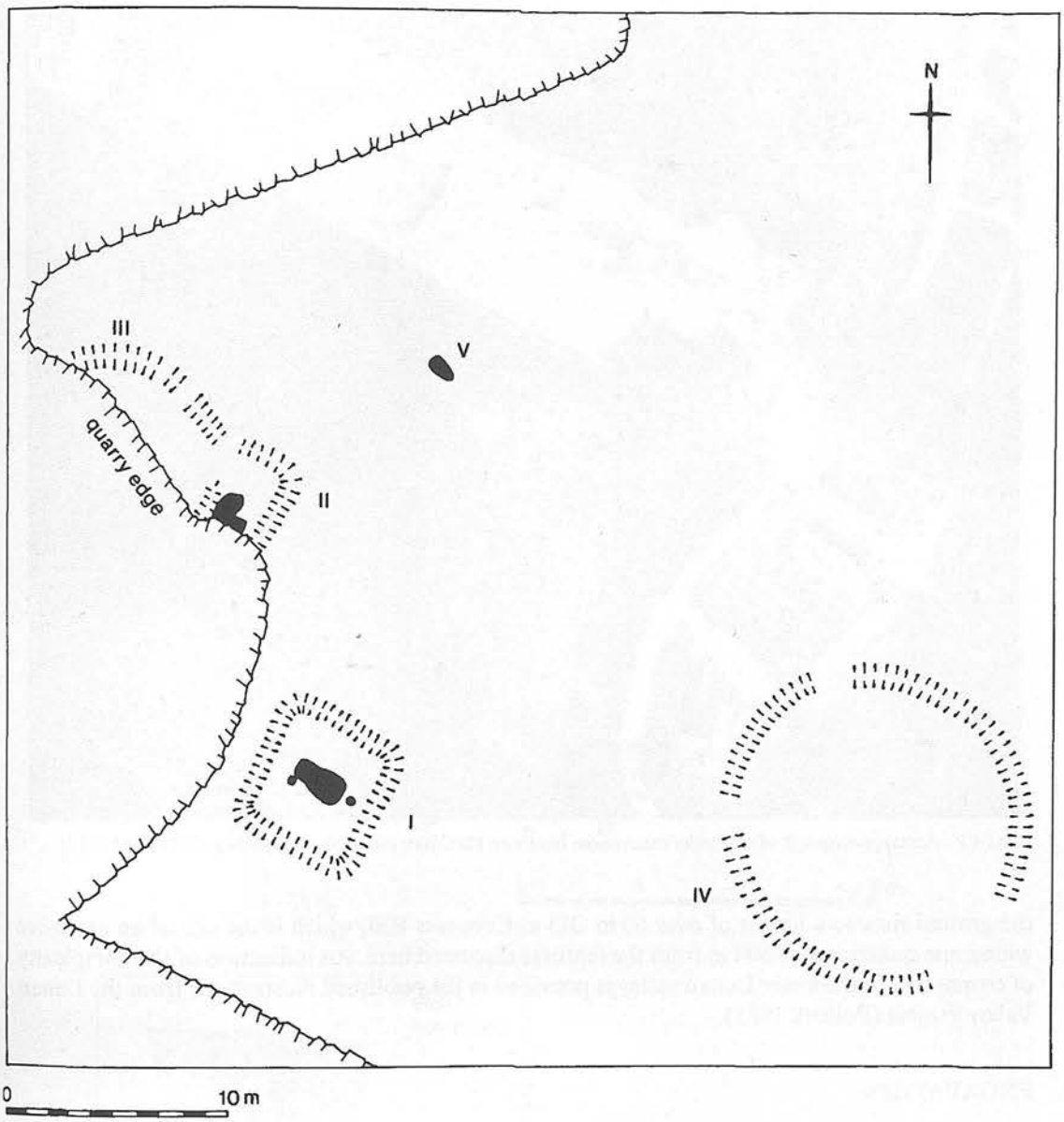
The excavation was executed by means of a series of brief campaigns, as other commitments allowed, between early June and August 1977. The complexity of the major internal pit within the square-ditched enclosure required detailed examination which continued after the main team had left. It was also considered desirable to examine the large circular enclosure in advance of

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ILLUS 1 Location map. *(Based on the Ordnance Survey map © Crown copyright. RCAHMS Licence GD03127G/006/98)*

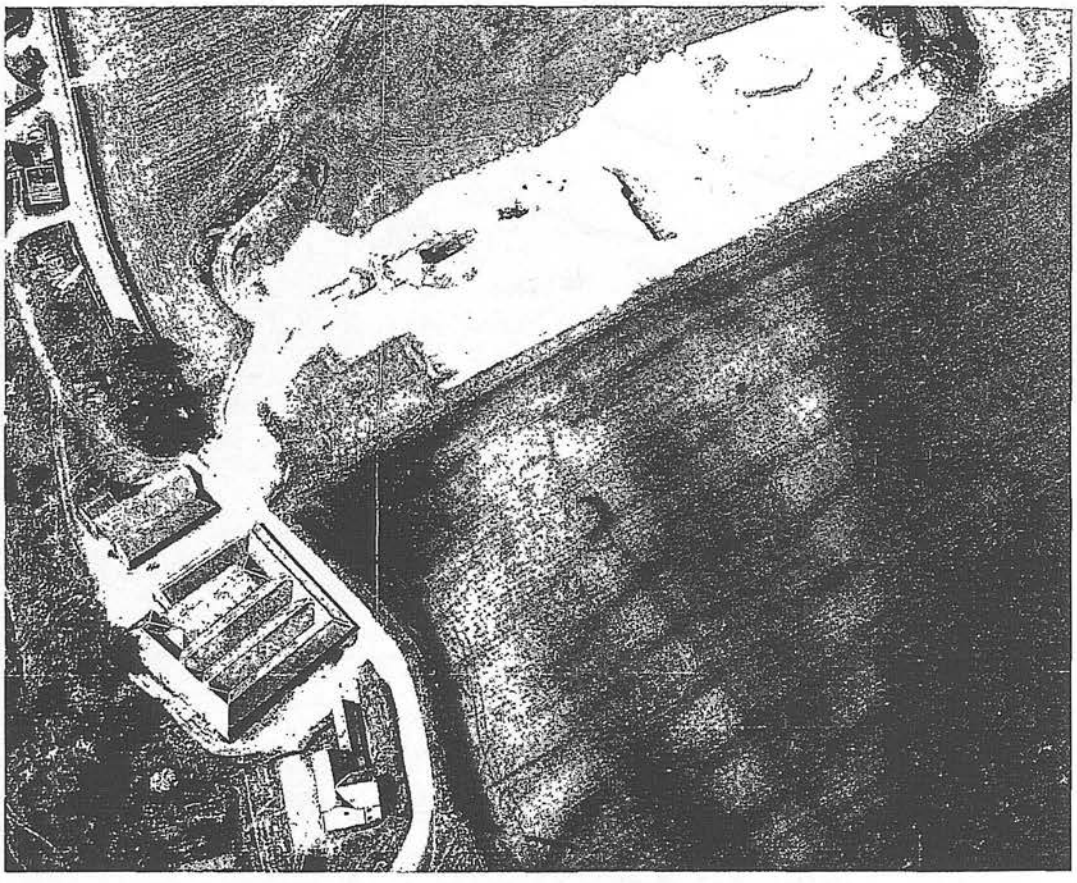
quarrying and this was completed by Mr George Haggarty (IV, below). In June 1978, as gravel extraction proceeded eastwards, a Beaker burial was discovered approximately 100 m south-east of the square-ditched enclosures; this was examined by Lisbeth Thoms (Appendix 1, below).



ILLUS 2 The location of Boysack Mills sites I to V

LOCATION

The site, which has now been destroyed by quarrying, was located c 3 km east of Friockheim and c 3.5 km west of Inverkeilor at NGR: NO 6263 4916 (RCAHMS 1978, no 26). It was situated at c 30 m OD on a broad flat terrace consisting of very free-draining sands and gravel, approximately 100 m north of the Lunan Water east of its confluence with the Gighty Burn (illus 1). The gravel spreads in the immediate environs, more particularly to the west and south of the site, are prolifically marked with cropmarks of archaeological and geomorphological origin. To the north,

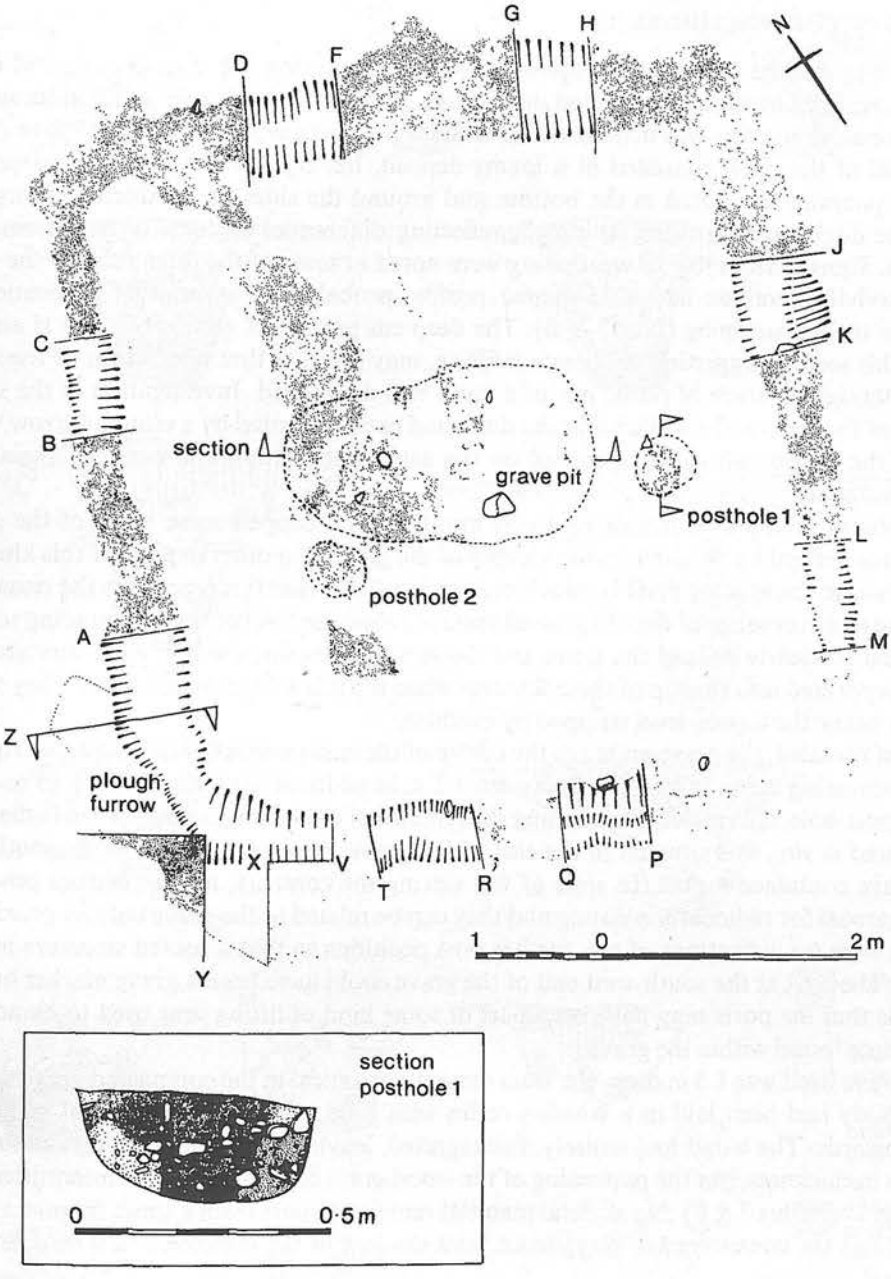


ILLUS 3 Aerial photograph of site under excavation, from east (© *Crown copyright: RCAHMS, NMRS AN2817*)

the ground rises to a height of over 60 m OD at Compass Hill, which is the site of an extensive whinstone quarry, some 500 m from the features discussed here. An indication of the complexity of cropmarks in the lower Lunan valley is provided in the published illustrations from the Lunan Valley Project (Pollock 1985).

EXCAVATION

The topsoil had been stripped by the quarry operators in preparation for gravel extraction (illus 3). From the exposed section left where this operation had ceased, it was estimated that the overburden of topsoil had been approximately 0.4 m deep, and that about 0.1 m of gravel surface had also been removed. Only the most easterly enclosure (IV) retained an overburden of topsoil, part of which was subsequently removed by hand, and the remainder stripped by machine under archaeological supervision. No vertical stratification survived in this ploughsoil although traces of rig-and-furrow cultivation, visible on the aerial photograph, were detected. In the area which had been machine-stripped, brushing of the gravel surface was sufficient to reveal the sharp contrast between the dark loamy fill of the features and the natural terrace deposit. Although a wide area was examined, no features additional to those apparent on the aerial photograph were



ILLUS 4 Boysack Mills I: square-ditched enclosure

detected, except a shallow pit (V), 1.1 m by 0.81 m and 0.2 m deep (illus 2). The fragmentary square-ditched enclosure (II) and the crescentic ditch (III) overlapped, but the damage sustained by these features from the combined effects of quarrying and stripping prevented clarification of their relationship. Fortunately, the other square-ditched enclosure (I) had remained intact, although, at the time of excavation, it lay adjacent to the quarry edge.

THE SQUARE-DITCHED ENCLOSURE (I)

The feature was defined as a roughly square enclosure measuring 5.6 m east/west, and 6.0 m north/south, marked by an uninterrupted ditch between 0.3 m and 0.9 m in width at its surface (illus 4). On excavation this was demonstrated to survive to between 0.2 m and 0.45 m in depth. The upper fill of the ditch consisted of a loamy deposit, but the lower fill was of redeposited gravel. Iron panning was noted in the bottom and around the sides of the ditch sections. The profile of the ditch varied around its circuit, reflecting differential patterns of weathering and preservation. Signs attributable to weathering were noted in some of the ditch fills; on the south side, the surviving sections had a U-shaped profile, probably as a result of truncation by ploughing or topsoil stripping (illus 5 & 6). The deep cut profiles of sections G and H and the even fill in this sector, suggesting deliberate infilling, may indicate that some form of fence was intended, although no trace of posts, nor of a bank was discovered. Investigation at the south-west corner of the enclosure revealed that the ditch had been truncated by a plough furrow which was part of the ridged cultivation recorded on the aerial photograph and noted in excavation elsewhere on the site.

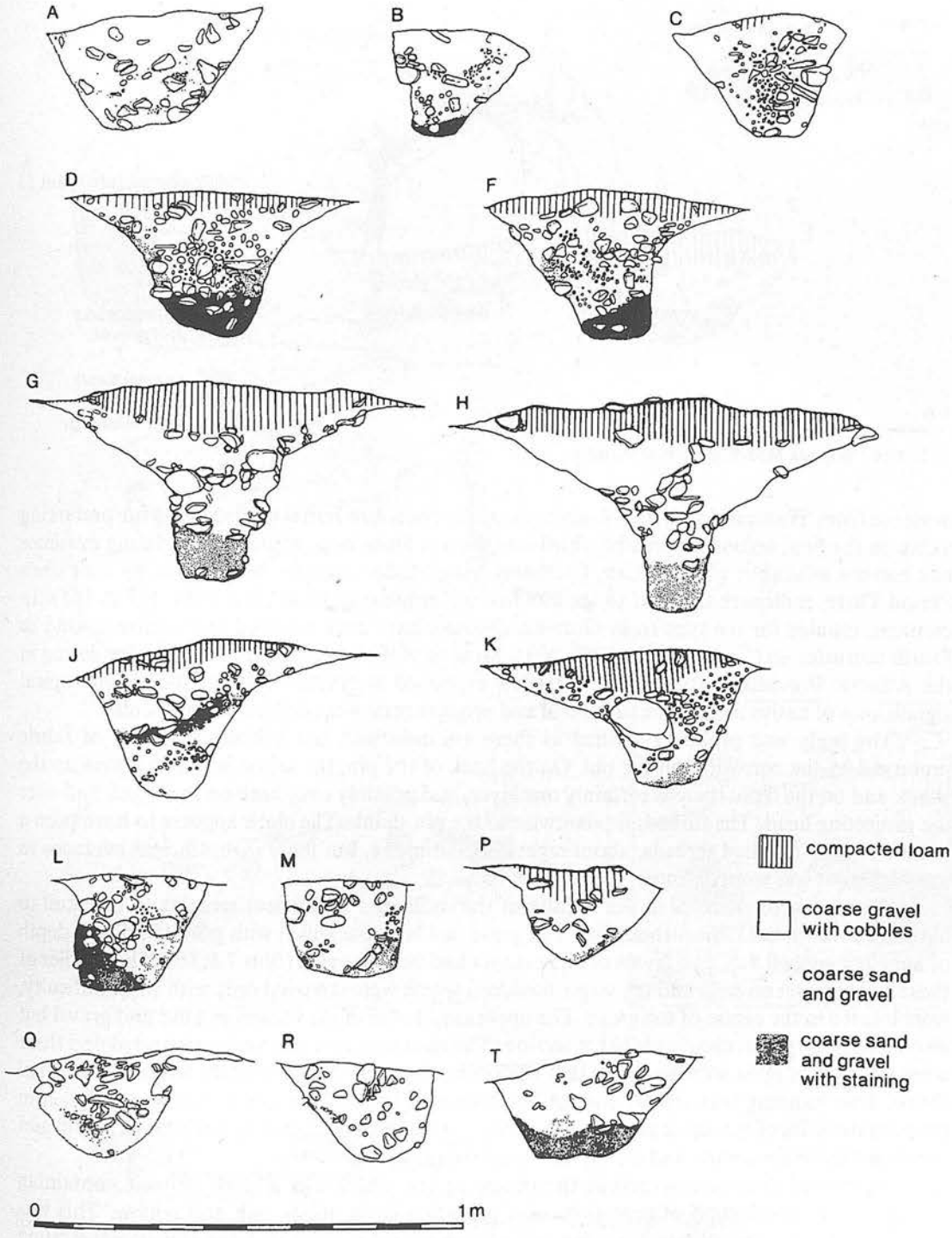
Deposits of loamy soil, remaining to 50 mm in depth, capped some areas of the gravel within the area defined by the ditch in the vicinity of the grave. No other deposit of this kind was noted elsewhere in the area stripped by machine, and it is likely that this represents the remains of a barrow due to disturbance of the old ground surface below the level of the surrounding topsoil. The loam that so clearly defined the grave and the surrounding ditch would have survived as it became incorporated into the top of these features when the fills settled within them. They would therefore be below the topsoil level stripped by machine.

As first revealed, the grave pit lay in the centre of the enclosure and was orientated roughly east/west, measuring 2.5 m in length by between 1.2 m in width at the west end to 1.45 m at the east end. A post-hole, 0.25 m deep, containing the remains of a substantial post 0.15 m in diameter that had rotted *in situ*, was situated to the east of the grave. A second feature to the south-west may also have contained a post. In spite of wet-sieving the contents, neither feature produced sufficient charcoal for radiocarbon dating and they can be related to the grave only by proximity.

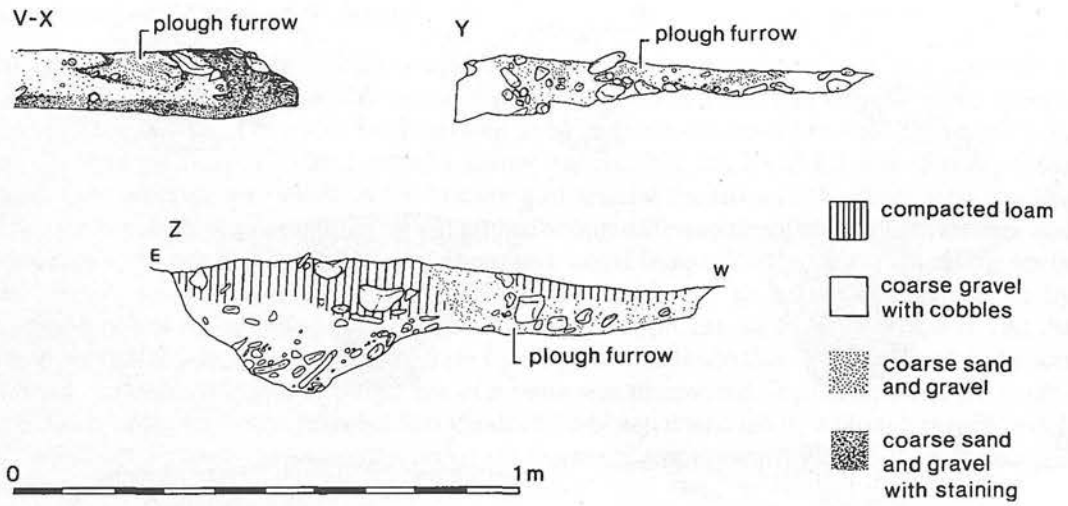
There were no indications of any further post positions so that a roofed structure may be discounted. The post at the south-west end of the grave could have been a grave marker but it is also possible that the posts may have been part of some kind of lifting gear used to manoeuvre the large stones found within the grave.

The grave itself was 1.5 m deep, the sides remaining vertical in the compacted gravel. At the bottom, a body had been laid in a wooden coffin with a lid, the sides and ends of which had collapsed inwards. The wood had entirely disintegrated, leaving only a very thin stain no more than 10 mm in thickness, but the patterning of the wood grain could still be seen intermittently in the stained gravel (illus 7 & 8). No skeletal material remained apart from a small fragment of the skull which had the consistency of clay, and a faint shadow of the skeleton could be defined by stained gravel.

The body appeared to have been extended, laid full length on its back, or possibly with its lower half on its side, in the coffin, with the head to the south-east and at least one leg slightly bent with the knee pointing south. A badly corroded ring-headed iron pin lay in the position where the left shoulder would have been (illus 9). This is a typical projecting ring-headed pin. Clarke (1971, 28–32, fig 4 & Appendix III) has mapped the distribution of the type in Scotland (both bronze and iron examples are known) and has discussed the problem of its date and origin. Few have been recovered from datable contexts, and Close-Brooks (1984, 94) rehearsed the



ILLUS 5 Boysack Mills I: sections of the ditch



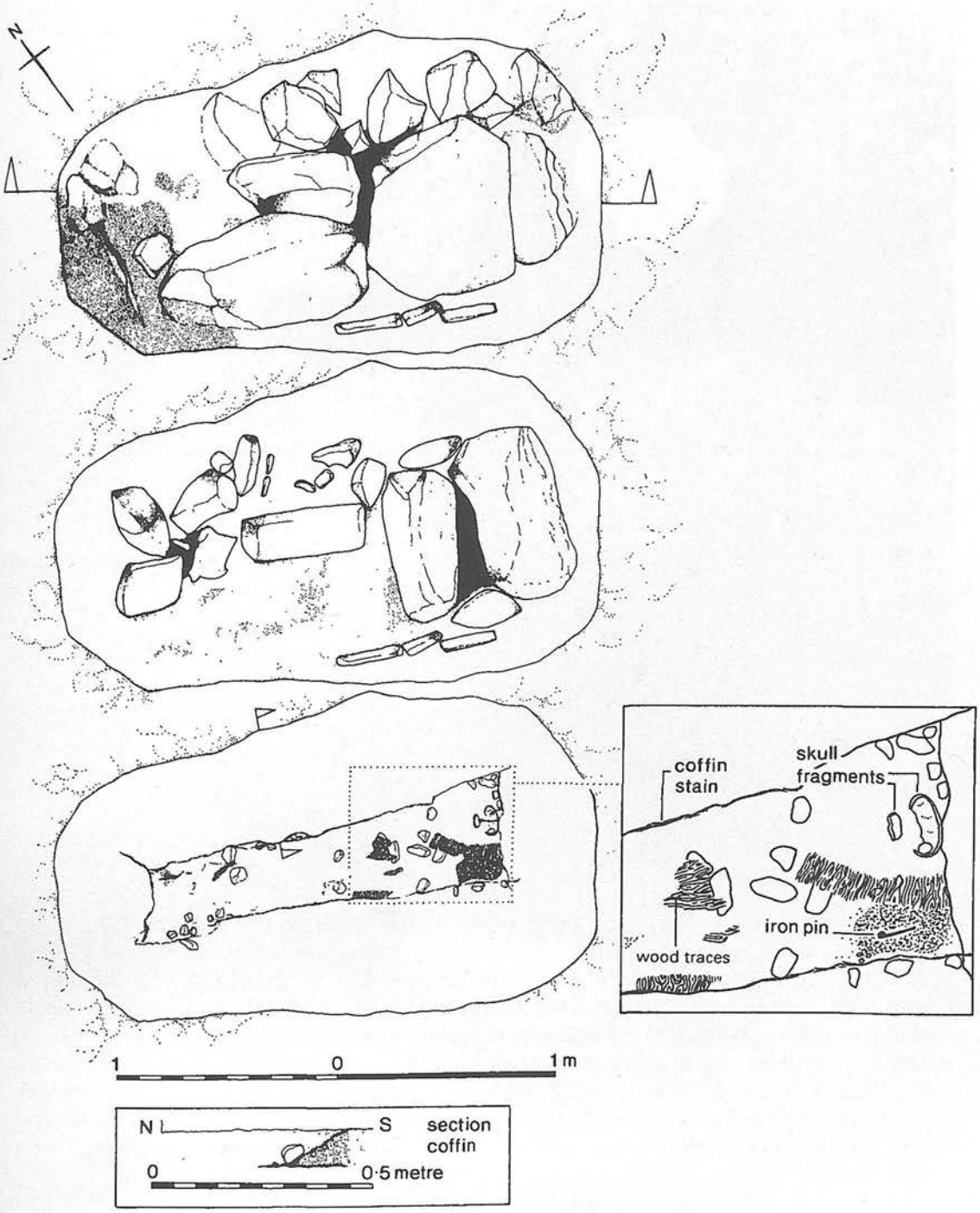
ILLUS 6 Boysack Mills I: sections of the ditch

evidence from Traprain Law (East Lothian) and the Moredun burial (Edinburgh) for preferring a date in the first, second or possibly third century AD. Since then, some further dating evidence has become available: at Crosskirk, Caithness, ring-headed pins are represented by that site's Period Three, radiocarbon dated to the late first millennium BC (Fairhurst 1984, 117 & 165). In contrast, moulds for the type from Gurness, Orkney, have been ascribed to the later second to fourth centuries AD (Close-Brooks 1987, 303). Most recently, reviewing the evidence for dating in the Atlantic Province, Armit (1991, 200) has expressed reservations about the chronological significance of native metalwork in general and projecting ring-headed pins in particular.

The body was probably clothed as there are indistinct, but undoubted traces of fabric preserved by the corrosion on the pin. On the back of the pin, the fabric is in two layers up the shank and on the front there is certainly one layer, and possibly two, both on the shank and over the projecting head. The threads lie slantwise to the pin shank. The cloth appears to have been a plain weave of unfelted threads, about eight per centimetre, but there is insufficient evidence to say whether it was wool or linen.

There was no charcoal in the vicinity of the coffin and insufficient remains of the skull to allow a conventional radiocarbon date. The grave had been backfilled with gravel and, at a depth of approximately 0.8 m, two layers of large stones had been inserted (illus 7 & 10). The smaller of these had been set on edge and the larger boulders, which were removed only with some difficulty, were located in the centre of the grave. The uppermost 0.4 m of the fill was of sand and gravel but also contained turves, clearly visible in section. The natural gravel was very compacted and there were no signs of open weathering so that the vertical edge of the grave had retained its original shape. Iron panning was visible around the sides and base of the grave. Loam had fallen in between the sides of the grave and the gravel fill, to a depth of about 0.2 m, perhaps as the fill and stones settled in the centre, and clearly delimited the grave edge.

Positioned transversely across the centre of the grave was a dark deposit containing charcoal from brushwood of several species, including birch, hazel, oak and willow. This was traced in an irregular column from the surface down to the layers of large stones, penetrating amongst and underneath them to a depth of 0.5 m (illus 11 & 12). The deposit varied in shape but measured approximately 0.8 m by 0.3 m. Charcoal was collected from this deposit from



ILLUS 7 Boysack Mills I: plans of grave pit at *c* 0.5 m below machined surface (top), 1 m below surface (middle) and 1.5 m below surface (bottom)



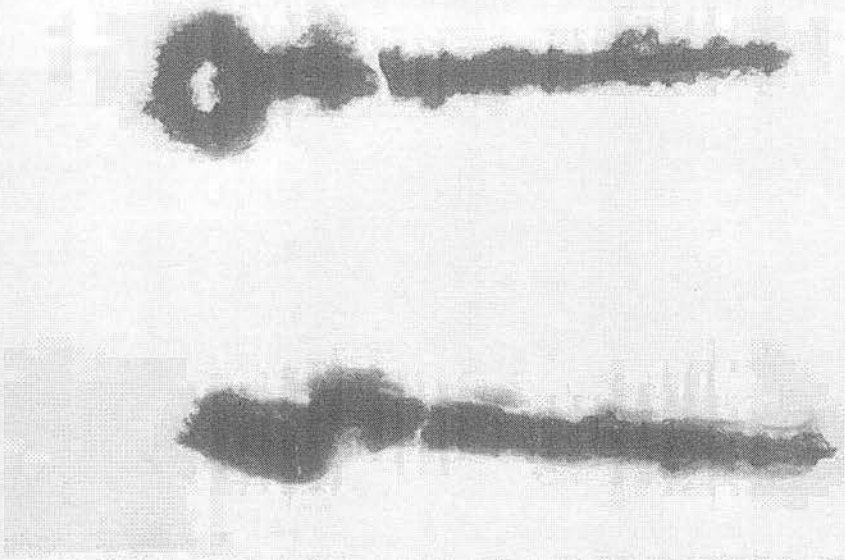
ILLUS 8 Boysack Mills I: the grave pit, showing the outline of the coffin

underneath the first stone layer at a depth of 0.5 m and produced two dates of 930±105 BP (GU-1301) and 720±90 BP (GU-1514).

Although it is not possible to dismiss the incorporation of this charcoal at the time of construction, a more likely explanation for this deposit is that it marks the position of an upright stone, serving as a grave marker and held in position by the large stones in the grave. The charcoal may have come from a fire, lit to crack the stone prior to its removal, the charcoal trickling down into the hole as the stone was extracted, thereby giving a date of destruction rather than erection. If an upright stone had existed, it is likely to have been removed some time before the fields were rigged. Cursory examination of the locality revealed no obvious surviving candidate for a removed stone.

THE SQUARE-DITCHED ENCLOSURE (II) & THE CRESCENTIC FEATURE (III)

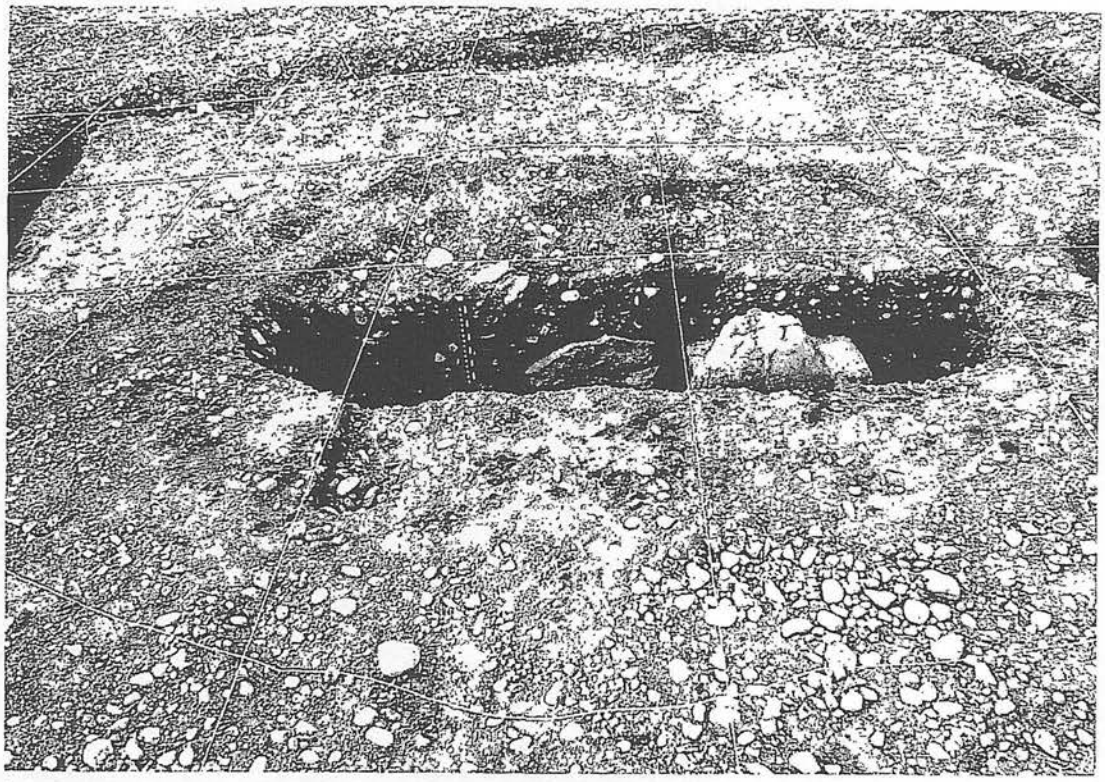
A square-ditched enclosure overlapped the crescentic feature (illus 2, 13 & 14). Their point of intersection was badly eroded by the quarry edge and the topsoil stripping. It was also at a point



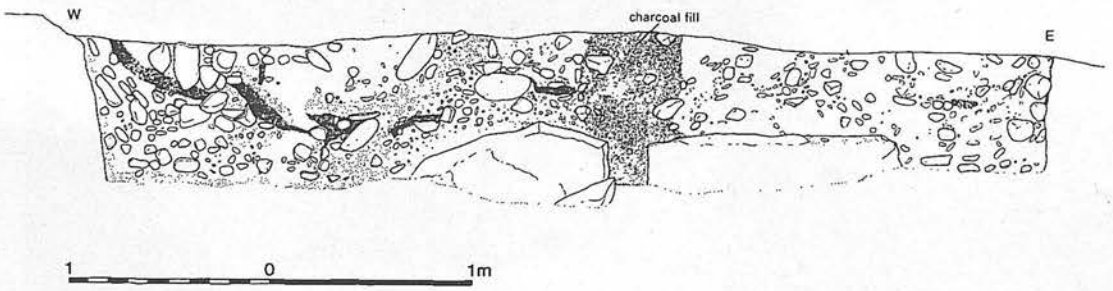
ILLUS 9 X-radiograph of the ring-headed pin. (*Copyright: Trustees of the National Museums of Scotland*)



ILLUS 10 Boysack Mills I: the grave pit under excavation, showing the massive stone fill



ILLUS 11 Boysack Mills I: the upper part of the fill of the grave pit

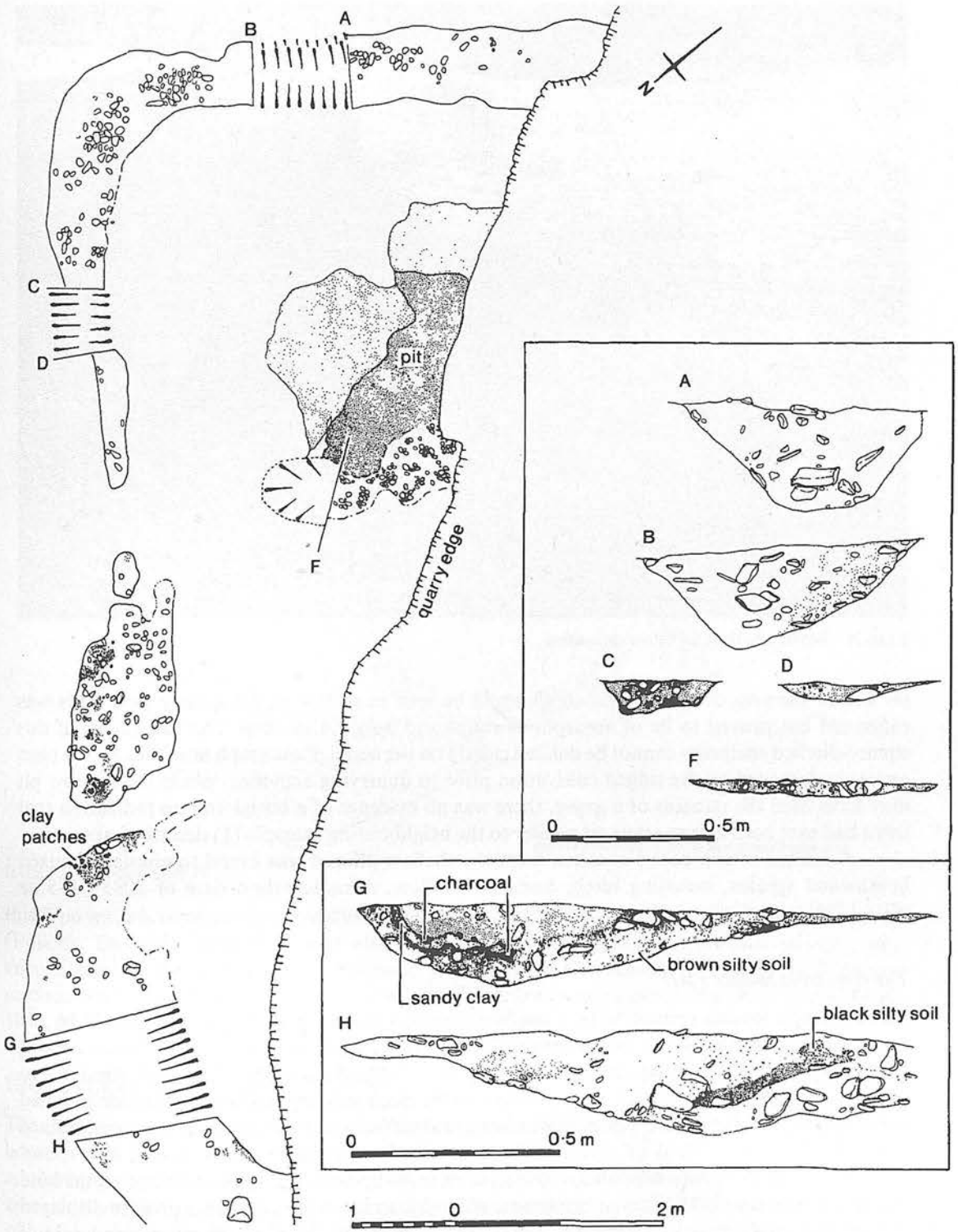


ILLUS 12 Boysack Mills I: cross-section of the upper part of the fill of the grave pit

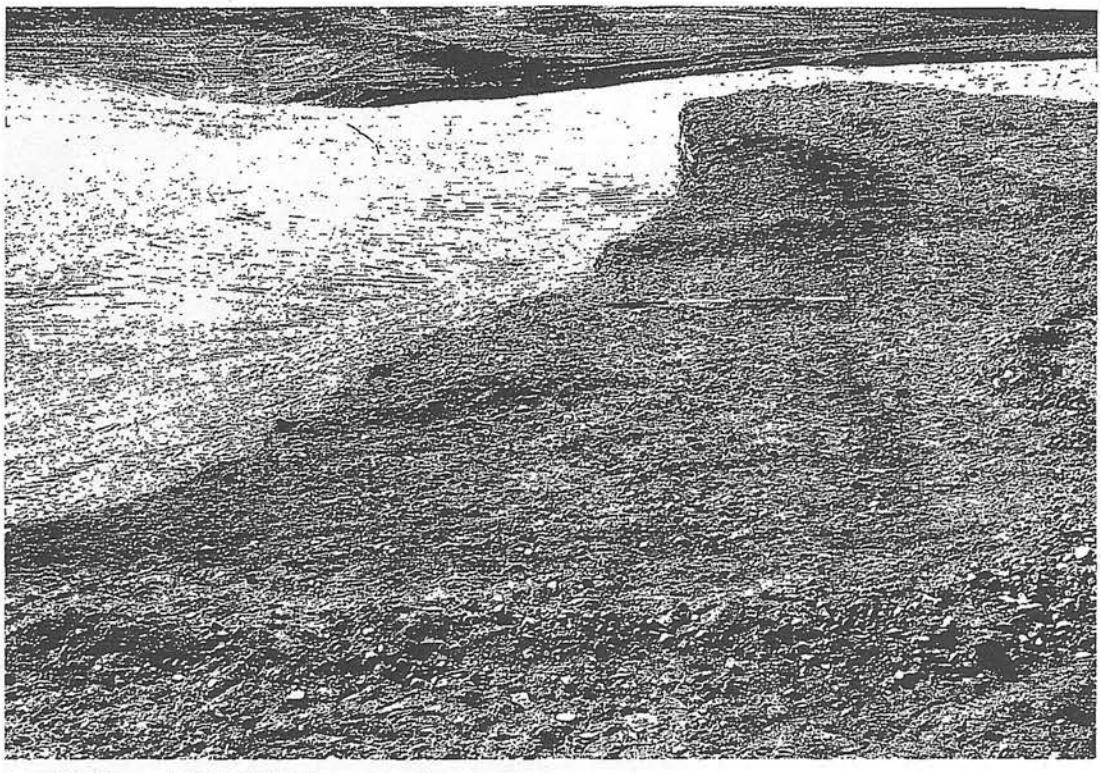
where a furrow of the later ridged cultivation cut across the features. There was less than 0.1 m of deposit left at this junction and no clear stratigraphical relationship could be established between the pre-furrow archaeological features.

The square-ditched enclosure (II)

Three sides of a square enclosure with an apparently continuous ditch were revealed. The north side was at least 4.4 m in length, although it was unclear at the north-west corner where it coincided with the crescentic feature. The remaining two sides were both cut by the quarry edge. The ditch measured up to 0.7 m in width and survived to a maximum depth of 0.45 m. A shallow



ILLUS 13 Boysack Mills II/III



ILLUS 14 Boysack Mills II/III before excavation

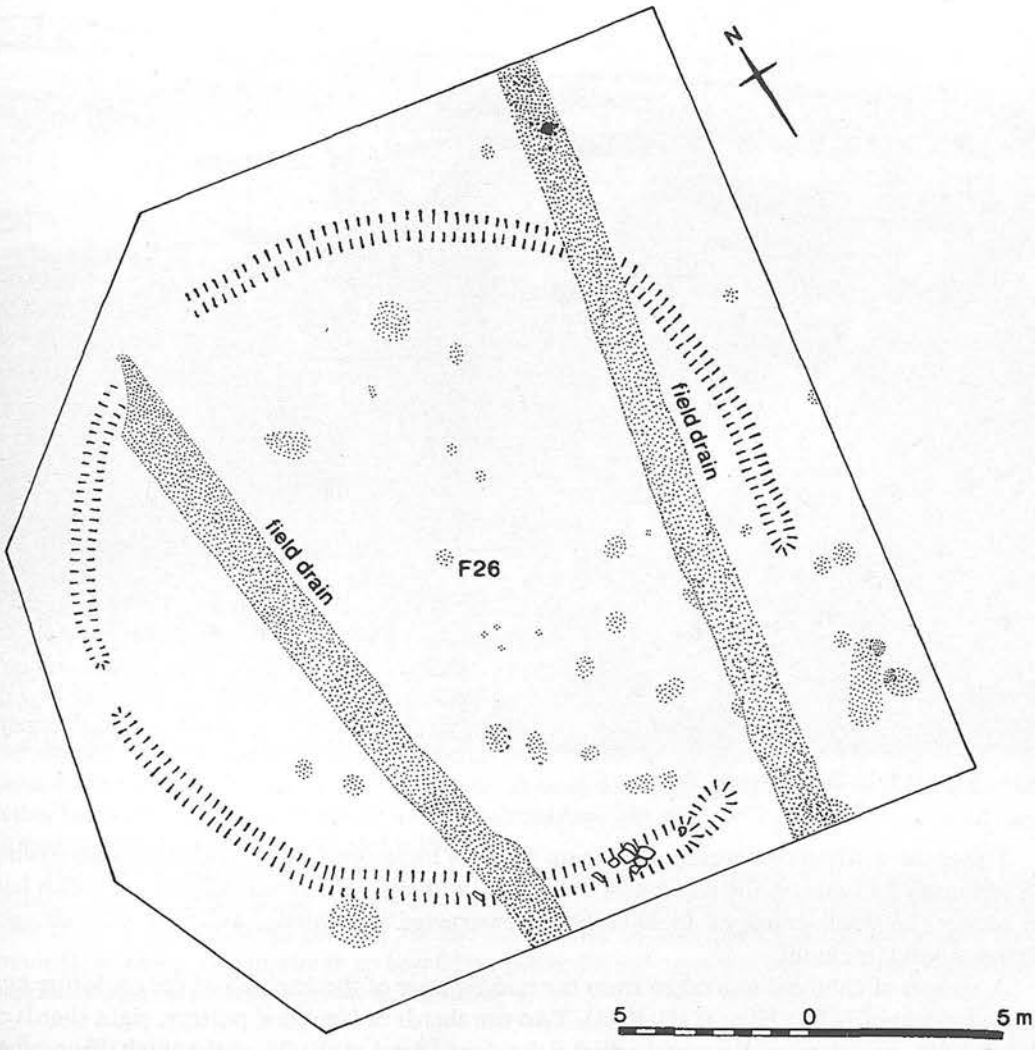
pit within the area defined by the ditch could be seen in section in the quarry face. This was examined but proved to be of amorphous shape and only 0.4 m deep. The full extent of this square-ditched enclosure cannot be defined clearly on the aerial photograph and it may have been seriously damaged by the ridged cultivation prior to quarrying activities. While the shallow pit may have been the remains of a grave, there was no evidence of a burial and no indication that there had ever been a deep grave pit similar to the neighbouring example (I) described above.

A sample of charcoal was taken from the shallow pit and was found to consist of mixed brushwood species, including birch, hazel and willow. A radiocarbon date of 2085±115 BP (GU-1256) was obtained. No artefactual material was recovered.

The crescentic feature (III)

The crescentic feature proved to be a shallow asymmetrical ditch with a steeper profile on the outer edge, rising more gently on the inside of the crescent. It was filled with a dark loamy deposit containing charcoal fragments with patches of yellow clay and measured 2.5 m wide, surviving to a depth of only 0.15 m. On plan, the full extent of the ditch was impossible to determine as it had been seriously eroded by the quarrying activities and no features survived within the area defined by the ditch.

Although extremely degraded, these remains may represent a ring-ditch house, of the kind examined elsewhere in the Lunan catchment at Douglasmuir, where the ditch profiles displayed very similar characteristics (Kendrick 1995), and at Ironshill, Inverkeilor, where one house of

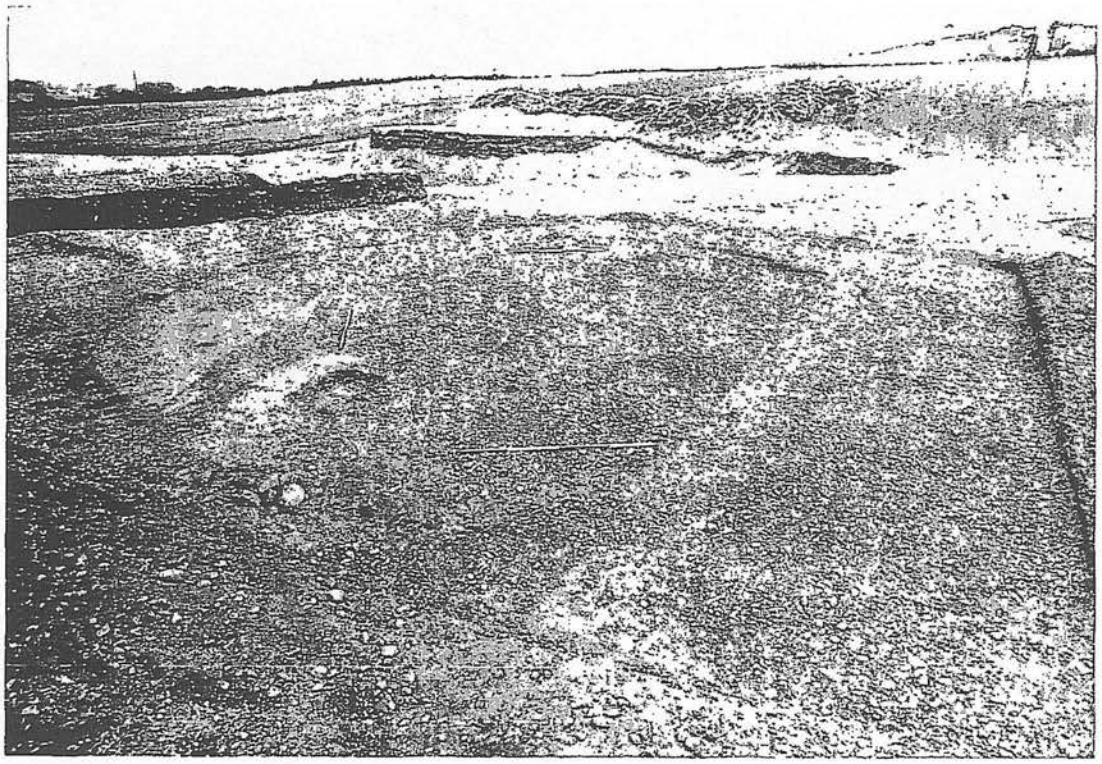


ILLUS 15 Boysack Mills IV

this type was encountered in excavations which also uncovered other later prehistoric structures (Pollock, this vol). Both these sites also produced evidence of four- or six-post settings, not encountered in the excavations at Boysack Mills. Nearer Friockheim, at Hatton Mill Farm, excavations by Tim Neighbour produced a further possible example of the ring-ditch house (CFA 1993, 95–6, fig. 41).

THE CIRCULAR ENCLOSURE (IV)

The circular enclosure measured 18 m in diameter, and was defined by a ditch which survived to between 0.06 m and 0.25 m in depth, and 0.6 m in width (illus 2, 15 & 16). The site had been eroded by plough damage and was cut by 19th-century field drains. The internal features showed no consistent pattern and their fills were mainly indeterminate only one (F26) showing any signs of having held an upright timber.



ILLUS 16 Boysack Mills IV under excavation

The enclosure had two entrances, one on the west measuring 1 m in width with narrowing ditch terminals and one on the south-east, 6 m wide, with rounded terminals, one of which had been recut. The ditch appeared to have been constructed in sections, as there were straight stretches around its circuit.

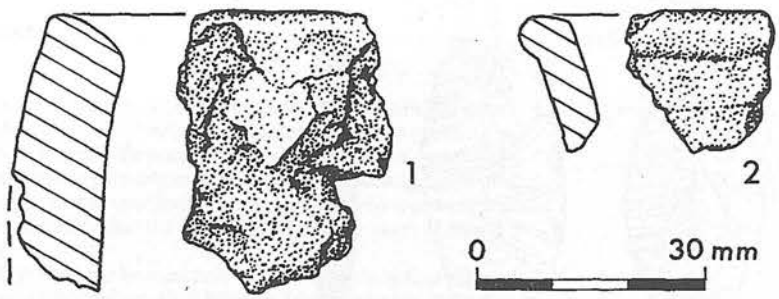
A sample of charcoal was taken from the middle layer of the ditch fill of the enclosure and produced a date of 2470 ± 80 BP (GU-1034). Two rim sherds of Neolithic pottery, eight sherds of indeterminate prehistoric pottery and a flint flake were found in the fill of the ditch. Two other flakes of local orange flint were found in the top of the gravel. It is likely that all of these artefacts should be regarded as redeposited, although, on typological grounds, the enclosure would not be out of place in the Neolithic ring-ditch tradition.

The pottery

1 Rim sherd of soft, disintegrating ware, 13 mm thick; the top of the rim is flattened. From a pot with a curved wall; the angle of the rim uncertain. (0.7 m from north butt end of ditch; 0.15 m deep) (illus 17.1).

2 Rim sherd of bowl; the rim flattened on top, beaded on the outside; the angle uncertain. Brown fairly fine ware with stone grit, 5 mm thick. (0.8 m from south butt of ditch, 0.15 m deep) (illus 17.2).

3 Body sherd of light brown ware sooted inside, 5 mm thick. Possibly from same pot as 2. (0.8 m from south butt of ditch, 0.15 m deep).



ILLUS 17 Boysack Mills IV: the pottery

4 Six body sherds of light brown ware with some large stone grits, up to 10 mm thick, not certainly all from the same pot. (0.8 m from south butt of ditch, 0.15 m deep).

5 One small body sherd similar to 4 and a degraded fragment (from south ditch).

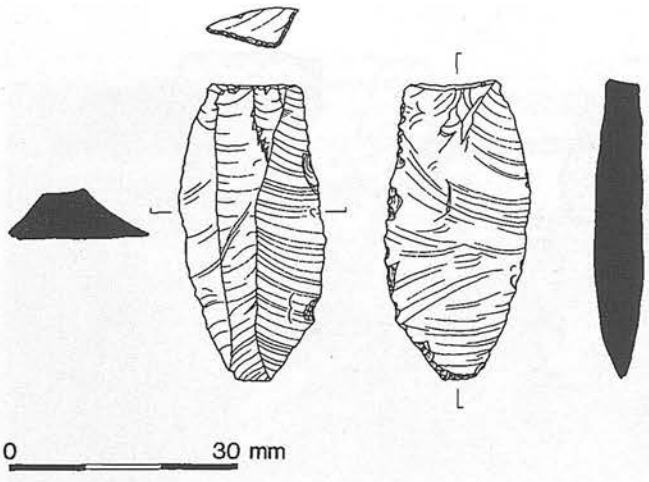
No 1 belongs to the group of pottery generally called 'Flat Rim Wares', which has been discussed by Coles & Taylor (1970), Hedges (1975, 69; with an inventory at Appendix 9, 92–3) and Halliday (1985, 243–5). The term itself is generally acknowledged to be inadequate as these series of coarse wares display a wide range of rim forms, including pointed, round and flat examples. One of the sherds from the earliest Scottish context to bear close scrutiny (Hedges 1975, 69), at Croft Moraig, Perth & Kinross, was found in association with Western Neolithic pottery (Piggott & Simpson 1971, pl 4 & 6), and is similar in shape to that from Boysack. The bulk of the flat rim wares are later in date, however, such as that from the midden in the Culbin Sands, Moray, which produced a single radiocarbon date of (Q-990) 3209 ± 70 BP, securely within the second millennium BC (Coles & Taylor 1970).

The single sherd from Boysack, however, lacks any of the traits employed by Halliday (1985, 245) to subdivide pottery of the second to early first millennium BC found on the eastern mainland of Scotland. There is no direct contextual evidence for the date of this Boysack sherd, and in the present state of knowledge it would seem unwise to go beyond proposing the second millennium BC as perhaps marginally more likely than the preceding or succeeding spans.

No 2 is a rim sherd from a Neolithic bowl of rather smaller size than most, and not burnished. It clearly belongs to the family of Western Neolithic pottery, and is the first such sherd to be found in Angus. Neolithic pottery from Angus is otherwise restricted to the finds from Douglasmuir, approximately 1 km to the south-west, across the Lunan Water (Kendrick 1995; Kinnes 1985; Cowie 1992, Table 20.1). There, three shallow pits, set amongst others attributed to the ring-ditch house settlement, produced earlier ceramics: one produced Beaker sherds, a second undecorated material, and a third fragments of a Neolithic carinated bowl with vertical incised lines.

The Boysack Mills rim may have belonged to a simple hemispherical pot similar to fragments from Tulloch of Assery B, Caithness (Henshall 1972, 310, no 10, 557) or Calf of Eday Long (Henshall 1963, 249, nos 18, 24, 190–1) and Unstan, Orkney (Henshall 1963, 253, no 28, 242). If, on the other hand, the sherd is from an open carinated bowl, parallels for the beading can be found on several sherds from Easterton of Roseisle, Moray, the closest parallels perhaps being two sherds in the National Museum (L. 1960 58, 59).

Nos 3–5 could be of almost any date from Neolithic to pre-Roman Iron age. The whole group may simply be rubbish surviving in the ditch fill. Cowie (1993, 24) has subsequently commented that he would be content to assign a Neolithic date to the whole assemblage.



ILLUS 18 Boysack Mills IV: flint flake

Further finds have subsequently been reported from the Boysack Mills sand and gravel quarry. The year after the excavations described here, a short cist was identified in the quarry face at NGR: NO 628 491 (Thoms — Appendix 1, below). Subsequently, a number of pits were examined in an area prepared for gravel quarrying at NGR: NO 6295 4905; one of these produced a thumb-nail scraper and an unworked flake of flint (Sherriff 1981, 45).

The flint

The illustrated flint (illus 18) is an inner flake, orange in colour, measuring 40 mm by 17 mm by 6 mm. It is damaged along the left edge and its platform has been trimmed.

RADIOCARBON DATES

Patrick J Ashmore

Four radiocarbon dates were obtained from samples from three contexts (Table 1). All calibrations are from CALIB 3.03 (Stuiver & Reimer 1993). Calibrated figures have been rounded to the nearest five years.

All the dates are significantly different from each other except GU-1301 and GU-1514 (illus 19). If all the brushwood used to obtain GU-1301 and GU-1514 is of practically identical true date it is legitimate to take the weighted mean of the two measured dates. The weighted mean is 810 ± 70 BP. This calibrates to between cal AD 1035 and 1299. On the whole, it is most likely that the brushwood from which this date derives was cut or died in the second half of the eleventh, or in the twelfth century or in the thirteenth century AD.

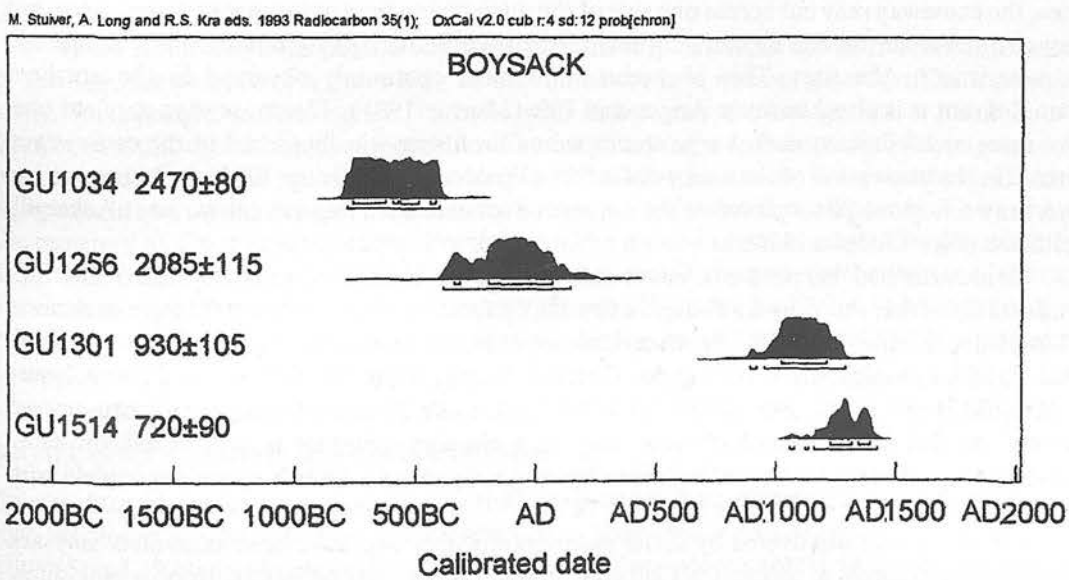
DISCUSSION

SQUARE-DITCHED BARROWS IN SCOTLAND

Square-ditched 'barrows' were first recognized as cropmarks in Scotland by Gordon Maxwell in 1976 in Angus (eg RCAHMS 1978). Since then, many examples have been added to the catalogue, but still little is known of their origin and function.

TABLE 1
Radiocarbon dates

Laboratory Code	Context	Yrs BP	Calibrated date, two sigma, (95.4% probability)
GU-1034	**Circular enclosure**: unidentified charcoal from middle layer of ditch; note the Neolithic and later prehistoric artefacts in the ditch imply the possibility of old, or mixed old and contemporary, charcoal, while the lack of identification of the species and morphology of the carbonized wood allows the possibility that the wood came from the heart of an old tree. This date can be used only to show it is likely that the middle layers of the ditch filled up some time after 785 cal BC.	2470±80	785–400 BC
GU-1256	**Square enclosure II**: mixed species brushwood. including birch, hazel and willow from shallow pit. Since there is no obvious reason why the brushwood should have been incorporated purposefully in the shallow pit, it should be treated as material incorporated accidentally which may be older than digging of the pit. This date can be used only to show it is likely that the pit was dug some time after 390 cal BC.	2085±115	390 BC–AD 135
GU-1301	**Square enclosure 1**: mixed brushwood species including birch, hazel, willow and oak in dark deposit in top of grave. Same context as GU-1514. This may date the removal of a stone rather than its erection.	930±105	AD 900–1285
GU-1514	**Square enclosure 1**: mixed species brushwood including birch, hazel, willow and oak in dark deposit in top of grave. Same context as GU-1301. Again, this may date the removal of a stone rather than its erection.	720±90	AD 1070–1420



ILLUS 19 Probability plots for the Boysack Mills dates

Cropmark examples in Scotland now extend from Inverness-shire to Fife and Kinross: a first distribution map was published in 1983 (Maxwell 1983, fig 25). Examples are clustered on free-draining sands and gravels, and are frequently to be found on river terraces. A northern distribution extends from Inverness-shire east along the coastal lowlands to the south of the Moray Firth (eg Shepherd 1993, fig 4.2) as far as Hills of Boyndlie near Banff, close to the lower river Deveron (Ralston & Inglis 1984, 18). To the south, the river valleys debouching into the North Sea seem to be devoid of clear instances, until those in Angus are reached, where there is a significant concentration.

The cropmarks are most easily recognized when they lie in groups and most occur alongside round barrows, ring-ditches, circular enclosures and pits. In some of the groups, the square ditches appear to be touching or conjoined in a 'frogspawn'-like arrangement as at Invergighty Cottage, Angus, less than 1 km north-west of Boysack Mills. Most display evidence of a central grave pit and this is frequently orientated east/west. In some cases the distinction between round and square barrows can be deceptive as the ditches appear to be bowed.

Square ditches surrounding burials are also known from upstanding remains in Scotland such as those in Inverness-shire at Garbeg (NGR: NH 511 322) and Whitebridge (NGR: NH 492 171) where the ditches surround low central cairns and earth mounds, and have external banks (Stevenson 1984). Excavations at Garbeg (Wedderburn & Grime 1984) demonstrated that the cairns covered extended burials in grave pits with crude stone linings, though none was similar to the deep burial at Boysack Mills. A Pictish symbol stone was found in an adjacent round cairn. These excavations prompted Joanna Close-Brooks (1984) to suggest similarities with 'platform cairns' of Dark Age date, some of which have Pictish associations. The cropmark examples display enough similarity with the upstanding remains to suppose that the central graves, including that at Boysack Mills, where the evidence is suggestive but inconclusive, may also have been covered by a low cairn or barrow, or by a small central mound.

At Boysack Mills, the square-plan ditch was continuous. Many cropmark examples are of this kind, but there is also a significant number in which causeways cut across the ditches. In such cases, the causeway may cut across one side of the ditch giving the appearance of an entrance, but they also occur across one or more corners of the square-ditch giving a particularly diagnostic characteristic to the sites. This phenomenon is most commonly observed in the northern examples, but it is also known in Angus and Fife (Murray 1991). The causeways may cut one, two, three or all four corners. Large stones were found strategically placed in the causewayed corners in the excavation of the cairns at Garbeg (Wedderburn & Grime 1984) and attention has been drawn to stone posts placed at the corners of some of the platform cairns, as at Ackergill, Caithness (Close-Brooks 1984).

Square-ditched barrows are commonly 4–6 m in dimension, and Boysack Mills falls comfortably within this range, although a few are up to 14 m across. A few still larger enclosures are known which may be related to this series of monuments, including Kinchyle, Nairn (Maxwell 1983, fig 28), a possible site at Invergighty Cottage, Angus (NGR: NO 620 495) and the enclosure at Melville Home Farm, Fife (NGR: NO 292 132), some 20 m in diameter with causewayed corners. At this last site, part of what may be a circular enclosure is also visible on aerial photographs, adjacent to a standing stone bearing a figure of a Pictish warrior complete with rectangular shield and spear (Murray 1991, 38).

Of all the sites discovered by aerial photography only two have been excavated: Boysack Mills and an example at Balneaves Cottages, Angus (NGR: NO 605 497). Here, a ring-ditch, showing as a cropmark in the same field, produced a Bronze Age cremation cemetery, but no

trace was found of the square-ditched barrow which had either been completely destroyed by the plough or had been a freak cropmark (Russell-White *et al* 1992).

The dating evidence from the burial at Boysack Mills I is to some extent unsatisfactory. The radiocarbon dates cannot be used to date the burial itself, as they are equally likely to relate to a later disturbance whether or not the hypothesis of a stone grave marker is correct. Dating, therefore, rests with the projecting ring-headed pin which places the burial most likely in the first or second century AD. This interpretation clearly poses problems for attempts to identify a unitary funerary tradition by assimilating the cropmark evidence for square-ditched graves with that from excavations at Garbeg and platform cairns elsewhere (Maxwell 1987; Ashmore 1980). The concentrated distribution of these series within Scotland north of the Forth/Clyde isthmus, and their substantial coincidence with distributions of place-names and symbol stones predominantly in eastern sectors of the country, has fuelled the proposition that these graves are Pictish. If the proposed date for the pin is accepted, however, the inhumation at Boysack Mills I would have taken place before the historical emergence of the Picts. Without further evidence, therefore, it is difficult to be conclusive about the relationship of Boysack Mills to other cropmark examples, particularly the series with causewayed ditches, and also difficult to confirm the tenuous relationship with the upstanding examples. No other example of a grave pit exhibiting the features discovered at Boysack Mills I has been found in Scotland, either unenclosed or within a square-ditched enclosure.

Although the inclusion of stone (other than those edging long cists) is recorded in a number of instances in first millennium AD graves in Scotland (for example, those investigated by Wedderburn & Grime 1984), there seems to be no close parallel for the arrangement encountered at Boysack Mills I. Recently, however, the examination of a substantial pit at Longforgan, near Dundee, as part of a rescue programme in advance of the Perth-Dundee trunk road, revealed a number of substantial stone slabs, seemingly disturbed, in the upper fill (CFA 1994). This grave-like pit, which lay in arable land adjacent to an area which has produced fragments of Pictish stones, is undated and lacks any surviving indication of either a burial or a surrounding square ditch; conceivably representing a robbed, stone-lined grave, it may nonetheless bear some relation to that from Boysack Mills I.

There is similarly little parallel for Boysack Mills II in Scotland. Given the incompleteness of this site, the absence of a grave may be accounted for in a number of ways. The Yorkshire series, for example, include square barrows with either very shallow graves or none at all. Eradication through subsequent agricultural activity may be a sufficient explanation, but it is equally possible that the square form was also used for other functions. Some examples of small square enclosure on the European mainland seem to have surrounded small post-built structures: the cemetery at Fin d'Ecury (Marne, France) provides a well-known example (Piggott 1968, fig 12). In the case of a series of small rectilinear enclosures lacking burials, on the margin of the late Iron Age cremation cemetery at Westhampnett, Sussex, Fitzpatrick (1992, 11) has posited that these may have been 'areas where the spirits of the dead were released and where the living went to mourn'.

SQUARE-DITCHED BARROWS OUTSIDE SCOTLAND

Square-ditched enclosures surrounding burials are better known outside Scotland. Geographically, the closest are those of the extensive series from Humberside and Yorkshire east of the river Ouse (Stead 1979, fig 9). These were initially set into their wider context as square barrows by Stead (1961) and have subsequently been the subject of extensive excavations, most recently

considered by the same author (1991). The principal *floruit* of inhumation under square barrows in this area seems to have been in the second century BC, with initial burials attributable to a phase broadly contemporary with La Tène B on the European mainland and perhaps lying in the fourth century BC. Stead's main burial series, Type A (1991, 179–84) — characterized by crouched or contracted skeletons in north/south graves predominantly with the skull at the north end, facing east — seems to have terminated a century or more before the Roman Conquest.

A later series, Type B, is marked amongst other traits by the great rarity of brooches amongst the grave goods, and shares with the Boysack example a broadly east/west orientation, as well as flexed or extended inhumation. Type B graves also include a number of iron swords, some of which had straight scabbard mouths, perhaps indicating the continuation of this type into the first century AD. Burials of Type B are known primarily from the Makepiece cemetery at Rudston (Stead 1991), where they include all examples (with one exception: R 159) greater than 1 m in depth. The maximum attained is 1.3 m for an extended inhumation lying in a somewhat unusual position and accompanied by a sword (R 182), a depth broadly comparable with the 1.5 m encountered at Boysack Mills I. In 12 instances, ditch dimensions for Type B burials at Rudston are securely known: these include two circular examples, both 3.6 m in diameter, the remainder being rectilinear and varying in size from 4.2 m by 3.2 m (R 107) to 7.4 m square (R 169), with a number of examples (R41, R159, R163 & R173) lying fairly close to the dimensions of Boysack Mills I. Evidence for wooden coffins (equally lacking nails or other metal fitments) was also recovered in some of these burials, but they offer no parallels for the inclusion of the boulders encountered at Boysack Mills I. In the Yorkshire examples, grave fillings seem to be entirely dominated by immediately available materials, consisting of earth and chalk gravels.

Excavations in Wales at Tandderrwen, Denbigh (Brassil *et al* 1991) revealed square-ditched barrows alongside unenclosed long graves aligned east/west and radiocarbon-dated to the sixth to eighth centuries AD. South of the site a large enclosure, 23 m in diameter with causeways in the middle of each side, may also have held a central burial. This enclosure was strategically placed round a Bronze Age round barrow (Brassil *et al* 1991, 46–97).

Stead (1979, 29–35; fig 10) reviewed the distributional and chronological evidence for Iron Age square or rectangular barrows within Britain and on the European mainland. Within southern Britain, separate from the East Yorkshire series, are some immediately pre-Roman examples. These almost all surrounded cremations, as at Baldock, Hertfordshire (Stead & Rigby 1986, 60–1); both there and at Owslebury, Hampshire, they were closely related to contemporary settlements.

EXAMPLES FROM THE EUROPEAN MAINLAND

Across the English Channel, known instances from Champagne-Ardennes have been increasing in number: early examples date to La Tène I and the series continued into early Gallo-Roman times. Cremations are recorded in association with square enclosures from La Tène C and dominate during La Tène D. These square enclosures display very considerable variety in terms of their spatial organization, development through time, and associations with post-built structures (Flouest & Stead 1981; Lambot 1993, esp. fig 2). Stead (1979, 32) was also able to indicate that square enclosures were features of Second Iron Age cemeteries elsewhere in northern and east-central France. The upsurge of aerial reconnaissance and rescue excavation in that country demonstrates that such features are more widespread than when Stead compiled his account, extending in particular to the west of the Seine (Pion & Guichard 1993 provide a summary inventory). Immediately outside the oppidum on Mont Beuvray, Burgundy, an

extensive series of small square barrows straddles a network of tracks approaching the site (Flouest 1994).

Roymans (1990) has reviewed the evidence for northern Gaul, pointing out that in some cemeteries, notably the huge example at Wederath-Belginum (Kreis Bernkastel) near Trier, the introduction of rectangular enclosures around groups of cremations (*Grabgärten*: eg Haffner 1980, Abb 2) was a feature of Augustan times. Previously, very few graves in this cemetery had been surrounded by rectilinear ditches: grave goods suggest these latter were of prominent persons. The appearance of rectilinear *Grabgärten* in the funerary record of the Neuwied Basin and lower Moselle also may not precede the Roman period. In contrast, in the southern Netherlands and the German lower Rhine area, square enclosures enclosing graves first appear in developed phases of the *Niederrheinische Grabhügelkultur*, broadly contemporary with Hallstatt D/La Tène A and hence c 500 BC; the burial rite in use here was cremations. Roymans (1990, 235) remarks that the tradition of digging rectangular ditches round graves is found again in this area in some native cemeteries of the Roman period.

CONCLUSION

The Boysack Mills I square-ditched grave shares some traits with the Yorkshire series, with Iron Age examples on the European mainland and with later British examples. There is no case, however, from the diversity of grave forms and rites represented, to argue for direct influence to eastern Scotland, the more so since the sole artefact recovered, the ring-headed pin, is essentially a north British type.

What is more apparent is that a square ditch surrounding a barrow covering a burial is a style of funerary monument that extends over a number of centuries and has a wide European distribution. This burial form often appears with others such as round barrows or circular enclosures, perhaps representing mixed burial traditions or continuity of sanctified ground. Thus, it is clearly not, in itself, as diagnostic of period or culture as once thought. Boysack Mills remains, for the present, unique.

APPENDIX 1: THE BEAKER BURIAL

Lisbeth M Thoms
with contributions by I A G Shepherd & M Harman

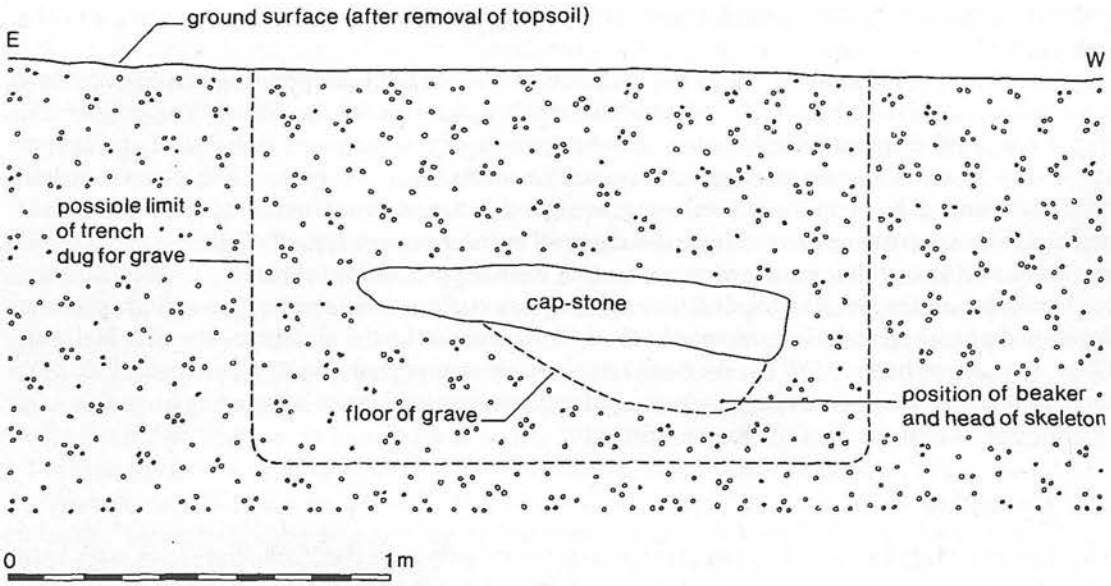
INTRODUCTION

A Beaker burial was discovered in the course of gravel quarrying in June 1978 and was reported to Dundee Art Galleries & Museums. The burial lay on a ridge at a height of approximately 30 m OD above the north bank of the Lunan Water at Boysack Mills (NGR: NO 6275 4908), approximately 100 m south-east of the square-ditched enclosures and other features excavated in 1977 (illus 1).

The burial had been exposed, in section, high in the quarry face by a quarry operator who had removed a Beaker from the grave for safety. The author was held aloft in the bucket of the JCB to make a brief examination of the exposed features and to remove the skeletal material.

THE BURIAL

The fairly well-preserved skeleton of an adult female lay in a crouched position on its right side facing south with head to the west. The Beaker was found positioned behind the head of the skeleton. The skeleton lay in



ILLUS 20 Cross-section of the beaker-accompanied burial

a shallow concave hollow dug in the gravel and covered by a stone 1.1 m long and 0.17 m thick (illus 20). The large slab seen in the section could have been a cist capstone but there was no trace of any side slabs in the quarry face nor could a slab be felt at the back of the cavity. The possible sides of a grave pit were observed but limits were hard to define with certainty because of infilling with the same loose gravel into which the grave had been dug. Unfortunately, due to the circumstances of discovery and recording, it was impossible to be certain about the form of the burial (ie cist or simple pit).

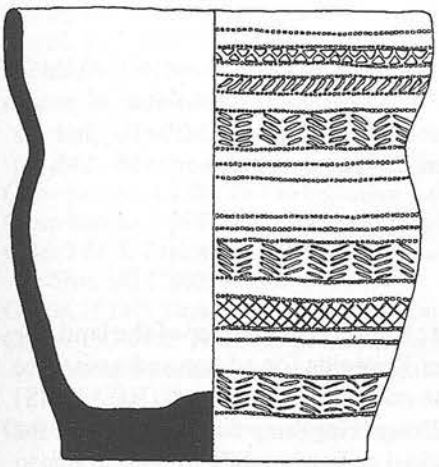
THE BEAKER

Ian A G Shepherd

The example recovered from the disturbed burial is a complete, well-fired, Beaker, very regularly made, standing soundly on a flat, slightly footed base (illus 21). Five vertical cracks and a small corroded patch on the neck are visible, but otherwise the pot is in excellent condition. The Beaker appears almost squat, rising as it does from a solid base and curving out to a broad belly at the mid point; the waist is pronounced and the neck distinctly cup-shaped. The rim is almost squared-off. The pot is 120 mm tall and 110 mm in diameter at the belly; the rim is 5 mm thick. There is an *omphalos* or central raised boss on the inside surface of the base.

The hard fabric has a grey core with occasional medium to large quartzitic grits showing through the exterior slip and the light brown internal surface. The outside surface is covered with a pinky-red slip which in small patches is buff; the undecorated zones have been lightly burnished.

The pot has been decorated in three broad zones (on the neck, belly, and just above the foot) using a toothcomb with irregular rectangular teeth, combined with a small, smooth-ended, very slightly curved spatula. The decorative scheme is closest to Clarke's Style c (1970, 12–13) and the motifs are drawn from his Motif Groups 2 (Primary Northern British/Dutch: nos 12 & 14) and 3 (Late Northern British: no 20) (1970, 425–6). The use of simple horizontal lines of toothcomb to fringe the zones and, in the case of the two pairs of additional lines just below the waist, to begin to bridge them, are characteristic of Clarke's Late Northern (N3) Group (1970, 176–7) and of Step 5 of the scheme of Lanting & Van der Waals (1972), as extended to north-east Scotland by Shepherd (1986).



ILLUS 21 The Beaker (Scale 2:1)

Close parallels for the combination of shape and zonation of decoration on this Boysack Beaker can be found in the N3/Step 5 Beakers from Lochend, Inverness (Clarke 1970, no 1667, fig 579), Upper Boyndlie, Aberdeenshire (*ibid*, no 1504, fig 622) and Fallaws, Angus (Coutts 1971, no 73). However, the fusion of zones is more complete on the two last Beakers than on the Boysack example, which retains some separation of the individual horizontal motifs, a typical archaizing feature of later Beakers (Clarke 1970, 23).

The absence of conclusive evidence of a cist suggests that the Boysack Beaker was deposited in a simple earth-dug grave of a type occasionally found within a ring-ditch, such as at the very early Beaker burial at Newmill, Perth & Kinross (Watkins & Shepherd 1980) or with a Beaker at Park Quarry, Aberdeenshire (Kirk 1994). Finally, the association with a female inhumation which is arranged in the classic manner for a Beaker female (ie on right, pointing west and facing south) should be noted. It has recently been suggested that the differentiation between Steps 4 and 5 may have been on the basis of the sex of the individual to be interred, rather than on specific stylistic grounds (Shepherd 1989, 80), Step 5 Beakers perhaps being exclusively for female burials.

THE SKELETAL REMAINS

Mary Harman

The skeleton is largely complete. Of the skull, only the left malar, the right temporal, and parts of the occipital remain. Four thoracic vertebrae, both ulnae, and most of the hand and foot bones are missing. Most of the bones are in good condition, though the few skull bones, the upper cervical vertebrae, some ribs and the right arm are poorly preserved.

A small mastoid process, and the relevant features of the pelvic girdle indicate that this skeleton is that of a woman, and the wear on the molars suggests an age of between 25 and 30 years, which is consistent with very slight evidence of osteo-arthritis on the last two lumbar vertebrae. The height, calculated from the maximum length of the long bones, including a femoral length based on an amalgamation of the incomplete left and right femora, is 1.682 m (5 ft 6 in), using Trotter & Gleser's formula (in Brothwell 1965, 102). Dental health was good; all the teeth in the mandible survive though the third molars probably have not developed, or else are retained within the bone. Nine loose upper teeth were collected. None of the teeth shows caries, and there is no sign of abscessing in the mandible.

ARCHIVE & ARTEFACTS LOCATION

The project archive was deposited with the National Monuments Record of Scotland (RCAHMS) soon after completion of the work and has been available for public use for a number of years. The ring-headed pin from Boysack Mills I, the flint and pottery from Boysack Mills IV, and the Beaker [Accession number 1980–272(1)] and skeletal material [Accession number 1980–272(2)] are in Dundee Art Galleries & Museums.

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Our thanks also to the following for their help in the post-excavation work: Joanna Close-Brooks for reporting on the pottery and for her comment on the iron pin; Audrey Henshall for reporting on the fabric and commenting on the pottery; Caroline Wickham-Jones for reporting on the flint; the (former) National Museum of Antiquities for the X-radiograph of the pin; Camilla Dickson (Dept of Botany, University of Glasgow) for charcoal identification; Mike Stenhouse (Radiocarbon Dating Laboratory, University of Glasgow) for radiocarbon dating; and to Patrick Ashmore (Historic Scotland) for his commentary on the dates. Illustrations are by Rosi Capper, Christina Unwin, and Helen Jackson (pottery). Tim Neighbour (Centre for Field Archaeology, University of Edinburgh) kindly provided information from his excavation at Longforgan in advance of publication. We owe a debt of thanks to Gordon Barclay whose threats, cajoling but above all encouragement have helped to bring this long-overdue report to publication.

Lisbeth Thoms is grateful to Tilcon Scotland Limited for reporting the burial and assisting in the recovery of the artefacts; to Mary Harman and Ian Shepherd for their specialist reports on the skeletal remains and beaker respectively; to Christina Unwin for the site drawing; to Marion O'Neil for the beaker drawing; to Anne Gallacher for typing the report; and to Historic Scotland through Gordon Barclay for financial assistance enabling the preparation of the report for publication.

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REFERENCES

Armit, I 1991 'The Atlantic Scottish Iron Age: five levels of chronology', *Proc Soc Antiq Scot*, 121 (1991), 181–214.

Ashmore, P J 1980 'Low cairns, long cists and symbol stones', *Proc Soc Antiq Scot* 110 (1978–80), 346–55.

Brassil, K S, Owen, W G & Britnell, W J 1991 'Prehistoric and Early Medieval Cemeteries at Tandderwen, near Denbigh, Clwyd', *Archaeol J*, 148 (1991), 46–97.

Brothwell, D R 1965 *Digging up Bones*. London.

CFA 1993 Centre for Field Archaeology 'Hatton Mill Farm, Kinnell parish', *Discovery Excav Scot 1993*, 95–6.

CFA 1994 Centre for Field Archaeology 'A90 Longforgan Interchange', *Discovery Excav Scot 1994*, 84–5.

Clarke, D L 1970 *Beaker Pottery of Great Britain and Ireland*. Cambridge.

Clarke, D V 1971 'Small finds in the Atlantic Province: problems of approach', *Scott Archaeol Forum*, 3 (1971), 22–54.

Cliquet, D, Remy-Watte, Monique, Guichard, V & Vaginay, M (eds) 1993 *Les Celtes en Normandie. Les rites funéraires en Gaule (IIIème–Ier siècle avant J-C)*. Rennes: Rev archéol de l'Ouest Suppl Ser, 6. (= Actes XIV Assoc Franç et Age Fer (Evreux, 1990)).

Close-Brooks, J 1984 'Pictish and other burials', *in* Friell, J G P & Watson, W G (eds), 87–111.

Close-Brooks, J 1987 'The clay moulds', *in* Hedges, J W, 303–4.

Coles J M & Taylor J J 1970 'Excavation of a Midden in the Culbin Sands, Morayshire', *Proc Soc Antiq Scot*, 102 (1969–70), 87–100.

Coutts, H 1971 *Tayside Before History*. Dundee.

Cowie, T G 1992 'Neolithic pottery from Barbush quarry, Dunblane, Perthshire, with notes on the earlier Neolithic pottery of eastern and central Scotland', *in* Sharples, N & Sheridan, A (eds), *Vessels for the Ancestors*, 272–85.

Cowie, T G 1993 'A survey of the Neolithic pottery of eastern and central Scotland', *Proc Soc Antiq Scot*, 123 (1993), 13–41.

Fairhurst, H 1984 *Excavations at Crosskirk Broch, Caithness*. Edinburgh. (= Soc Antiq Scot Monogr Ser, 3).

Fitzpatrick, A P 1992 *Westhampnett from the Ice Age to the Romans*. Salisbury.

Flouest, J-L 1994 'La nécropole de "la Croix de Rebout"', in *Centre Européen d'Archéologie du mont Beuvray: Activités 1993, Prévisions 1994*, 13–20.

Flouest, J-L & Stead, I M 1981 *Iron age cemeteries in Champagne. The third interim report on the excavations carried out between 1971 and 1978*. London. (= Brit Mus Occas Pap, 6)

Friell, J G P & Watson, W G (eds) 1984 *Pictish Studies. Settlement, burial and art in Dark Age northern Britain*, Oxford. (= BAR Brit Ser, 125).

Haffner, A 1980 'Neue Ausgrabungen im keltisch-römischen Gräberfeld von Wederath-Belginum', *Funde und Ausgrabungen im Bezirk Trier*, 12 (1980), 16–45.

Halliday, S 1985 'Unenclosed upland settlement in the East and South-East of Scotland', in Spratt, D & Burgess, C (eds) *Upland Settlement in Britain. The Second Millennium BC and After*, Oxford, 231–51. (= BAR Brit Ser, 143).

Hedges, J W 1975 'Excavation of two Orcadian burnt mounds at Liddle and Beaquoy', *Proc Soc Antiq Scot*, 106 (1974–5), 39–98.

Hedges, J W 1987 *Bu, Gurness and the Brochs of Orkney: II Gurness*. Oxford. (= BAR Brit Ser, 164).

Henshall A S 1963 *The Chambered Tombs of Scotland*, vol 1. Edinburgh.

Henshall A S 1972 *The Chambered Tombs of Scotland*, vol 2. Edinburgh.

Kendrick, J 1982 'Ironshill, Inverkeilor parish', *Discovery Excav Scot 1982*, 30.

Kendrick, J 1995 'Excavation of a Neolithic structure and an Iron Age settlement at Douglasmuir, Angus', *Proc Soc Antiq Scot*, 125 (1995), 29–67.

Kinnes, I A 1985 'Circumstance not context: the Neolithic of Scotland as seen from outside', *Proc Soc Antiq Scot*, 115 (1985), 15–57.

Kirk (no initial given) 1994 'Park Quarry', *Discovery Excav Scot 1994*, 27.

Lambot, B 1993 'Nécropoles, sanctuaries et rites funéraires en Champagne à la Tène finale,' *in* Cliquet *et al*, 211–24.

Lanting, J N & Van der Waals, J D 1972 'British beakers as seen from the continent: a review article', *Helinium*, 12 (1972), 20–46.

Maxwell, G S 1983 'Recent aerial survey in Scotland', in Maxwell, G S (ed) *The Impact of Aerial Reconnaissance on Archaeology*, London, 27–40. (= Counc Brit Archaeol Res Rep, 49).

Maxwell, G S 1987 'Settlement in Southern Pictland' *in* Small, A (ed.) *The Picts: a New Look at an Old Problem*. 31–4.

Murray, D M 1991 'Square-ditched Barrows and Enclosures', *in* Murray, D M (ed) *Forays into Fife: essays presented to J Davidson on the occasion of his retiral (1991), 35–41*. (Privately circulated paper.)

Piggott, S 1968 *The Druids*. London. (= Ancient Peoples and Places, 63)

Piggott S & Simpson DDA 1971 'Excavation of a Stone Circle at Croft Moraig, Perthshire, Scotland', *Proc Prehist Soc*, 37 (1971), 1–15.

Pion, P & Guichard, V 1993 'Tombes et nécroples en France et au Luxembourg entre le IIIème et le Ier siècles avant J-C. Essai d'inventaire', *in* Cliquet *et al*, 175–200.

Pollock, D 1983 'Ironshill, Inverkeilor parish', *Discovery Excav Scot 1983*, 34.

Pollock, D 1985 'The Lunan Valley Project: medieval rural settlement in Angus', *Proc Soc Antiq Scot*, 115 (1985), 357–99.

RCAHMS 1978 Royal Commission on the Ancient and Historical Monuments of Scotland *The Archaeological Sites and Monuments of Lunan Valley, Montrose Basin, Angus District, Tayside Region*. Edinburgh.

Ralston, I & Inglis, J 1984 *Foul Hordes: the Picts in the North-East and their Background*. Aberdeen.

Roymans, N 1990 *Tribal Societies in Northern Gaul: an anthropological perspective*. Amsterdam. (= Cingula, 12).

Russell-White, C J, Lowe, C E & McCullagh, R P J 1992 'Excavations at three Early Bronze Age burial monuments in Scotland', *Proc Prehist Soc*, 58 (1992), 285–324.

Shepherd, A N 1989 'A note on the orientation of beaker burials in north-east Scotland', *in* Greig, M K, Greig C, Shepherd, A N & Shepherd, I A G 1989 'A beaker cist at Chapelden, Tore of Troup, Aberdour, Banff and Buchan . . .', *Proc Soc Antiq Scot*, 119 (1989), 73–81.

Shepherd, I A G 1986 *Powerful Pots: Beakers in North-East Prehistory*. Aberdeen.

Shepherd, I A G 1993 'The Picts in Moray', *in* Sellar, W D H (ed) *Moray: Province and People*, Edinburgh, 75–90.

Sherriff, J R 1981 'Boysack Mills, Inverkeilor parish', *Discovery Excav Scot 1981*, 45.

Stead, I M 1961 'A distinctive form of La Tène barrow in eastern Yorkshire and on the continent', *Antiq J*, 41 (1961), 44–62.

Stead, I M 1979 *The Arras Culture*. York.

Stead, I M 1991 *Iron Age cemeteries in East Yorkshire. Excavations at Burton-Fleming, Rudston, Garton-on-the-Wolds and Kirkburn*. London. (= Engl Heritage Archaeol Rep, 22).

Stead, I M & Rigby, V 1986 *Baldock: the excavation of a Roman and pre-Roman settlement 1968–72*. London. (= Britannia Monogr Ser, 7).

Stevenson, J B 1984 'Garbeg and Whitebridge: two square-barrow cemeteries in Inverness-shire', *in* Friell, J G P & Watson, W G (eds), 145–50.

Stuiver, M & Reimer, P J 1993 *Radiocarbon*, 35 (1993), 215–30.

Watkins, T F & Shepherd, I A G 1980 'A beaker burial at Newmill, near Bankfoot, Perthshire', *Proc Soc Antiq Scot*, 110 (1978–80), 32–44.

Wedderburn, L M M & Grime, D M 1984 'The cairn cemetery at Garbeg, Drumnadrochit', *in* Friell, J G P & Watson, W G (eds) 151–67.

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Pictish homes

Ian Ralston

'As the Picts were apparently a heterogeneous people, we should not expect to find a cultural uniformity among them ...' (Wainwright 1955, 87)

Introduction

The late Frederick Wainwright's review of Pictish houses and Richard Feachem's study of fortified settlements (both 1955) form the baseline for all subsequent archaeological approaches to the secular domestic architecture of northern Scotland in the second half of the first millennium AD. Although pervaded with that pessimism which, retrospectively, seems to have been such a characteristic of post-Second-World-War considerations of the archaeological (as opposed to the art historical) aspects of Pictish culture, Wainwright's study in particular perceptively looked forward. He listed some of the several possible categories of settlement units then recognised in the landscapes of Scotland north of the Forth-Clyde isthmus that might in due course be attributable to the Picts.

After the passage of some four decades, the amount and range of evidence available have increased rapidly, indeed almost exponentially, in so doing bolstering Wainwright's salient comments on the likely variability in the settlement record of this period. A major contribution has been provided by the results of aerial survey, mostly undertaken or sponsored by RCAHMS, more particularly of the cropmarked lowlands within the zone. This source of new data continues to offer a counterpoint to the recently-accumulated excavation evidence, for which much of the information on houses has been generated in the North and West, and more particularly from the Orkney Islands. In this essay, submitted with great pleasure in acknowledgement of Dr Henderson's major contribution to other dimensions of Pictish studies, it is on this aspect – variability in the settlement record – that I should like primarily to focus. This account does not attempt more than a preliminary view on the range of building forms represented in the archaeological record, nor on how they may be interpreted.

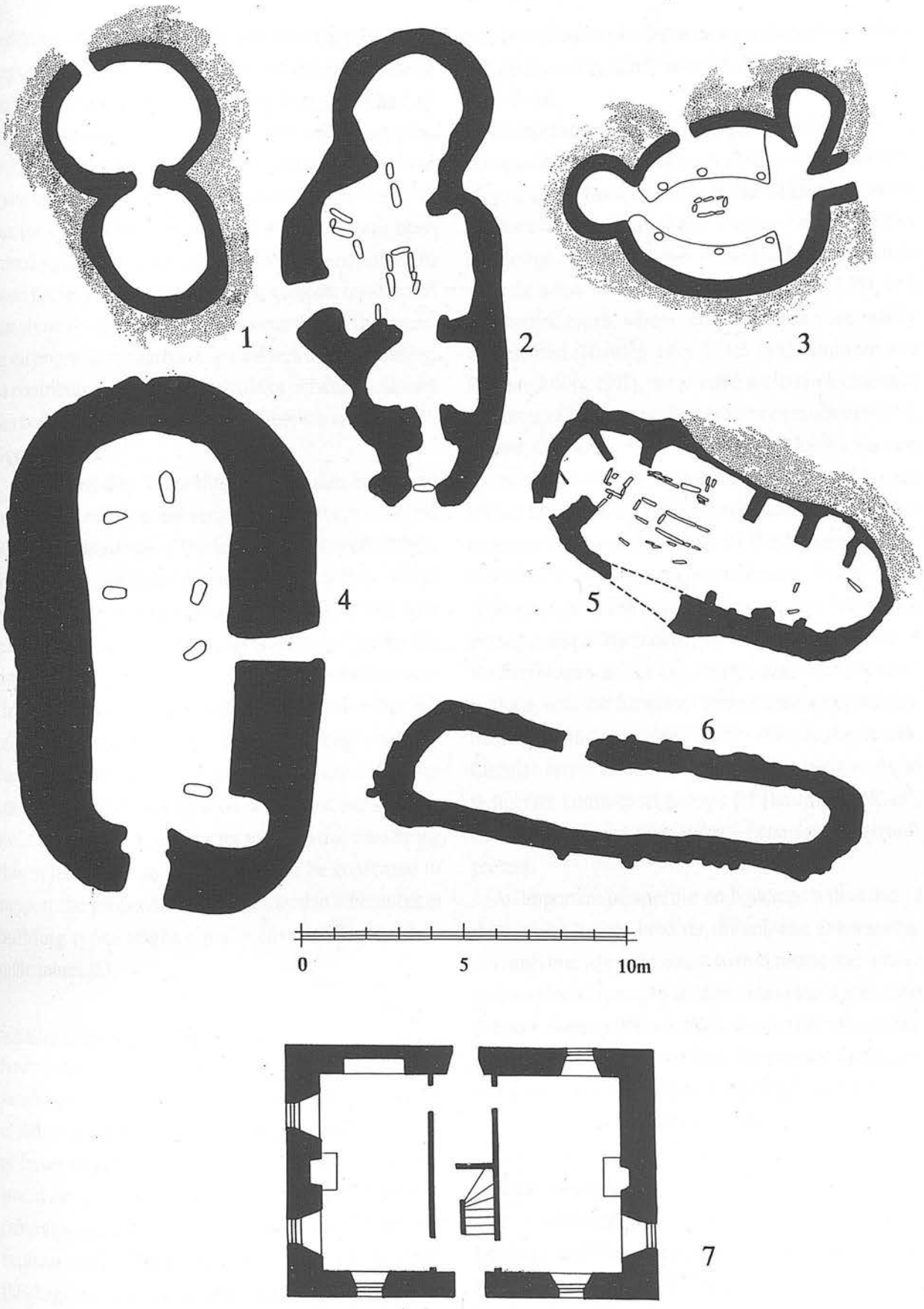
Some factors influencing variability in architectural forms

Resources and environment

In itself, the degree of variation manifest in the secular domestic architecture of the first millennium across the great stretch of land between Flanders Moss and Muckle Flugga need occasion no particular surprise. It is, of course, partially conditioned by the availability of building materials, and by environmental factors such as rainfall and wind regimes. Papers in a recent volume summarise our present knowledge of the potential influence of such factors (Edwards and Ralston 1997).

The area encompassed in this account is topographically varied. Some of the most fertile lowlands of Scotland, such as those of the Laigh of Moray and north-east Fife (where, even allowing for millennia of human impact on the vegetation cover, hardwoods for building would still have been obtainable) are included. Much more rugged terrain, the latter characterised in all likelihood by limited supplies of building timber (and that often softwood) in some localities and less tractable stone (such as gneiss) for construction in others is also widely represented.

Even allowing for driftwood, timber for constructional purposes may have been of very restricted availability on some of the off-shore islands. The complex geology and topography of Scotland means that there is no simple south-to-north or similar trend in the qualities of the materials available. For the North, for example, the finely-



I. Ralston

1 *Some typical and atypical Pictish buildings:* **1** *Carlungie, Angus* **2** *Buckquoy, Orkney* **3** *Coileagan an Udail (Udal), North Uist* **4** *Wag of Forse, Caithness* **5** *Howe, Orkney* **6** *Pitcarmick, Perthshire (after Alcock, 1984, Ballin Smith, 1994, and Stevenson, 1991) with* **7** *Old Gruline House, Mull ground floor plan (after RCAHMS 1980) of late eighteenth century house as a scalar comparison*

bedded sandstones, so readily splittable into serviceable flags, of the Caithness plateau and the Orkneys provide an excellent resource for dry-stone building. This had, of course, been appreciated since Neolithic times, as remains visible in the outstanding architectural achievements of some chambered cairns. At Midhowe on Rousay, the wave-cut rock platform, from which slabs would have been prised for both the magnificent stalled cairn and, millennia later, the broch and its surrounding complex constructed just above the shore, illustrates this excellently. The impact of varying lithic resources extended well beyond building; its contribution to the artistic qualities of Pictish sculpture has been the subject of comment (Henderson 1958, 1972; Gordon 1956).

This variability in building styles is also familiar to students of more recent vernacular architecture. Robert Naismith's *Buildings of the Scottish Countryside* (1985), for example, includes a map (Map IV, p.156), which endeavours to present graphically the principal character zones represented in vernacular buildings of pre-Recent times within the country. Overall, some twelve such character sets are identified within Scotland: more than half of these are included within the area that might formerly have been labelled Pictland. The picture is further complicated by the recognition of a second tier of minor variations within these character zones, so that transferring this pattern back in time might well be construed to support the proposition that considerable differences in building types might equally characterise the first millennium AD.

Social, symbolic and other factors

Such variation, however, goes beyond that which might simply be accounted for in terms of the relative accessibility of different resources and the presence of environments of lesser or greater hostility. For more recent times, it would be usual to include consideration of economic, cultural, social and other pertinent factors in the search for explanations for the types of architecture encountered. Buildings are of course far more than simple providers of shelter: encoded in their forms, internal arrangements and decoration (or its absence) are intimations of other cultural and social factors at work. They are thus also signs and symbols (Oliver 1975); and it would be reasonable to assume that such considerations were also encoded in the architecture of Pictland, even if it difficult for us now to grasp them.

Perspectives of this kind underpin the developing field of the social archaeology of houses (Samson 1990). Whilst, for example, it has long been a truism of later prehistoric studies that there is a marked contrast between British architectural forms, in which round-houses predominate in some areas well into the first millennium AD, and continental types, where rectilinear forms are mainly represented (Harding 1973; Villes 1983; Audouze and Büchsenschütz, 1992), the possible social ramifications of this contrast have not until recently been much explored. Indeed, Classical witness, in particular Strabo's testimony (*Geography,* 4, IV, 3) as to the existence of round-houses in Gaul has continued to obscure the issue. This case is of relevance to the present discussion, if only tangentially, as it proffers an indication of the significance of the external appearance of buildings to foreign observers. Strabo was perhaps simply contrasting the sharp rectilinearity of Mediterranean ashlar structures, seen under bright sunlight, with the altogether doucer outlines of wooden buildings standing under clouded skies further North. Circular forms remain remarkable for their rarity in temperate continental Europe (cf Harding 1974, 48), although – as in the Seine valley – examples are certainly present.

An important perspective on buildings is thus that of the outsider. It is not, however, the only one. Other studies of British Iron Age architecture have in recent years drawn attention to, for example: the perception and signification of house interiors (Barrett 1981); the variable monumentality of buildings perceived from the exterior, contrasted with how imposing or otherwise they might appear to their inhabitants and their guests (Armit 1990); pathways through domestic complexes and their potential socio-political ramifications, as suggested by access analysis (Foster 1989); and the possible cosmological referents of buildings and their orientations (Parker Pearson 1996; Fitzpatrick 1994; Hill 1995, fig 7a). These contributions illustrate something of the wide range of approaches now being brought to bear by archaeologists, conscious of theoretical stances developed in adjacent disciplines, to the consideration of domestic architecture. Such structures

had for long been considered by archaeologists primarily in terms of either seemingly straightforward cultural attributions, or with regard to the technologies vested, and different architectural solutions adopted (Musson 1970), in their construction. Some of the ideas contained in this literature may pertinently be applied to what we know of Pictish domestic architecture: '... given the artefact', as Brunskill expressed it (1982, 18), 'one may, in theory at least, deduce the circumstances in which it was created'.

Another perspective on first millennium AD domestic buildings may be offered by comparisons with sources other than archaeological ones, as has been considered for Irish material (Murray 1979). For a variety of reasons there rehearsed, the correlations between historical documentation and the evidence recovered by excavation are less than absolute, although some documented features are recognised in archaeological plans of buildings. Such material is however of additional interest in a number of ways: in illustrating (albeit in an assuredly idealised way) the link between social position and architectural forms; and in providing impressions of internal furnishings and decoration and other features – perhaps most notably windows – unlikely to be recovered in many excavation circumstances.

Domestic buildings in Pictland

Variations in plan

Much of the recent commentary on later prehistoric houses has so far been focused on such dualisms as round *versus* rectangular, the monumental against the less imposing, and essentially concentric subdivisions of internal space contrasted with arrangements marked by a prominent central space with attached subsidiary cells. It will be argued below that the architectures of Pictland as presently known provide indications of almost all these threads (**1**). Juxtaposing the results of more recent excavations and surveys with what was already appreciable by Wainwright, it is clear that the domestic buildings of first millennium Pictland demonstrate the co-existence of round, multicellular and rectilinear traditions of construction. Thus if buildings are indeed to be seen as signs and symbols, such diversity implies that the messages the buildings conveyed to their inhabitants and their neighbours may equally have been very divergent. Pictland is by no means unique in its approximately synchronous use of round and rectangular forms, although these may occur in different proportions in different areas. In Ireland, for example, a rectilinear house is abutted against a round *clochan* or beehive-hut with corbelled roof within the ring-fort at Leacanabuile, Co Cork (Edwards 1990, 25 and fig 9d), but Lynn indicates the limitations of the evidence for the strict contemporaneity of the two forms (1978, 31 with table 1). The evidence from Ireland rehearsed by Lynn (1978) and Edwards (1990, 26) points to the increasing adoption of rectilinear forms there from about the eighth century AD, an important change for which the influence of church forms, seemingly there always rectilinear, has been proposed (Lynn 1978). Whilst not excluding other potential sources of external influence, Lynn also pertinently notes that the adoption of different constructional techniques for church architecture may have spilled over into the domestic sphere (1978, 37).

The clustered and the isolated

Further, the characteristics of grouping amongst Pictish structures, as illustrated by more extensive excavation work, again suggest considerable variety in degrees of clustering, as has already been noted by Ritchie (1977). This is best exemplified by the relationships between Pictish structures set within or around complex Atlantic round-houses or brochs, and those in other settings. In the first cases, tight clusters are often apparent, whether within the former broch, as in Professor Harding's excavations at Dun Bharabhat, Lewis, or in partially contiguous arrangements in its immediate vicinity, as at the Howe, on the mainland of Orkney (Ballin Smith 1994). Northern sites lacking evidence for pre-existing structures in the complex Atlantic round-house tradition can display even more complexity: Hunter has recently described the new structures of the second Pictish phase at Pool (Sanday, Orkney) as being 'of a variety of shapes and sizes, all essentially cellular, and all connected by a labyrinth of conjoining passages and openings' (1997, 14). Such patterning offers an immediate contrast with other sites, where the gaps between individual structures are greater. The spacing of structures obtaining in Professor Hunter's excavations on the Brough of Birsay (Hunter 1986) or in the Scotto-Pictish phase mapped by Crawford at the Udal, North Uist, where the 'ventral' buildings were also located some way from the

wheel-house of the previous settlement horizon provide examples.

It has, however, to be acknowledged that repeated use and sequential modifications to buildings at some of these sites may in fact reveal successive phases of decline, or of expansion, rather than the co-existence of numerous serviceable buildings. The evidence for the apparent decline of both Howe and Pool from around the middle of the first millennium is rehearsed by Shepherd (1994, 276–7) and Hunter (1997). Moreover, as Alcock (1984, 17) has already noted, not all secondary occupations associated with earlier major dry-stone buildings in the North and West exhibit such radical changes in their character and layout: the secondary insertion of radial piers within the Broch of Burrian, Orkney, for example, may imply the re-establishment of a community no larger than its Iron Age predecessor on the site.

Behind such differences in the spacing amongst domestic units must lie distinctions in the way human groups organised their daily rounds. Such apparent variation in social patterns at the community scale may be of importance in the further development of wider considerations. For example, the centralising tendencies and emerging political complexity argued to be witnessed by other strands of evidence from first millennium northern Scotland (summarised by Foster 1996), not least from the sculpture itself, may find echoes in such arrangements. It may not be insignificant that another largely new suite of sites – the square barrows and cairns – equally proffer contrasts among sites clustered to varying degrees. At Garbeg, Inverness-shire (Stevenson 1984: Wedderburn and Grime 1984) and some of the Lunan Valley, Angus, examples, such as the cropmark evidence from Invergighty Cottage, the burials are tightly clustered. In others, the graves and their covering mounds seem to be more dispersed. Instances of the latter arrangement are furnished by Greig's important work at Lundin Links, Fife (Close-Brooks 1984, fig 5.11) and by the distribution of square barrows – again known solely from aerial photographs – within the croplands at Pitairlie, Moray District (Shepherd 1993; Shepherd and Grieg 1996, no 46). It may not be entirely idle, in making this connection between houses of the living and the repositories of the dead, to point out that the axial arrangement of conjoined cairns visible at Lundin Links, has already been noted by Alcock in relation to the arrangement of the houses of the Far North. For cemeteries, too, the accruing evidence essentially post-dates Wainwright's 1955 study, where the eye cast over graves was almost as forlorn as that focused on houses.

Some characteristics of buildings in 'peripheral' Pictland

In terms of Pictish buildings themselves, the principal headway that has been made in recent years has been in 'peripheral' Pictland. A major fillip was furnished by Ritchie's excavations at, and prompt publication of, Buckquoy on Orkney (1977). Since that time, nearly every northern site tackled has served to extend the range of building types marked by the presence of at least dry-stone footings, and continues so to do, as at Traigh Bostadh, Lewis (DES 1996, 113–14 and fig 36). Hunter's excavations at Pool on Sanday, Orkney, provide some of the clearest instances of structural variety, as well as indications of the change to rectilinear forms for domestic buildings – there are early instances also of a byre and courtyard – during his Pictish-Norse interface period (Hunter 1990; Hunter *et al,* 1993).

All examples of buildings excavated since the 1970s in 'peripheral Pictland' seem to be from unfortified sites, or sites which, if once defensible (as with the more elaborate of the Atlantic complex round-houses), no longer were substantially so during these centuries. At Gurness, on mainland Orkney, for example, the 'Shamrock' building lies outwith the area isolated by the ditches which surround the broch and its adjacent structures. To some extent, the tidal approach to, and cliff outline of much of, the Brough of Birsay on Orkney, make this site an exception to the general lack of concern for defence apparent at may of these locations.

The architecture identified on these northern sites offers an impressive array of forms and groundplans: from informal structures through conjoined circles and multicellular forms, axially arranged on occasion (Alcock 1984, 18), to much more rectilinear outlines, these latter occurring amongst the peripheral buildings at Howe and, as already remarked, at Pool (Sanday). All groundplans are far from reflecting readily-comprehensible layouts,

however; Hunter (1997, 8) notes 'the combination of asymmetry, irregularity and disorder' evidenced in some phases at some of these sites. There is also considerable variation in the sizes of buildings that are represented. Those at Udal enclosed areas of the order of 20m² (Alcock 1984, 18), not dissimilar to the floor area of the house of an eighth century freeman of the lowest grade in Ireland, as reconstituted from literary testimony by Murray (1979). Others (eg **1**) are much more substantial.

It is usually considered (eg Ritchie 1995) that the dry-stone footings – in which double-faced walling can often co-exist with elements revetted into midden or pre-existing structures – that constitute the bulk of the surviving evidence would have been complemented externally by divots of turf. The result would have been to produce well-insulated walls, which it is proposed were surmounted by either turf-covered roofs supported on timber frames, as were the Norse structures which sometimes succeeded them (Crawford 1987, 141). More especially in the case of their circular components, roofing may have consisted of stone corbelling. The evidence for repeated rebuilding on some sites, sometimes re-using extent walling, and sometimes based on previously-collapsed stonework, suggests that structural instability was a not-unfamiliar problem. As Foster (1992, 227 and fig 42) has noted, buildings of subrectangular form on the Northern mainland, as at the Wag of Forse, Caithness, may also date to this period.

Many of these houses combine horizontal stonework with upright slabs lining their walls and sometimes forming internal subdivisions. Unlike Norse houses, for which Crawford (1987) has recently suggested that wood was much more substantially employed than has usually been surmised, there does not seem to be a case for arguing for much greater use of wood within most of the northern Pictish period buildings than has standardly been posited. More substantial use of timber should perhaps not be ruled out, however; in this regard, whilst attention has been drawn to the excellent building stone of the Caithness plateau, Zeune (1992, 119) remarks that the hall constructed for Alexander III's visit to Caithness in 1263 was of timber.

The Pictish 'heartlands'

Timber architecture and nails in forts and elsewhere

Timber architectures have generally been less well served by recent excavation programmes, although even in their case there are numerous intimations of additional types, for some of which more secure evidence can be anticipated: timber halls, considered further below, are a case in point. In the meantime, as an indication of the carpentry and other skills potentially represented in domestic Pictish timber buildings, fortifications still provide much of the strongest evidence, and offer a complement to other structural detail recovered in excavations furth of Pictland.

This set of evidence is interesting in a number of ways. First, the use of iron spikes to hold together the internal timber framework within the defences at Burghead, Moray (Edwards and Ralston 1978, with earlier references), and, on the south-western margin of Pictland, at Dundurn (Alcock *et al* 1989) surely represents – as it does in the *murus gallicus* tradition (Ralston 1995) of late Iron Age continental Europe – conspicuous consumption of these items, and thus an intimation of the possible importance of iron production. Whilst the use of iron nails, sometimes of relatively standardised lengths (Vaginay and Guichard 1988, 150–1), becomes a recurrent feature of house architecture in the nearer continent from about the second century BC, or even a little earlier, there are relatively few signs of this development even a millennium later in northern Scotland. Evidence is not, however, entirely absent. Howe on Orkney, for example, offers indications of both greater use of nails, more particularly during Phase 7 of that site's sequence, and some regularity in their lengths (Ballin Smith 1994, 217–8, 226), and nails were also recovered in quantity within one of the principal buildings of the Pictish-Norse interface period at Pool, Sanday (Hunter *et al* 1993, 279). It is of course possible that this seeming tardiness in the use of nails in buildings may have as much to do with iron's reduced survival possibilities in many Scottish soil conditions, as with its real level of use.

Carpentry

As regards woodwork itself, the carbonised timbers within the rampart framework at the Green Castle, Portknockie, Moray, display evidence for both half-check and mortise joints (Ralston 1987, figs 4-5). There are parallels for

complex jointing within fortifications far to the south at South Cadbury (Alcock 1982). These British sites share with examples to the East on the continent the renewed, indeed more elaborate, construction of Holz-Erde-Mauer-style fortifications, as previously found in later prehistory, and which culminate there in defences of around 1,000 AD at Behren-Lübchin in the former East Germany (Schuldt 1989) and Naszacowice (Poland) (Poleski 1992, Abb 17). It is a reasonable assumption that such sophistication in woodworking may also have been employed in some Pictish domestic architecture, the more so given the quality of timberwork, displayed in the mortised palisades that are a late feature the first millennium crannog at Buiston, Ayrshire (Crone 1991; 1993), as well as that known for example from wetland contexts, notably through the work of the Archaeological Wetland Unit in Ireland (Edwards 1990). Similarly, the Irish literary records (Murray 1979) and the remarkable-preserved seventh century structures at Deer Park Farms, Glenarm, Co Antrim, provide additional evidence for the sophisticated use of woods and wattling.

Earthfast timbers, post-pads and sleeper beams

Lastly, it may also be remarked that there are some indications of a further major development in timber architecture at this time. Throughout Scottish later prehistory, the construction of timber buildings seems to have remained substantially dependant on earthfast timbers, set in postholes, even if, once built, the buildings were quite capable of continuing to stand without reliance on this feature, as Reynolds (1994, 13) has been able to demonstrate at the dismantling of the reconstructed Pimperne round-house at Butser Experimental Farm in Hampshire. For first millennium AD buildings in Pictland, there is some evidence that such earth-fast uprights were no longer deemed essential. For example, at the Green Castle, Portknockie, the major building recovered has at least one internal post-pad (Ralston 1987, fig 3), and no sign of contemporary post-holes within the structure. Similarly, at Pool, on Sanday, Orkney, excavation evidence led Professor Hunter to posit the former existence of vertical timber members that were no longer always earth-fast in Pictish-Norse interface-period structures. Post-pads have also been recorded in post-Roman buildings further South, in Scotland at the Dod in Roxburghshire, and in the substantial buildings set at a late stage within Birdoswald Roman fort in northern England (Smith 1991, 277).

At Dundurn, Perthshire, the Glasgow University team revealed evidence that the palisade attributed to Phase 1 (*c*600 AD) was set in horizontal beams, here accommodated in a rock-cut groove; planks with pegged holes belonging to this stockade were also identified (Alcock *et al* 1989, 200–1). In other circumstances, where resistance to hostile attack was not part of the intention and thus anchoring the sill-beams was not essential, it is easy to consider similar constructional methods having been employed in domestic architecture, but without the use of rock-cut or other grooves. The illustration of the Temple in the Book of Kells (redrawn by Reynolds 1980) aside from the wood-working abilities and extensive decoration shown on it, seems to indicate the use of sill-beams for a structure in which buttresses (see also below) are absent.

In the zone of likely destruction, where archaeological evidence has been disturbed by subsequent ploughing and other activities, the detection of non-earth-fast timber architecture is likely to remain archaeologically problematic, and this may be a contributory factor in accounting for recognition problems in some regions of eastern Scotland with regard to Pictish timber-built buildings. As elsewhere, of course, structures in *Blockbau* style (Audouze and Büchsenschütz 1992), essentially built of horizontal timbers and well-suited to the use of softwoods, or those dependant on sleeper beams positioned directly on the ground or on relatively slight stone footings (Greene 1995, 91), pose even more serious challenges to archaeological recovery.

The nature of the record

Overall, concentrating uniquely on secular sites, the major change over the forty years since Wainwright wrote is that if, for him, the problem was what to include as Pictish architecture, the difficulty for the heartland areas of Pictland is now rather the converse. Amongst the settlement types of the 'greater Iron Age' – broadly the first millennia BC and AD – in Scotland north of the Central Belt, few can presently be excluded with confidence as unlikely to have been in use (or individual examples re-used) between the third and ninth centuries AD. Even those categories for which it is currently not possible to

point to a securely-dated example within Pictland, include some site types which elsewhere in Scotland are clearly attributable to the first millennium AD, as dendrochronological and radiocarbon determinations demonstrate. Crannogs in south-west Scotland may stand as an instance of this (Barber and Crone 1993), for here they are clearly a first millennium AD site type, as they are across the North Channel in north-east Ireland (Edwards 1990, 37, table 1; Crone 1993). There are no radiocarbon dates for examples north of Loch Tay, but it is possible that here too some may be attributable to the first millennium AD.

General considerations

In this treatment, macro-scale approaches to the identification of Pictish settlement in the heartland that have been used to identify preferred zones for Pictish settlement have been excluded from consideration. Whittington used the distribution of 'pit-' place-names (1975). Other studies have examined the co-occurrence of place-name and symbol stone evidence, as considered by Cottam and Small for Angus (1974) or by Shepherd for north-eastern material culture more generally (1983). So, too, has been any systematic survey of the accumulating cropmark aerial photographic record in relation to known and geographically-fixed elements of Pictish material culture (most notably the Class I and Class II sculpture). Individual instances of the co-occurrence of symbol-stones and cropmark enclosures have already been signalled, as at Barflat, near Rhynie in Aberdeenshire (Shepherd 1983; Ralston and Inglis 1984, 17; Shepherd and Greig 1996 nos 55–56), but as yet none of the associated cropmarks has been tested by the spade, and the definition of their character – whether secular or indeed Pictish at all – remains unconfirmed. Driscoll's study of Strathearn (1991) is a model of what is achievable without excavation through the fuller examination of the aerial photographic data.

Evidence from Early Historic sites

In recent years, the archaeological study of Pictish settlements south of the Moray Firth has been dominated by Emeritus Professor Alcock's sustained reconnaissance campaigns directed at Early Historic sites (as defined by him to comprise those sites with documentary evidence including associated historical dates). The nature of his targeted excavation strategies has meant that, whilst they have thrown considerable light on the fortification history of certain key sites, and, through their recovery of high quality objects, have produced key evidence for the presence of potentates within them, indications of domestic structures – as opposed to domestic and artisanal activities – within these sites remain sparse. This is the case, for example, at Dundurn, where clear evidence – excluding that of the fortifications – was restricted to a wattle floor, other structural elements including traces of floors, stone walling and post-holes being too fragmentary readily to be understood (Alcock *et al* 1989). Of the other sites of this series within Pictland tackled by the Glasgow University expeditions, only Urquhart Castle, above the shore of Loch Ness, provided a few archaeological clues as to the character of its internal buildings. Here, restricted amounts of evidence, primarily in the form of post-pits, inserted into a layer of cobbling, led Alcock and Alcock (1992, 248–60 and illus 26) to reconstruct both a single- and a double-aisled lean-to, backed against the fortification.

Whilst the evidence is necessarily tentative given the small scale of the excavation, it none the less furnishes another hint that timber-built structures in Pictland need not have possessed posts dug into the subsoil, and thus more likely to be recovered in many archaeological circumstances. The limited scale of excavation at Clatchard Craig, Fife, equally precludes extended discussion of the building types it may have held (Close-Brooks 1986), although a rectilinear house may be implied, albeit exceedingly tentatively, by the recovery of a stone-edged hearth of that shape, and a door pivot-stone. Many of the complex round-houses of the Atlantic middle Iron Age, however, contained rectangular hearths. In this instance, however, the attribution of the very Iron-Age-looking multivallate fort at Clatchard Craig wholly to the first millennium AD reminds us that it may be inadvisable to consider surface traces of buildings within other similar examples as forcibly attributable to the pre-Roman Iron Age.

The ring-forts of Perthshire: circular homesteads

In his recent synthesis, Taylor strongly disavows the use of the term 'ring-fort' to describe the series of heavily-walled

circular enclosures identified primarily in north-west Perthshire (1990), that have been traditionally so termed. Somewhat similar concerns have been raised about the use of this and related epithets for cognate site types in Ireland (Edwards 1990, 12), where the enclosures surround generally larger areas, up to some 35 m in diameter. In essence, recent excavation evidence points to this series of Perthshire sites having been substantial homesteads, with conical roofs perhaps set on their wall-heads and supported by internal timber uprights, more regularly disposed it would seem in the case of the partially excavated example at Litigan than at Queen's View, Allean Forest (Taylor 1990, figs 2 and 3 respectively). Dating evidence remains scanty (there is a single isotopic determination of 930 AD ± 90 (uncalibrated) for charcoal found above the subsoil at Litigan: Taylor 1990, 17). Taylor nonetheless constructs a reasonable case for seeing them, as Feachem (1955, 72) had earlier hypothesised, as a later first millennium AD phenomenon in Atholl, with a background in the West, and thus as perhaps indicative of Scottic penetration eastward. Since a preferred hypothesis in Ireland is to envisage the upsurge of ring-forts there as a response to technological developments introduced from sub-Roman Britain (Lynn 1983; Edwards 1990, 17–18), and the chronology of dun-houses (Harding 1984; 1997) in western Scotland remains contentious, the case is, however, far from clear-cut. A further distinction is that the 'wholly-roofed' hypothesis does not seem to have found favour even for smaller ring-forts in Ireland (Edwards 1990, 27). Whether it is applicable even to the larger Perthshire examples, some 80 ft (25 m) in diameter (Feachem 1955, 71), or to those with substantial rock outcrops incorporated in their circuits, also remains untested by recent work.

As Taylor readily admits, however, some of the few recovered artefacts from these Perthshire sites could belong distinctly earlier in the first millennium AD, and thus the possibility that these substantial round-houses represent a Pictish-period phenomenon in these uplands cannot meantime be discounted. Perhaps this set of buildings constitutes an instance of the reinvention of first millennium BC traditions of substantial round-house building, as Hingley has proposed for other cases in the Atlantic West (1995, 187). Before leaving these structures, we may note that their internal diameters are of the order of 14 m (Litigan) to 16 m (Queen's View), giving an internal area close to 200 m^2 in the case of the larger example.

Above-ground structures associated with souterrains

Wainwright (1955, 92; 1963) had of course drawn attention to the post-souterrain oval drystone houses of Angus sites like Ardestie, examined as a by-product of the rescue excavations on souterrains rendered necessary by their discovery during agricultural operations. It is now clear that at least some, and probably many, of these souterrains, now much more numerous as a result of the successful application of aerial photography (Maxwell 1987, fig 4), were attached to, and indeed entered from within, timber round-houses, as Watkins was able to demonstrate at Newmill in Perthshire (1980a). Watkins (1984, 77) has further proposed that the structures recognised by Wainwright in association with the Ardestie souterrain may have been work-places subsidiary to an unrecognised timber-built round-house located to the southwest of them. It also appears likely that a major function of these below-ground features was for storage, with the implications that some of them, being sizeable constructions, betoken the production of considerable agricultural surpluses. It may be that commodities such as cheeses and meats (rather than cereals) would have been held in their stable environmental conditions. As Maxwell (1987) has pertinently remarked, if there is considerable evidence for the infilling of classic souterrains around the second century AD, this act in itself seems to imply that settlement in their vicinity was intended to continue, as was demonstrated by the Ardestie and Carlungie excavations and, less securely, at Newmill (Watkins 1984).

If an, albeit debatable, case can be made for linking Perthshire ring-forts with their Atlantic Scottish and Irish counterparts, the same does not hold true for eastern Scottish souterrains. Whilst souterrains are very common in Ireland, and were certainly in use (seemingly including amongst their functions those of storage and of refuge) in the last quarter of the first millennium (Edwards 1990, 31–2), there is currently no evidence that the classic series continued to function, still less to be built, in Scotland at this time. No Scottish souterrain of this series is entered, for instance, from a rectangular house, and one main

reason for continuing to mention them in the context of Pictish habitation sites, is that they seem, as noted by Watkins (1984) and Maxwell (1987) to be indicative of locations that in several instances did continue in use after the demise of these particular structures later into the first millennium AD.

Now equally becoming clear as a result of excavations and aerial survey is the fact that such classic souterrains may be simply the most recognisable form of below-ground storage associated with first millennium domestic architecture in eastern Scotland. At Hawkhill, Easter Kinnear, in north-east Fife, a cropmark 'blob' – a fairly circular solid mark visible in cropmark aerial photography – was demonstrated to be a first millennium AD round-house, in this case incorporating a semi-sunken interior, interpreted again as a means of creating enhanced internal storage capacity (Watkins 1992, 474). Such features occur widely in the cropmark record of the valleys of eastward-flowing rivers in Scotland north of the Forth, and this may indicate that below-ground storage was much more frequently employed than had been assumed to be the case. This view had formerly been adopted as a result of the scarcity of storage pits on Scottish Iron Age sites, perhaps now more readily explicable as the by-product of a preference for other storage technologies for foodstuffs, rather than indicative of either a predominantly pastoral economy, as Piggott (1958) thought, or the unsuitability of Scottish ground moisture conditions to below-ground storage. This is not, however, the only possible explanation for 'blob' type marks, as opposed to annular or crescentic indications of former house emplacements: they could also result simply from better conditions of preservation, such as intact floor-deposits.

Watkins examination (1980b) of the site at Dalladies 2, near Fettercairn in Kincardineshire, also revealed the existence of a large series of distinctly less formal souterrains, termed by Maxwell (1987, 37) the 'small, irregular, multiple-patterned type', cut into the gravel spreads above the North Esk. A single radiocarbon date from this site points to its continuing use into the middle of the first millennium AD (501 AD ± 65 uncalibrated); the associated houses, like the predominantly stone-footed examples at Ardestie, were small and oval in plan, although in this instance post-built. If this chronological indicator for the continuation of the aforementioned souterrains is accepted, other similar traces visible in the cropmark record may be suggested as of broadly similar date. A potential instance, at Burnhead of Monboddo near Fordoun in the Howe of the Mearns, has already been published (Ralston 1983; Shepherd and Grieg 1996, no 73), and is of particular interest because of its close proximity to, and location on the same fluvioglacial gravel terrace as, a cropmark timber hall set within a circular enclosure at Monboddo. Burnhead of Monboddo shares with other examples identified by the Commission, such as at Arrat's Mill on the South Esk near Brechin, the presence of round-houses in which a radial mark, perhaps representing underground storage capacity, to which access was obtained from within the building, is apparent.

Stone-footed structures in eastern Scotland

Before turning to the possible existence of Pictish timber halls, it would be apposite to consider new evidence for stone-footed buildings of Pictish date from the eastern side of the country. To the set of post-souterrain dry-stone buildings already discussed by Wainwright, relatively few new examples have been examined by the spade. At Northwaterbridge, near Edzell, Small and collaborators (1974) identified an area of paving, not seemingly associated with postholes, adjacent to a souterrain which was argued to have been abandoned in an unfinished state, as a result of the instability of the deposits into which it was cut. Excavation conditions were far from ideal, but the authors felt able to suggest that in this instance the incomplete souterrain was an addition to an already-existing round-house. Mention has already been made of the more substantial structure recovered within the diminutive promontory fort at Green Castle, Portknockie. This consisted for the most part of single course of water-rolled stones defining the inner and outer margins of what may have been a turf-cored wall defining a building some 4 m wide, with rounded corners (Ralston 1987, fig 3). Unfortunately, only one end of the structure survived, but a minimum length of approximately 7 m is indicated. There is no evidence for the door position, and a considerably greater length cannot be excluded. Dr Anna Ritchie has proposed that this building may have been a 'feasting hall appropriate to a warlord's household' (1995, 23), but its

relatively modest scale may urge caution in necessarily seeing elite associations for it.

The Pitcarmick series

In numerical terms, the most significant addition to the corpus of likely medieval and potentially Pictish dry-stone structures in the heartland areas has been the identification of a series of buildings in the uplands of north-east Perthshire as part of the RCAHMS (1990, 12–13; Stevenson 1991) survey there. Named after the site of Pitcarmick, they display the following characteristics which distinguish them from the mass of broadly rectilinear post Medieval and pre-Improvement farmsteads: curved, and sometimes bowed, sides; rounded ends; a roughly trapezoidal outline; and, although not universally, the presence of annexes. Some display internal depressions at their narrower ends, suggesting sunken floors, which may again be attributable to storage within these buildings, or could be the by-product of keeping cattle or other livestock within them. The results of excavation at Pitcarmick itself (Barrett and Downes in prep), which indicate that such structures were in use during the last four or so centuries of the first millennium AD, confirm surface observations from sites like that at Lair in Glenshee (RCAHMS 1990, 150–2, no 291). There, a scatter of variants of this style of buildings are distributed amongst other stone-built structures, some of earlier type like hut circles, may be used as tentative support for an earlier, and hence Pictish, attribution. The Commission's Investigators have noted that Pitcarmick buildings tend more frequently to co-occur with hut circles than with pre-Improvement farmsteads, again supporting the proposition that the episodes of upland colonisation of which they are the archaeological witness may belong in the first, rather than the earlier second, millennium. In parentheses, we may remark, at least tentatively, that Wainwright's suggestion of searching for Pictish settlement amongst the deserted remains of other periods may at last have borne fruit on these Perthshire uplands (1955, 89). Measurement of a sample of Pitcarmick-type buildings from the Commission's plans (RCAHMS 1990) suggests that internal floor areas approaching 100 m^2 probably represents a reasonable order-of-magnitude size for these structures.

Timber halls ?

The existence of substantial timber buildings, normally referred to as halls, is a well-established aspect of post-Roman societies in many parts of Britain. These may occur individually, grouped on unenclosed sites, within palace complexes, as at Yeavering in Northumbria (Hope-Taylor 1977) and in fortified sites, as at South Cadbury, Somerset (Alcock 1972, fig 30). Buildings of this type have been identified as cropmark traces within the former extent of Pictland since the Commission's successful aerial sorties during the drought conditions of 1976. The readier acceptance of the Picts as 'not the mysterious, problematic nation of earlier ideologies' (Alcock 1987, 80), lends credibility to the likelihood that Pictish elites – at least in areas where the necessary timber supplies were available – may well have availed themselves, as did many of their contemporaries, of this kind of prestige structure. The background to the excavations, designed to test this possibility, at Balbridie, on a fluvioglacial terrace across the River Dee from Crathes Castle, in Kincardineshire, is ably sketched by Reynolds (1980). In particular the links, based on the pre-excavation cropmark evidence, with the plan of the sixth century British hall, Doon Hill A, in East Lothian, are rehearsed. This latter example, set above the eastern extremity of the Lothian coastal plain, was excavated in the 1960s by Dr Brian Hope-Taylor, and was demonstrated to precede an Anglian-style hall on the same site, the latter attributable to the advance of the Angles into Lothian in the 630s AD.

Despite the controversies that were raised at the time, there can now be no doubt that the Balbridie building, notwithstanding its initial similarities to Doon Hill A – notably its bowed gable ends and overall size – is much earlier in date, and belongs to the Neolithic period (Fairweather and Ralston 1993). This, however, need not imply either that the Doon Hill structure should be reattributed to an early farming community (in spite of Smith's hypothesis that its plan was laid bare by chance by the much later builders of Hall B at the site: 1991, 267), nor that the other timber halls that have been identified from the air between the Forth and the Moray Firth must forcibly be discounted as candidates for Pictish occupation. Maxwell (1987, 34) has outlined most of the evidence then available: with the exception of the suite of particularly

interesting structures at Lathrisk in Fife (Maxwell 1987, fig 2), the examples recognised from air photography are largely unenclosed singletons. In a few cases, two of which are mentioned further below, evidence of a thin circular enveloping ring, probably indicative of a palisaded enclosure, or a more substantial ditch, is evident on the air photography.

As regards such architectural detail within possible halls as can be perceived on the aerial imagery, some tentative comments are possible. Maxwell (1987) has commented on the possible links between the curvilinear annexes attached to one of the shorter ends of at least three of the Lathrisk structures and somewhat similar features at the ends of Doon Hill Hall B and its southern counterparts at Whitekirk, also in East Lothian (illustrated by Smith 1991, illus 9). There are, however, other puzzling features of the set of cropmarks at Lathrisk, notably the strongly marked axial arrangements which seem to be an omnipresent characteristic of them. Some sort of within-structure below-ground storage arrangement might be apposite, although this would conceivably interfere with the satisfactory roofing of these lengthy structures. Certainty as to the interpretation of the remarkable traces within the Lathrisk buildings will almost certainly have to await the spade. A notable distinction between the Balbridie building and many of the post-Roman halls known elsewhere (James *et al* 1984) is that Balbridie lacks any evidence for external buttressing, but unambiguous evidence of external raking timbers is absent in the suggested halls of Pictland, with the possible exception of Monboddo. Indeed, indications of buttresses are missing from some of the major halls of southern Scotland, such as Hall A at Sprouston, Roxburghshire (Smith 1991, 276). The apparent absence of buttressing in the depiction of the Temple in the Book of Kells fol 202v (Reynolds 1980, fig 1) has already been remarked. Large buttressed halls in the north of Britain, it has been suggested, may be a more narrowly Anglian phenomenon (Smith 1991, 284)

Amongst putative candidates in Pictland for the status of hall, some look from the cropmark evidence sufficiently close to Balbridie to be posited as potentially Neolithic: Wester Fintray, near the River Don downstream from Kintore, is a case in point and Smith mentions a further possible example at Auchenlaich near Callander, Stirlingshire (1991, 267). Such comparisons depend primarily on seeing the structural feature of bowed (or 'open-book', in Smith's felicitous phrase (1991, 267)), narrow ends as chronologically significant, and this may well not be sustainable. Others correspond more closely to the criteria rehearsed by James and his co-authors for first millennium AD halls (1984). The example, set centrally within a circular palisaded enclosure at Monboddo (Ralston 1983), still looks to the present writer from its groundplan one of the likeliest candidates for a Pictish elite residence. Another possible enclosed example is illustrated from Dalpatrick, Perthshire; this appears much more eccentrically placed relative to the enclosure line (Driscoll 1991, pl 5.2). In terms of potential roofed area, at least some of these structures sit relatively close to 200 m^2: Maxwell (1987) estimates 25 m by 9 m as the average size represented at Lathrisk, whilst the Monboddo building, rather closer to a length:breadth ratio of 2:1 than those at Lathrisk, seems to be of the same scale order in area terms. The lack to date amongst the important group of cropmarks constituting the royal centre at Forteviot of any indication of a feasting hall (Alcock and Alcock 1992, illus 10) may logically be ascribed either to the vagaries of cropmark formation or to the real absence of such structures in the fields adjacent to the Water of May. In light of the evidence rehearsed above, however, it may very hesitantly be proposed that major buildings in this later first millennium unenclosed centre (Ralston and Armit 1997, 230) may have been built using some of the techniques noted above – such as post-pads, and sill-beams at ground level – such that they may always escape ready aerial detection.

Some preliminary remarks on social context

If the present writer has expressed doubts as to the status of the building, not very different in size from the lesser buildings of Yeavering or Anglian Dunbar, on the Green Castle, Portknockie as a feasting hall, it seems possible that some of the halls of Pictland, such as Monboddo, visible on air photographs, may have held a status not unlike some of the minor *villae* (Alcock 1988; Smith 1991) further South. The admixture of basically circular and more rectilinear forms displayed in 'peripheral' Pictland is also characteristic of what is known of Pictish domestic

architecture in at least some areas of eastern Scotland south of the Moray Firth, although here, as in previous periods for which multicellular structures occur in the Far North, this format seems to have been absent. The dating of the transition from round to rectangular structures (or at least the appearance of the latter) in the heartland area is not well established, but the third quarter of the millennium may be posited for the Pitcarmick series, and probably for Green Castle, although that structure has no isotopic determinations.

Considering some of the lesser buildings, it is possible to note distinctions in the 'permeability' of individual buildings and inhabited places. The building described as Buckquoy 4 (Ritchie 1977) (**1.2**), for example, shows some topological depth, if the end-door is employed as the root (the main point of access from the outside world), but rather less if the entrance which gives direct access to the principal room is considered in that capacity. Further, as Brown (1990) cogently argues, the key characteristics of buildings – their shape, size and topology interact; the justified access analysis practised in archaeological contexts by Foster (1989) and others necessarily relegates the scale of the buildings from consideration. And, whilst social, political and ideological factors may well be involved, it is necessary not to disregard the physical constraints of available space in considering the layouts, and the access routes through them, that are eventually accomplished, in assessing their social cohesiveness. This is perhaps particularly the case in certain northern settlements, such as those at Howe and Pool.

None the less, the comparability of layouts and access arrangements within the polyventral buildings is of considerable interest. Several examples, like that at Buckquoy noted above, have two doors. Compared to the single doors of most round-house buildings, this development merits attention; in early Medieval Ireland, two doors into houses seem to have been quite common, and Murray (1979) lists literary accounts pertinent to this. In the Buckquoy 4 type of building, we can perhaps envisage particular oppositions between public and private spaces, as proposed by Hingley (1990) for Iron Age round-houses and the rectilinear architectures of the Romano-British periods. Whether, in due course, further evidence will be forthcoming from distributions of small finds or food waste, or from analytical procedures, remains to be seen.

Were doors locked?

Another concomitant of near-state-level societies on the nearer continent is the first archaeological indication of the locking of house-doors when their inhabitants were absent: iron latch-lifters are frequent finds from continental *oppida* and occur also on some south British forts, such as Danebury (Hampshire). Whilst the bar-checks that are a recurrent feature of the entrance passages of brochs testify to the ability for inhabitants to bar the door when they were in residence, evidence for locking doors remains absent in Pictland, although barbed bolt padlocks, appropriate to chests and the like, are an artefact type widely shared during the first millennium AD in Britain and beyond (Alcock 1987, fig 1). It is arguable that the need to secure smaller personal possessions in chests with padlocks was not matched by the requirement to lock individual dwellings. Some support for this lack may be gleaned from the Irish sources analysed by Murray (1979, 87); references to keys generally refer to churches, or the outer gates of enclosures. Very tentatively, again, this absence may suggest that the communities inhabiting the unenclosed sites of Pictland still retained sufficient kin linkages, real or imagined, and social cohesion, to render this development unnecessary.

Conclusion

In the foregoing discussion, the present author has outlined something of the variability now readily apparent in the domestic architecture found within approximately the latter two-thirds of the first millennium AD in Pictland. It is suggested that the diversity of structural remains encountered, and attributed with lesser or greater certainty to the period under consideration, may be indicative of several developments, and equally embraces the decline of several other traits. For example, the demise of groundplans showing a major chamber with ancillary cells, classically represented at Buckquoy, and for long, if discontinuously, demonstrable in the Far North, seems to occur before the end of the first millennium: such buildings still appear entirely absent in the Pictish heartland. Reference has already been made to the floor areas of some of these buildings, which are relatively

substantial; in the accompanying illustration (**1**) the ground floor plan of the two storey Old Gruline House, Salen, Mull (RCAHMS 1980, 232, no 354) (**1.7**), as built in the late eighteenth century, is included as an aid to appreciating the scale of some of the buildings here considered.

Equally, there are intimations of a move to rectilinear structures, more particularly in what seem to be elite residences (to judge solely from their scale) as well as some lesser ones, at least in southern Pictland. In considering the Irish evidence, Lynn (1978) favoured an explication for this change founded on technological innovations in constructional methods. As a possible motivating force, it is impossible to dispute this contention. But the availability of technologies better adapted to the construction of rectangular buildings, is not in itself sufficient to guarantee their social acceptance. The building interpreted as a byre at Pool, which precedes the abandonment of the round-house on the same site, suggests that rectilinear structures were acceptable for specialist structures there at a relatively precocious date, without the living quarters necessarily following immediately suite.

There clearly remains much to learn of the domestic architecture of Pictland. Continuing research at Portmahomack in Easter Ross (Carver 1995), on the islands of the West and North, and elsewhere, will doubtlessly reveal more variants on the forms of architecture discussed above. Perhaps at last some of the grander buildings – the 'elite residences' in contemporary jargon – of the Picts are becoming apparent – suitable settings for the domestic and personal equipment and elaborate furniture depicted on the sculpture, to the study of which Dr Henderson continues to make such a notable contribution.

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References

ALCOCK, L

– 1972 *'By South Cadbury is that Camelot...' Excavations at Cadbury Castle 1966–70.* London.

– 1982 Cadbury-Camelot: a fifteen year perspective. *Proc Brit Acad*, 68, 357–88.

– 1984 A survey of Pictish settlement archaeology. In Friell and Watson (eds), 7–42.

– 1987 Pictish studies: present and future. In Small, 80–92.

– 1988 *Bede, Eddius and the Forts of the North Britons* (Jarrow Lecture). Jarrow.

ALCOCK, L, and ALCOCK, E A 1992 Reconnaissance excavations on Early Historic fortifications and other royal sites in Scotland, 1974–84: A, Excavations and other fieldwork at Forteviot, Perthshire, 1981; B, Excavations at Urquhart Castle, Inverness-shire, 1983; C, Excavations at Dunnottar, Kincardineshire, 1984. *Proc Soc Antiq Scot*, 122, 215–87.

ALCOCK, L, ALCOCK, E A and DRISCOLL, S T 1989 Reconnaissance excavations on Early Historic fortifications and other royal sites in Scotland, 1974–84: 3, Excavations at Dundurn, Strathearn, Perthshire, 1976–77. *Proc Soc Antiq Scot*, 119, 189–226.

ARMIT, I

– 1990 Broch building in northern Scotland: the context of innovation. *World Archaeol*, 21 (1989-90), 435–45.

– (ed) 1990 *Beyond the Brochs: changing perspectives on the Atlantic Scottish Iron Age.* Edinburgh.

AUDOUZE, F and BÜCHSENSCHÜTZ, O E 1992 *Towns, villages and countryside of Celtic Europe.* London.

BALLIN SMITH, B (ed) 1994 *Howe: four millennia of Orkney prehistory* (Soc Antiq Scot Monogr Ser, 9). Edinburgh.

BARBER, J and CRONE, A 1993 Crannogs: a diminishing resource? A survey of the crannogs of South-West Scotland and excavations at Buiston crannog. *Antiquity*, 67, 520–33.

BARRETT, J 1981 Aspects of the Iron Age in Atlantic Scotland: a case study in the problems of archaeological interpretation. *Proc Soc Antiq Scot*, 111, 205–19.

BARRETT, J and DOWNES, J in prep *North Pitcarmick: North East Perthshire: the Early Medieval inhabitation of a prehistoric landscape.*

BATEY, C E, JENSCH, J and MORRIS, C D (eds) 1993 *The Viking Age in Caithness, Orkney and the North Atlantic* (Select papers Proc XI Viking Congress, Thurso and Kirkwall, 1989). Edinburgh.

BROWN, F E 1990 Comment on Chapman: some cautionary notes on the application of spatial measures to prehistoric settlements. In Samson (ed), 93–109.

BRUNSKILL, R W 1982 *Houses.* London.

CARVER, M O H (ed) 1995 *Tarbat Discovery Programme Bulletin*, 1. York.

CLOSE-BROOKS, J

– 1984 Pictish and other burials. In Friell and Watson (eds), 87–114.

– 1986 Excavations at Clatchard Craig, Fife. *Proc Soc Antiq Scot*, 116, 117–84.

COTTAM, M B and SMALL, A 1974 The distribution of settlement in Southern Pictland. *Medieval Archaeol*, 18, 43–65.

CRAWFORD, B E 1987 *Scandinavian Scotland* (Scotland in the Early Middle Ages, 2). Leicester.

CRONE, A

– 1991 Buiston Crannog. *Current Archaeol*, 127, 295–97.

– 1993 Crannogs and chronologies. *Proc Soc Antiq Scot*, 123, 245–54.

DES = *Discovery and Excavation in Scotland.*

DRISCOLL, S 1991 The archaeology of state formation in Scotland. In Hanson and Slater (eds), 81–111.

EDWARDS, K J and Ralston, I B M

– 1978 New dating and environmental evidence from Burghead fort, Moray. *Proc Soc Antiq Scot*, 109 (1977-78), 202–10.

– (eds) 1997 *Scotland: environment and archaeology 8000 BC–AD 1000.* New York and Chichester.

EDWARDS, N 1990 *The Archaeology of Early Medieval Ireland.* London.

FAIRWEATHER, A D and RALSTON, I B M 1993 The Neolithic timber hall at Balbridie, Grampian Region, Scotland: the building, the date, the plant macrofossils. *Antiquity*, 67, 313–23.

FEACHEM, R W 1955 Fortifications. In Wainwright 1955a, 66–86.

FITZPATRICK, A P 1994 Outside in: the structure of an Early Iron Age house at Dunston Park, Thatcham, Berkshire. In Fitzpatrick and Morris (eds), 68–72.

FITZPATRICK, A P and MORRIS, E L (eds) 1994 *The Iron Age in Wessex: Recent Work.* Salisbury.

FOSTER, S M

– 1989 Transformations in social space: Iron Age Orkney and Caithness. *Scot Archaeol Rev*, 6, 34–55.

– 1992 The state of Pictland in the Age of Sutton Hoo. In Carver, M O H *The Age of Sutton Hoo*, 217–34. Woodbridge.

– 1996 *Picts, Gaels and Scots.* London.

FRIELL, J G P and WATSON, W G (eds) 1984 *Pictish Studies: settlement, burial and art in Dark Age northern Britain* (*BAR Brit Ser* 125). Oxford.

GORDON, C A 1956 Carving technique on the symbol stones of North-East Scotland. *Proc Soc Antiq Scot*, 88 (1954-56), 40–46.

GREENE, K 1995 *Archaeology: an introduction* (3 edn). London.

HANSON, W S and SLATER, E A (eds) 1991 *Scottish archaeology: new perceptions.* Aberdeen.

HARDING, D W

– 1973 Round and rectangular: Iron Age houses, British and foreign. In Hawkes, C F C and Hawkes, S C (eds) *Celts, Greeks and Romans: studies in venture and resistance,* 43–62. London.

– 1974 *The Iron Age in Lowland Britain.* London.

– 1984 The function and classification of brochs and duns. In Miket, R and Burgess, C B (eds) *Between and beyond the Walls: essays on the prehistory and history of North Britain in honour of George Jobey*, 206–20. Edinburgh.

– 1997 Forts, duns, brochs and crannogs: Iron Age settlements in Argyll. In Ritchie, J N G *The archaeology of Argyll*, 118–40. Edinburgh.

HENDERSON, I B

– 1958 The origin centre of the Pictish symbol stones. *Proc Soc Antiq Scot, 91* (1957-58), 44–60.

– 1972 The Picts of Aberdeenshire and their monuments. *Archaeol Journal*, 129, 166–74.

HILL, J D 1995 How should we understand Iron Age societies and hillforts? A contextual study from southern Britain. In Hill and Cumberpatch (eds), 45–66.

HILL, J D and CUMBERPATCH, C G (eds) 1995 *Different Iron Ages: Studies on the Iron Age in Temperate Europe* (*BAR Int Ser* 602). Oxford.

HINGLEY, R

– 1990 Domestic organisation and gender relations in Iron Age and Romano-British households. In Samson (ed), 125–47.

– 1995 The Iron Age in Atlantic Scotland: searching for the meaning of the substantial house. In Hill and Cumberpatch (eds), 185–91.

HOPE-TAYLOR, B K 1977 *Yeavering: an Anglo-British centre of early Northumbria* (Dept of the Environment Archaeological Report, 7). London.

HUNTER, J R

– 1986 *Rescue Excavations on the Brough of Birsay 1974–82* (Soc Antiq Scot Monogr Ser, 4). Edinburgh.

– 1990 Pool, Sanday: a Case Study for the late Iron Age and Viking periods. In Armit (ed), 175–93.

– 1997 *A persona for the northern Picts* (Groam House Museum Lecture series). Rosemarkie.

HUNTER, J R, BOND, J M and SMITH, A N 1993 Some aspects of early Viking settlement in Orkney. In Batey *et al* (eds), 272–84.

JAMES, S, MARSHALL, A and MILLETT, M 1984 An Early Medieval building tradition. *Archaeol Journ*, 141, 182–215.

MAXWELL, G S 1987 Settlement in southern Pictland: a new overview. In Small (ed), 31–44.

MURRAY, H 1979 Documentary evidence for domestic buildings in Ireland *c*.400-1200 in the light of archaeology. *Medieval Archaeology*, 23, 81–97.

MUSSON, C R 1970 House-plans and prehistory. *Current Archaeol*, 21, 261–75.

NAISMITH, R J 1985 *Buildings of the Scottish Countryside.* London.

NICOLL, E H (ed) 1995 *A Pictish panorama: the story of the Picts and a Pictish bibliography.* Balgavies, Angus.

PARKER PEARSON, M 1996 Food, fertility and front doors in the first millennium BC. In Champion, T C and Collis, J R (eds) *The Iron Age in Britain: recent trends*, 117–32. Sheffield.

PIGGOTT, S 1958 Native economies and the Roman occupation of Scotland. In Richmond (ed), 127.

POLESKI, J 1992 Datierungsgrundlagen der ältesten Phasen des Frühmittelalters in Kleinpolen. In *Probleme des relativen und absoluten Chronologie ab Latènezeit bis zum Frühmittelalter*, 317–38. Cracow.

OLIVER, B (ed) 1975 Introduction. In idem (ed) *Shelter, Sign and Symbol.* London.

RCAHMS = Royal Commission on the Ancient and Historical Monuments of Scotland

– 1980 *Argyll: An Inventory of the Ancient Monuments,* vol 3: *Mull, Tiree, Coll, and Northern Argyll.* Edinburgh.

– 1990 *North-East Perth: an archaeological landscape.* Edinburgh.

RALSTON, I B M

– 1983 Notes on the archaeology of Kincardine and Deeside District. *The Deeside Field*, 18, 73–83.

– 1987 Portknockie: promontory forts and Pictish settlement in the North-East. In Small (ed), 15–26.

– 1995 Fortifications and defence. In Green, M (ed) *The Celtic World*, 59–81. London.

RALSTON, I B M and ARMIT, I 1997 The Early Historic Period: an archaeological perspective. In Edwards and Ralston (eds), 217–39.

RALSTON, I B M and INGLIS, J C 1984 *Foul hordes: the Picts in the North-East and their background.* Aberdeen.

REYNOLDS, N M 1980 Dark Age timber halls and the background to excavations at Balbridie. *Scot Archaeol Forum*, 10, 41–60.

REYNOLDS, P 1994 Butser Ancient Farm. In Fitzpatrick and Morris (eds), 11–14.

RICHMOND, I A (ed) 1958 *Roman and Native in North Britain.* Edinburgh.

RITCHIE, A

– 1977 Excavation of Pictish and Viking-age farmsteads at Buckquoy, Orkney. *Proc Soc Antiq Scot*, 108 (1976-77), 174–227.

– 1995 The archaeological evidence for daily life. In Nicoll (ed), 21–5.

SAMSON, R (ed) 1990 *The Social Archaeology of Houses.* Edinburgh.

SCHULDT, E 1989 F 16 Behren-Lübchen. In Herrmann, J (ed) *Archäologie in der Deutschen Demokratischen Republik. Denkmale und Funde: Band 2 Fundorte und Funde*, 603–5. Stuttgart.

SHEPHERD, A N 1994 Howe: a review of the sequence. In Ballin Smith (ed), 267–90.

SHEPHERD, I A G

– 1983 Pictish settlement problems in north-east Scotland. In Chapman, J C and Mytum, H C (eds) *Settlement in North Britain 1000 BC–AD 1000* (*BAR Brit Ser* 118), 327–56. Oxford.

– 1993 The Picts in Moray. In Sellar, W D H (ed) *Moray: Province and People*, 75–90. Edinburgh.

SHEPHERD, I A G and GREIG, M K 1996 *Grampian's Past: its archaeology from the air.* Aberdeen.

SMALL, A, COTTAM, M B and DUNBAR, J G 1974 Souterrain and later structures at Northwaterbridge, Kincardineshire. *Proc Soc Antiq Scot*, 105 (1972-74), 293–96.

SMALL, A (ed) 1987 *The Picts: a new look at old problems.* Dundee.

SMITH, I M 1991 Sprouston, Roxburghshire: an early Anglian centre of the eastern Tweed Basin. *Proc Soc Antiq Scot*, 121, 261–94.

STEVENSON, J B

– 1984 Garbeg and Whitebridge: two square-barrow cemeteries in Inverness-shire. In Friell and Watson (eds), 145–50.

– 1991 Pitcarmicks and fermtouns. *Current Archaeol*, 127, 288–91.

TAYLOR, D B 1990 *Circular Homesteads in North-West Perthshire.* Dundee.

VAGINAY, M and GUICHARD, V 1988 *L'habitat gaulois de Feurs (Loire): fouilles récentes* (Documents d'Archéologie française, 14). Paris.

VILLES, A 1983 Quelques exemples nouveaux de maisons protohistoriques circulaires sur le continent. In Collis, J R, Duval, A and Perichon, R (eds) *Le deuxième âge du fer en Auvergne et en Forez et ses relations avec les régions limitrophes,* 153–65. Sheffield / St Etienne.

WAINWRIGHT, F T

– 1955 Houses and Graves. In idem (ed) 1955a, 87–96.

– (ed) 1955a *The Problem of the Picts.* Edinburgh (repr with addenda, Perth, 1980).

– 1963 *The Souterrains of Southern Pictland.* London.

WATKINS, T F

– 1980a Excavation of a settlement and souterrain at Newmill, near Bankfoot, Perthshire. *Proc Soc Antiq Scot,* 110, 165–208.

– 1980b The excavation of an Iron Age open settlement at Dalladies, Kincardineshire. Ibid, 122–64.

– 1984 Where were the Picts? In Friell and Watson (eds), 63–86.

– 1992 Doughnuts and bananas: the Leuchars cropmark project. *Current Archaeol,* 131, 472–4.

WEDDERBURN, L M M and GRIME, D 1984 The cairn cemetery at Garbeg, Drumnadrochit. In Friell and Watson (eds), 151–67.

WHITTINGTON, G 1975 Placenames and the settlement pattern of dark-age Scotland. *Proc Soc Antiq Scot,* 106 (1974-75), 99–110.

ZEUNE, J 1992 *The last Scottish castles. Investigations with particular reference to domestic architecture from the 15th to the 17th century* (Dobiat, C and Leidorf, K (eds) Internationale Archäologie, 12).

1993: (with Alan Fairweather) 'The Neolithic timber hall at Balbridie, Grampian Region, Scotland: the building, the date, the plant macrofossils', *Antiquity*, **67**, 313-323.

The Neolithic timber hall at Balbridie, Grampian Region, Scotland: the building, the date, the plant macrofossils

ALAN D. FAIRWEATHER & IAN B.M. RALSTON*

Excavation of a cropmark in northeast Scotland revealed a substantial timber hall of the general form one expects from the early medieval period. Yet it turned out to be Neolithic in date! The structure produced copious quantities of charred cereal grains from contexts intimately associated with its destruction. Accelerator dates confirm the integrity of selected species with the period of use of the building. Hexaploid wheat and cultivated flax were both identified.

Introduction

In the dry summer of 1976, aerial reconnaissance by the Royal Commission on the Ancient and Historical Monuments of Scotland resulted in the recording of the cropmark of a remarkable timber building on the farm of Balbridie, Banchory-Ternan parish, Kincardine & Deeside District. The site (NGR NO 733959) was located on a fluvio-glacial terrace immediately south of the River Dee and east of Banchory. One of several such structures located in the Commission's flying programme that year, this building was selected for excavation by the Ancient Monuments Inspectorate in advance of further ploughing; and its field examination occupied five seasons between 1977 and 1981. The excavations were mounted from the Department of Geography, University of Aberdeen, and were co-directed by Ralston and Mr Nicholas Reynolds.

One of the contributory factors which led to the selection of the Balbridie structure for excavation was the quality of detail visible on the Royal Commission's photographs. These showed an apparently isolated rectangular structure some 24 x 12 m in overall dimensions, with a range of internal features and, seemingly significantly, bowed gable-ends. The best excavated parallel within Scotland for a building of this size and proportions was that examined in the mid 1960s by Dr Brian Hope-Taylor of the University of Cambridge at Doon Hill, near Dunbar, East Lothian District. The Doon Hill structure (Hall A; Reynolds 1978: 54, figure 9) also shared with Balbridie the trait of bowed gable-ends. Apparent differences in detail between the two structures could be explained partially in terms of more severe erosion at the southern site: for example, Balbridie was delimited by an outer construction trench, whereas at Doon Hill only vestigial traces attributable to such a feature had survived.

Hope-Taylor's meticulous excavation demonstrated that Hall A was replaced by another hall at the same position within a polygonal palisaded enclosure. This latter structure (Hall B), in a rather different architectural tradition, could readily be paralleled in the sequence of major Anglian timber buildings examined at Yeavering, Northumberland (Hope-Taylor 1977); and thus it was proposed on stratigraphical and other grounds that Doon Hill Hall A, in which Hope-Taylor was able to detect elements of rebuilding, ought to pre-date the Anglian

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expansion into lowland Scotland in the 630s AD by some decades. No radiocarbon dates have been obtained for the Doon Hill structures.

The excavation

The architectural parallel provided by Doon Hill Hall A thus offered the nearest frame of reference for the hypotheses that were to be field-tested at Balbridie. In particular, Hope-Taylor's excavations of North British timber structures had demonstrated that detailed dissection in the field could provide evidence of elaborate carpentry even in relatively unpromising gravels. We set out with the express aim of attempting to duplicate this approach to recover as much detail of Balbridie's timberwork as was feasible. More generally, given the cultural mosaic of Early Historic Scotland, we hoped to demonstrate that the architectural type under consideration, proposed by Hope-Taylor as a British construction in Lothian, was also employed by the Picts. Fuller discussion of the background of the project is contained in Reynolds' initial account (Reynolds 1978).

The first season of excavation at Balbridie did nothing to shake the prevailing hypotheses. Given the ploughed-down condition of the remains, artefactual finds were unsurprisingly few in number, and generally undiagnostic. In the absence of mainland comparanda, for example, there seemed little reason to discount the possibility that the undecorated body-sherds of pottery recovered might be Pictish. A significant discovery was that the structure had burnt down, providing a suite of carbon-rich contexts and thereby increasing our hopes that architectural minutiae would be recoverable through detailed excavation. Routine wet-sieving was instituted to supplement the dry- sieving that had been a feature of the excavation design since its inception. Carbonized wood, mostly in a fragmentary condition, was collected for radiocarbon dating.

The course of the second season provided the first intimations of what had been anticipated – the use of prepared timbers. Clear evidence was forthcoming that certain of the major internal roof-supports had been squared; and in the presumed context of a post-Roman building this was unexceptionable. It was then that the first radiocarbon dates (GU-1035 to GU-1038 in TABLE 1) arrived from the Department of Chemistry at the University of Glasgow. With central dates between *c.* 3100 b.c. and 2700 b.c., these potentially undermined the initial suite of hypotheses.

conventional radiocarbon dates

a1 *for wood charcoal*

GU-1035	4840±165	
GU-1036	4740±135	
GU-1037	4930±80	
GU-1038i	5160±100	
GU-1038ii	5020±90	
GU-1828	5030±60	
GU-1829	4785±150	
GU-1830	4970±75	
GU-1831	5015±125	
GU-1832	4970±60	

a2 *for cereal grains (primarily* Triticum *spp.)*

GU-1421	4745±160	

b *accelerator dates for particular species*

OxA-1767	4820±80	*Avena* sp.
OxA-1768	4940±70	*Linum usitatissimum*
OxA-1769	5010±90	*Malus sylvestris*

TABLE 1. *Radiocarbon determinations for samples associated with the destruction of the Balbridie Timber Hall, Grampian Region: all dates are expressed, without correction, in years b.p.*

Accounting for the radiocarbon dates

Whilst the change in cultural context that would be necessitated by the acceptance of these dates is considerable, no revision of the field strategy was required. The continuing excavation of the Balbridie building bore out the configuration of the structure visible on the air photographs. This form remained distinct from the structural arrangement of European Neolithic timber buildings known to the co-directors at the time; and thus the possibility that the radiocarbon dates were not indicative of the period of construction, as suggested by an early comment on them (Hope-Taylor 1980; *cf.* Selkirk 1980), was very seriously considered.

Two hypotheses to account for the discrepancy between the date suggested by the architectural parallel and the radiocarbon determinations merited checking. One was

that a Pictish building had been erected on the site of Neolithic activity; and that charcoal related to the postulated initial use of the site had been accidentally incorporated in the foundations of the later building and unwittingly selected for chronological determination. This view can be rejected categorically on stratigraphical grounds since the charcoal residues occupy the topmost surviving contexts within each of the features examined, contexts intimately associated with the final destruction of the building. It is suggested that very special pleading would be required to account for the incorporation of substantial quantities of ancient debris in a 1st-millennium AD structure only in its terminal stage. The second hypothesis accepted the radiocarbon measurements as correct and allowed, too, for the wood that provided them having been constructional; the suggestion was simply that Balbridie had been erected using bog oak. Thus the radiocarbon dates would be very substantially older than the building.

Amongst the carbonized detritus that was being wet-sieved and flotated, quantities of cereal grains had been noted. An isotopic date for this latter, short-lived material, not subject to the same potential problem as the wood samples, would serve to clarify the position. Identification of selected samples by Coinneach Maclean and Peter Rowley-Conwy demonstrated emmer wheat to be the dominant cereal represented, and the resultant radiocarbon determination (GU-1421; TABLE 1) for a bulk sample of grains – from a context which included the bread wheat type to be discussed below – is statistically inseparable from at least some of the initial ^{14}C series for the site (*cf* Williams 1989). This radiocarbon date (supported by other field evidence) effectively eliminated the possibility of the use of ancient wood in a much later building.

In the latter stages of the excavation and in initial post-excavation work, further evidence accrued that the Balbridie timber hall is indeed a major building of Neolithic date. A number of interim accounts have been published (Ralston & Reynolds 1979; 1980; Ralston 1982; Edwards & Ralston 1984) but some of the salient points may be stated briefly. Turf used in the original re-packing of certain of the features, particularly on the outer construction trench has been examined by Mr J.C.C. Romans. This has been described as a brown earth in the initial stages of podsolization – again appropriate at this latitude to a Neolithic horizon. Small quantities of decorated pottery (Ralston 1982: 241, figure 1), recovered in an unabraded condition from one of the internal post-holes, are incised in patterns strongly reminiscent of those on Unstan bowls, although the form seems much less open than the well-known examples recovered predominantly from funerary contexts in the Northern Isles, but also known from a number of settlements in the Hebrides. Contrastingly, there are no diagnostically post-Roman artefacts associated with the building.

The Balbridie hall

This interim account is not the place to enter into detailed arguments about the unitary nature of the structure represented by the excavated features at Balbridie. The absence of floor-levels or other superjacent strata other than the ploughsoil means that it is formally impossible to demonstrate the coexistence of the suite of features on stratigraphic grounds. In the light of the examination of other Neolithic timber constructions, especially those excavated by Mr Gordon Barclay for Historic Buildings and Monuments Scotland at Balfarg Riding School, Kirkcaldy District (pers. comm.), caution is clearly appropriate, since the pattern of post replacement at the latter site clearly demonstrates that these not-dissimilar structures were not roofed. At Balfarg Riding School, the excavator was able to record the repeated recutting of internal features within one of two post-defined rectilinear structures with rounded corners. This observation, coupled with the location of the internal features relative to the outer wall-line, strongly indicates that the Balfarg structures were not unitary buildings.

At Balbridie, however, the juxtaposition of internal features with the outer constructional trench that defines the structure is altogether different (FIGURE 1). In particular, the end-posts on the main internal subdivisions within the building were off-set, so as to continue the line and spacing of a number of aisle-posts set about one metre in from the medial line of the outer construction trench. Furthermore, these aisle posts on the better-

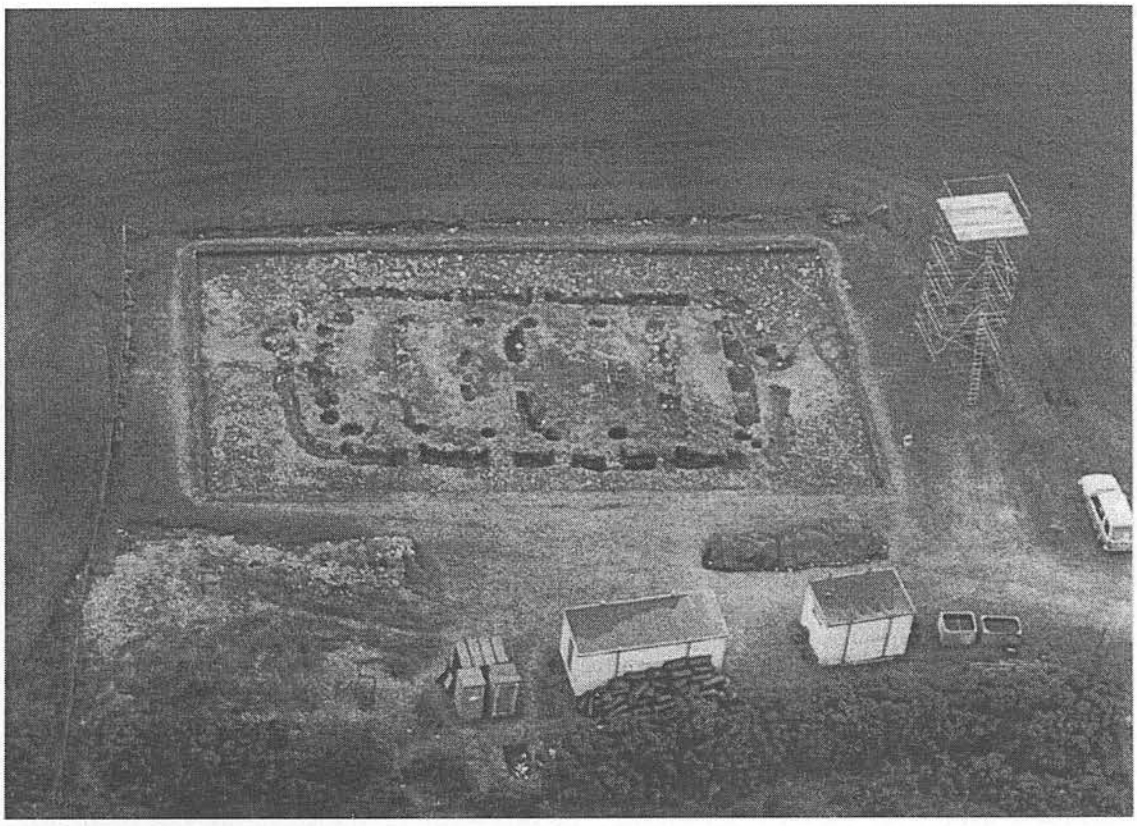


FIGURE 1. *Aerial view of Balbridie under excavation. (Aberdeen Archaeological Surveys, Crown Copyright Reserved.)*

preserved, southern side of the structure (the northern long side has been much more severely degraded by ploughing) sat directly opposite additional posts set within but against the inner margin of the outer construction trench (plan in Ralston 1982; here FIGURE 2). These apparent liaisons provide the best indication the site furnishes in structural terms for the surviving features representing a single – and thus very substantial – hall. Further evidence for a roofed structure may be provided by the unabraded character of the ceramic assemblage; and more particularly by the substantial quantities of plant macrofossils recovered. Whilst no European Neolithic building known to the authors duplicates the scale (particularly the width) of Balbridie, a number of specific elements noted in its architecture can be paralleled across the Channel, for example in a near-contemporary building at Berry-au-Bac in the Aisne Valley of Northern France (Dubouloz *et al.* 1982: 201, figure 7). Two final observations serve to highlight the achievement of Balbridie's builders: this large hall lacks evidence both for a line of substantial posts placed centrally along its long axis and any indication of external buttressing, a notable difference from Doon Hill Hall A.

Plant macrofossils

Having outlined the case for Balbridie being accepted as a major Neolithic building, the other principal significance of the site lies in the quantities of plant macrofossils recovered. Soil acidity has eliminated bone material. To date, some 20,000 cereal grains have been counted, offering the largest assemblage of carbonized grain of Neolithic date known to the authors from the British Isles. This figure is derived from a programme of sampling within the total residues recovered. The present note offers some preliminary observations of this important collection, including Oxford Radiocarbon Accelerator

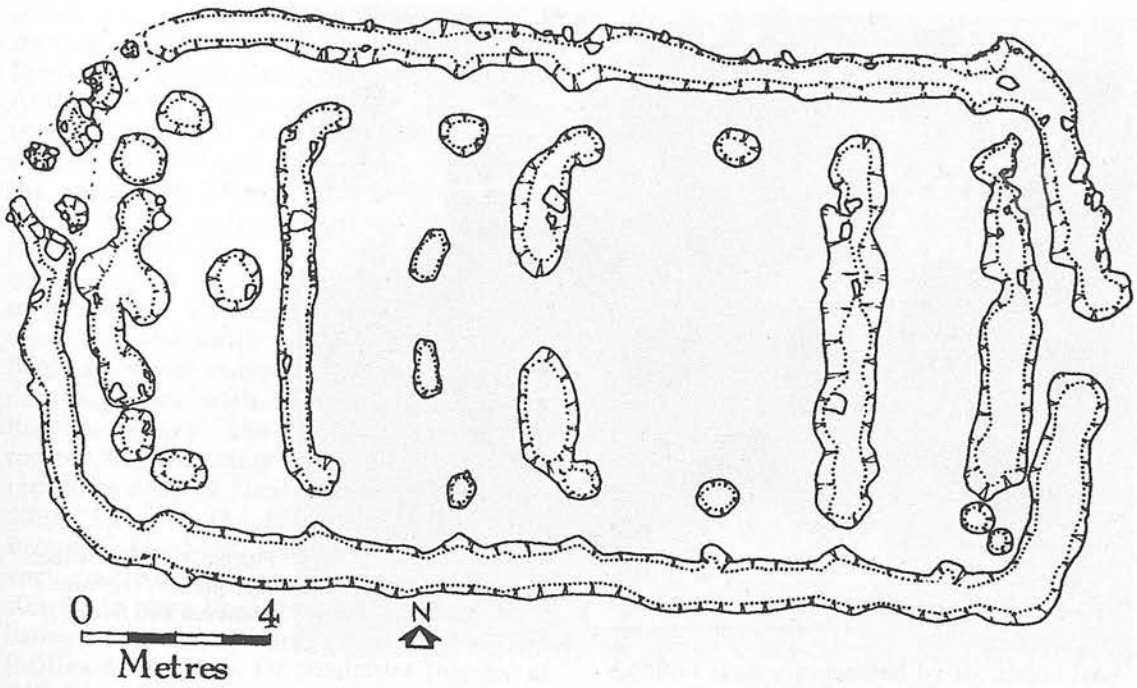


FIGURE 2. *Post-excavation plan of the Balbridie timber hall. (Drawing P. Glennie.)*

dates for some of the perhaps unexpected species represented.

Carbonized plant remains (other than the ubiquitous presence of wood fragments) were recovered from the vast majority of features represented at Balbridie, although in varying concentrations. In general, the cereal crops may be described as clean, since few spikelet fragments or other equivalent detritus were recovered. Relatively few weed seeds and remains of collected foodstuffs, other than hazel nuts (*Corylus avellana* L.) which have been identified from numerous contexts, were noted. The non-agricultural species represented do not occasion any major surprises, given the date of the assemblage and its northerly geographical setting, with one possible exception, crab apple (*Malus sylvestris* Mill.).

The principal cereals identified are emmer wheat, *Triticum dicoccum* Schuebl., naked barley (*Hordeum vulgare* L. var. *nudum*), and forms of a free-threshing wheat, *Triticum aestivum* L. type (FIGURE 3). The general pattern over the site as a whole is for these species respectively to represent slightly less than 80%, 18% and about 2% respectively of the total analysed cereal assemblage. This ratio is upset very radically in one feature inside the building, a post-hole from which substantial quantities of grain were recovered. The feature concerned is an integral part of the structure, from which it can not be divorced. Here the *T. aestivum* s.l. type is represented by local concentrations which reach 76% of the cereals from this context. This reversal in proportions is remarkable, and strongly suggests that the bread-wheat type may have been treated on occasion as a separate (although not entirely pure) crop, supporting Hillman's suggestion (1981: 188) that bread wheat may have been grown as a crop in its own right in Neolithic Britain. Van Zeist (1968) notes the presence of *T. aestivum* s.l. in Middle Neolithic TRB contexts in the Dummer, northwest Germany and at Bundso, Denmark; it was the dominant cereal at the Røssen site of Wahlitz (central Germany) *c.* 3350 b.c. and a millennium later at Vlaardingen in the Netherlands. Hazelton, Gloucestershire (*c.* 2970 b.c.) has the nearest equivalent representation of free-threshing wheat forms but the identification of *T. aestivum* s.l. there is tentative in the absence of rachis fragments (Vanessa Straker pers. comm.).

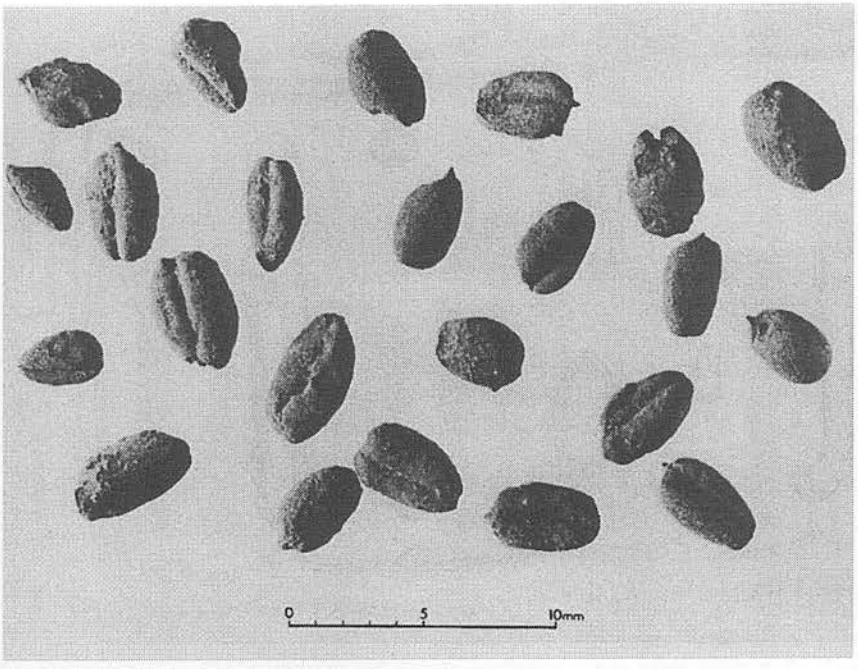


FIGURE 3. *Naked wheat type grains (*Triticum aestivum *s.l.) from Balbridie.*

It is conceivable that the gluten content of this wheat, sufficient to permit bread-making, may have contributed to its attraction (Marinval 1988: 62). Charles (1984: 26) considers that the extra gluten strength of the naked hexaploid is sufficient to compensate in a flour mixture for a gluten deficiency in other wheat species.

Further morphological classification of the hexaploid bread wheats on the basis of grain characteristics is problematical, but it may be remarked, in so far as the taxa are differentiable, that a substantial proportion (over 700 grains out of 2700) of the naked wheats from the Balbridie concentration tend to the *T. aestivum* ssp. *compactum* (Host) MK end of the range. Some 400 grains are attributable to *T. aestivum* ssp. *vulgare* (Vill.) MK; the remainder are intermediate. Various specialists (Zohary & Hopf 1988: 47; van Zeist 1984: 9) have remarked that without rachis fragments it is not possible to distinguish hexaploid from tetraploid rivet and hard (*T. turgidum* (L.) Thell. including *T. durum* Desf.) naked wheats. A single hexaploid rachis fragment has been recovered amongst the analysed carbonized debris from Balbridie, but not from the feature richest in naked wheat grains.

Despite this *caveat*, it is most likely that the Balbridie grains belong to the hexaploid complex, on the grounds that the naked tetraploid wheats are not recorded as a feature of early temperate European agriculture north of Switzerland (Jacomet & Schlichtherle 1984: 153; van Zeist 1984: 12–13). Rapidly transposed pioneer cultigens, however, may not be of the taxa considered ethnobotanically appropriate to the location. Furthermore, as Kislev has reminded us (1984: 150), the warmer climate of Neolithic times may have permitted the wider distribution of wheats of this kind. Nevertheless, the likelihood of a Scottish Neolithic occurrence of naked tetraploid wheat may perhaps be discounted.

With the exception of the anomalous concentration of naked wheat, the other cereals principally represented are unremarkable for a British mainland Neolithic collection, although the representation of species is distinct from other discoveries from mainland Scotland and its off-shore islands. In numerical terms, the second crop (after emmer wheat), making up approximately 18% of the cereal assemblage, is naked barley (*Hordeum vulgare* var. *nudum*); its hulled form (*Hordeum vulgare* L.) accounts for less than 1% of the counted grains. Einkorn, *Triticum monococcum* L., extremely rare in the British Isles (Monk 1986: 31; Moffett *et al.* 1989: table 1), was not identified.

The nearest published cereal grain

collection both chronologically and geographically is that from Boghead Mound, Speymouth Forest, Fochabers, Moray District. At this site adjacent to the Spey Valley, barley is the dominant crop represented in a collection of 343 grains recovered by flotation: the naked form, *Hordeum hexastichum* (=*H. vulgare* L. var. *nudum*), represents 88% of the cereal assemblage, with the remainder consisting of *Triticum dicoccum*. Both *T. aestivum* s.l. and hulled 6-row barley are absent in the early deposits (XIII/XIV) at Boghead, which radiocarbon dates suggest are contemporary with Balbridie (Maclean & Rowley-Conwy 1984). Other published records suggest barley as the most frequently recorded crop of Neolithic Scotland (Boyd 1988: 104). In the far north, at Scord of Brouster, Shetland, bread wheat, present in very small quantities, has been suggested simply to have been a 'weed' in the hulled barley (*Hordeum vulgare* L. ssp. *vulgare*) crop (Milles 1986: 119). Of particular interest at Balbridie was the recognition of two grains, one very damaged, of *Avena* sp. The best-preserved example (FIGURE 4) was submitted for accelerator dating to eliminate the possibility that this species, represented in a very minor way, was not a later contaminant. The resultant determination (TABLE 1) confirms the integrity of this grain in the Neolithic assemblage. The grain itself was too damaged to permit more detailed identification. It is most probable that the grains were of wild oats (*A. fatua* L.), now a common cereal field weed. Recent reviews of Neolithic cereal records for the British Isles (Boyd 1988; Moffett *et al.* 1989; Monk 1986) reveal no published occurrences to date for the genus except for a single grain from the Late Neolithic Grooved Ware site at Thirlings, Northumberland (van der Veen 1985: 208). *Avena* is documented in Neolithic contexts in north and central Europe (Gluza *et al.* 1977; Klichowska 1959; 1976; Wasilykowa 1984: 258 & 261; Willerding 1970: 345–6; van Zeist 1968: 56–7), and also in France, where there is an early initial record of *A. strigosa* Schreb. from a Late Neolithic context (Marinval 1988: 75). Robinson & Kempfner (1987: 126) found *A. cf. fatua* in cereals from northwest Jutland dated *c.* 2000 b.c. Records are, however, infrequent and the genus is never more than a sparse component of cereal assemblages.

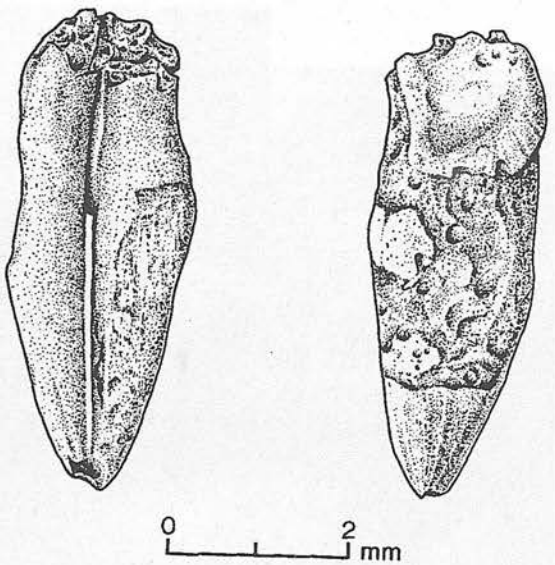


FIGURE 4. *Oat grain (*Avena *sp.) from Balbridie.*

Another crop represented by its carbonized seeds is flax, *Linum usitatissimum* L. (FIGURE 5). The biggest concentration consisted of 48 seeds, recovered from an aisle post-hole on the north side of the building; further scattered seeds were recovered from neighbouring contexts. The recovery method does not permit us to say whether, as noted at the Norse site of Carrigalla II, Co Limerick, Eire by Jessen & Helbaek (1944: 55), the seeds were originally pressed together, a condition interpreted by Dickson as a possible indication of oil extraction (Dickson 1983: 114). Had the seeds been in a mass prior to carbonization, some fusing might none the less have been expected (Klichowska 1976: 59). The figure of 48 seeds should be put into context: flax plants can produce about 10 seeds a capsule; and each plant may have several capsules. Wilson (1984) has shown, by controlled carbonization experiments, how unlikely it is for flax seeds to survive at all.

Whilst the size-range of the seeds of cultivated flax, *Linum usitatissimum* L., overlaps that of *Linum bienne* Mill., we are grateful to a number of specialists for their consistent opinion that the Balbridie specimens are representative of the cultigen on the grounds of the pronounced beak they display. The use to which the Balbridie flax was put is uncertain. It may, however, be considered unlikely that flax was a weed in

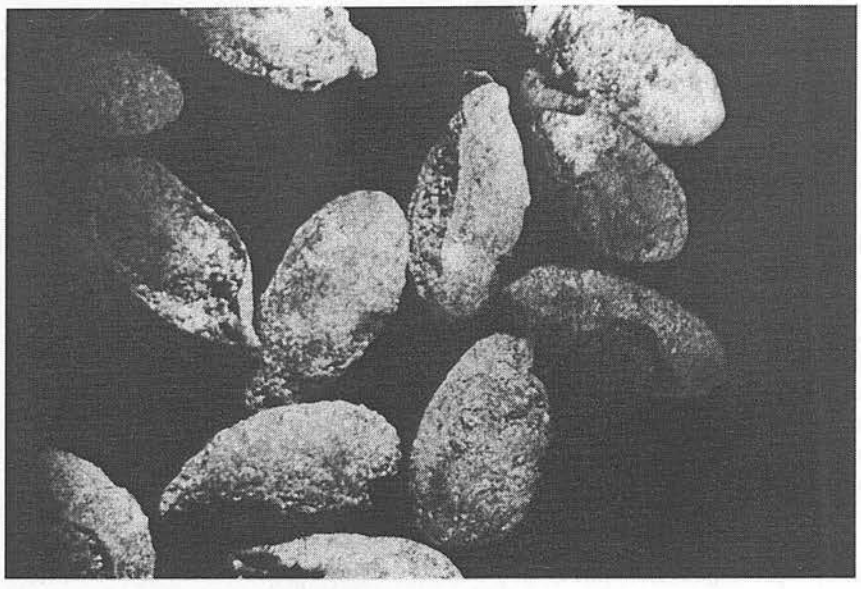


FIGURE 5. *Flax seeds (*Linum usitatissimum*) from Balbridie.*

the cereal plots as it is a poor competitor. Already known from a Neolithic context at Windmill Hill (Godwin 1975: 167), flax was well-established as a cultigen in Neolithic Europe (Willerding 1970: 356; Korber-Grohne 1981: 200–201; Klichowska 1976: 37; Zohary & Hopf 1988: 118). No finds are recorded, so far, from Neolithic Scandinavia (Jensen 1985: 55). It is recorded in Linear Pottery contexts in the Netherlands (Bakels 1979), although seemingly not occurring until later in the Neolithic of France (Marinval 1988). Scottish records, reviewed by Bond & Hunter (1989: 175), are sparse and generally late; but the accelerator date (TABLE 1) supports the Balbridie occurrence as being a genuinely Neolithic one.

Southern British occurrences (in the form of both pottery impressions and carbonized fragments) of crab apple, *Malus sylvestris* Mill., extend back to the Neolithic at both Maiden Castle and Windmill Hill; at the latter site there are impressions on at least six sherds (Godwin 1975: 200). The species is also noted subsequently from Grooved Ware sites (Jones 1980). Moffett and collaborators (1989: 243) remark that English Neolithic records are confined to the southern part of the country. On the continent, the species is represented on early farming sites in the Rhineland and Poland; and occurs also in Neolithic contexts as far north as southern Scandinavia (Jensen 1985: 56).

The carbonized endocarp fragments and pips from six contexts at Balbridie (FIGURE 6) are noteworthy in view of their assured Neolithic attribution (TABLE 1). The species is known in Scotland as far north as Ross and is considered native (Clapham *et al.* 1987); and carbonized fragments are now also recorded from a probable early/mid Neolithic pit and other contexts at Balfarg Riding School, Kirkcaldy District (Barclay pers. comm.), mentioned above. Crab apples in the form of charred endocarp fragments have also been identified associated with the construction trench of the structure at Tankardstown South, Co. Limerick, Eire (Gowen 1988: 42; Monk 1988: 185), a building dated to 5015±45 b.p. on a single determination from the Groningen Laboratory. Further gathered fruits will be discussed in the final report.

Discussion

The recovery of carbonized grains from numerous internal features within the building indicates that the handling of grains took place within the structure. As there is no evidence for storage in pits, above-ground methods are a distinct possibility. The rarity of chaff components from the cereals, however, diminishes our ability to identify the site as the location for other crop-processing activities. Whilst it would be inadvisable to propose that the plant

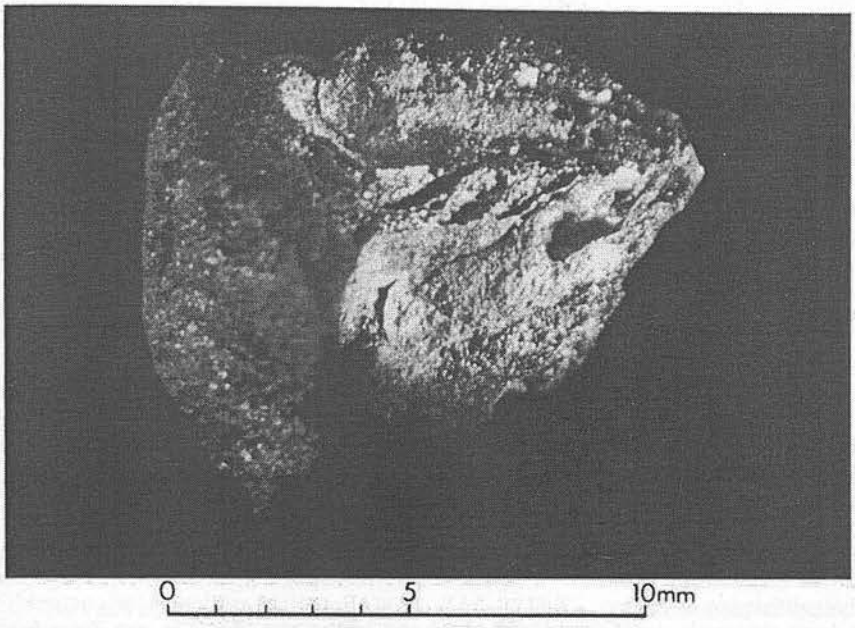


FIGURE 6. *Crab apple (*Malus sylvestris*) pericarp fragment from Balbridie, showing imprint of pips.*

macrofossil material recovered as a byproduct of the building's eventual destruction by fire represented the result of a single harvest, the quantities of grain appear to allow securer generalization about this Neolithic crop regime than is often the case in the British Isles. It has, however, been remarked that the bulk of the *Triticum aestivum* type was very localized in its on-site distribution; and it is thus theoretically possible for other restricted representations of particular species to have escaped detection. We have concentrated here on the unexpected species, and would be grateful to know of other British instances.

As a final interim speculation, it may be suggested that the plant macrofossils recovered at this middle Deeside location, within sight of the Grampian massif (Edwards & Ralston 1984), perhaps betoken a rather more precocious stage in the agricultural colonization of the British Isles than is frequently detected in the archaeological record. The geographical context, combined with the massiveness of the single structure identified, and its similarities with continental architecture, distinguish Balbridie from the *corpus* of known British Neolithic settlements. The aforementioned factors would seem to allow the hypothesis that the farmers of Balbridie were – in terms of their building and, it would seem, of their strategy with cereals – closer to continental European practices than has normally been identified in the British Isles.

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References

BAKELS, C.C. 1979. Linearbandkeramische Früchte und Samen aus den Niederlanden, *Archaeo-Physika* 8: 1–10. (Festschrift Maria Hopf.)

BOND, J.M. & J.R. HUNTER. 1989. Flax-growing in Orkney from the Norse Period to the 18th century, *Proceedings of the Society of Antiquaries of Scotland* 117: 175–81.

BOYD, W.E. 1988. Cereals in Scottish antiquity, *Circaea* 5: 101–10.

CHARLES, M.P. 1984. Introductory remarks on the cereals, *Bulletin of Sumerian Agriculture* 1: 17–31.

CLAPHAM, A.R., T.G. TUTIN & P.D. MOORE. 1987. *Flora of the British Isles*. 3rd edition. Cambridge: Cambridge University Press.

DICKSON, C.A. 1983. The macroscopic plant remains, p. 114 in J. Hedges, Trial excavations on Pictish and Viking settlements at Saevar Howe, Birsay, Orkney, *Glasgow Archaeological Journal* 10: 73–124.

DUBOULOZ, J., M. ILETT & M. LASSERRE. 1982. Enceinte et maisons Chalcolithiques de Berry-au-Bac, La Croix Maigret (Aisne), in *Le Néolithique de l'Est de la France: Actes du Colloque de Sens, 27–28 sept. 1980*: 193–206. Société archéologique de Sens Cahier 1.

EDWARDS, K.J. & I.B.M. RALSTON. 1984. Postglacial hunter-gatherers and vegetation history in Scotland, *Proceedings of the Society of Antiquaries of Scotland* 114: 15–34.

ERROUX, J. 1976. Les débuts de l'agriculture en France: les céréales, in J. Guilaine (ed.), *La Préhistoire française* 2: *Civilisations néolithiques et protohistoriques*: 186–91. Paris: Editions du CNRS.

GLUZA, I & K. WASILYKOWA. 1977. Flora of the Pleistocene and the Holocene in archaeological excavations, in S. Sokolowski (ed.), *Geology of Poland* 2 (part 3b): 105–22. Warsaw.

GODWIN, H. 1975. *The history of the British flora: a factual basis for phytogeography*. 2nd ed. Cambridge: Cambridge University Press.

GOWEN, M. 1988. *Three Irish gas pipelines: new archaeological evidence in Munster*. Dublin: Wordwell Academic.

HELBAEK, H. 1952. Early crops in southern England, *Proceedings of the Prehistoric Society* 18: 194–233.

HILLMAN, G. 1981. Crop husbandry: evidence from macroscopic remains, in I.G. Simmons & M.J. Tooley (ed.), *The environment in British prehistory*: 183–91. London: Duckworth.

HOPE-TAYLOR, B.K. 1977. *Yeavering: an Anglo-British centre of early Northumbria*. London: HMSO. Department of the Environment Archaeological Report 7.

1980. Balbridie . . . and Doon Hill, *Current Archaeology* 7(72): 18–19.

JACOMET, S & H. SCHLICHTHERLE. 1984. Die kleine Pfahlbauweizen Oswald Heer's – Neue Untersuchungen zur Morphologie neolithischer Nacktweizen- Ahren, in van Zeist & Casparie 1984: 153–76.

JENSEN, H.A. 1985. *Catalogue of late- and post-glacial macrofossils of Spermaphyta from Denmark, Schleswig, Halland and Bleckinge dated 13,000 BP to 1536 AD*. Copenhagen. Danmarks Geologiske UnterSogelse, Series A, 6.

JESSEN, K & H. HELBAEK. 1944. *Cereals in Great Britain and Ireland in prehistoric and early historic times*. Copenhagen. Det Kongelige Danske Videnskabernes Selskab. Biologiske Skrifter 3.

JONES, M. 1980. Carbonised remains from Grooved Ware contexts, *Proceedings of the Prehistoric Society* 46: 61–3.

KINNES, I. 1985. Circumstance not context: the Neolithic of Scotland as seen from outside, *Proceedings of the Society of Antiquaries of Scotland* 115: 15–57.

KISLEV, M.E. 1984. Botanical evidence for ancient naked wheats in the Near East, in van Zeist & Casparie: 141–52.

KLICHOWSKA, M. 1959. Odciski ziarn zbóż i innych gatunków traw na ułamkach naczyń z neolitycznego stanowiska kultury ceramiki wstęgowej w Strzelcach w pow. mogileń skim, *Fontes Archaeologici Posnanienses* 10: 101–5.

1976. Aus palaeoethnobotanischen Studien über Pflanzenfunde aus dem Neolithikum und der Bronzezeit auf Polnischem Boden, *Archaeologia Polona* 17: 27–67.

KORBER-GROHNE, U. 1981. Pflanzliche Abdrucke in eisenzeitlicher Keramik – Speigelbild damaliger Nutzpflanzen?, *Fundberichte aus Baden-Württemburg* 6: 165–211.

MACLEAN, A.C. & P.A. ROWLEY-CONWY. 1984. Appendix 4: the carbonized material from Boghead, Fochabers, in H.A.W Burl, Report on the excavation of a Neolithic mound at Boghead, Speymouth Forest, Fochabers, Moray, 1972 and. 1974, *Proceedings of the Society of Antiquaries of Scotland* 114: 35–73.

MARINVAL, P. 1988. *L'alimentation végétale en France du Mésolithique jusqu'à l'Age du Fer*. Paris: Editions du CNRS.

MILLES, A. 1986. Charred remains of barley and other plants from Scord of Brouster in A. Whittle, *Scord of Brouster: an early agricultural settlement on Shetland*: 119–22. Oxford: Oxford University Committee for Archaeology. Monograph 9.

MOFFETT, L., M.A. ROBINSON & V. STRAKER. 1989. Cereals, fruit and nuts: charred plant remains from Neolithic sites in England and Wales and the Neolithic economy, in A. Milles, D. Williams & N. Gardner (ed.), *The beginnings of*

agriculture: 243–61. Oxford: British Archaeological Reports. International series S496.

MONK, M.A. 1986. Evidence from macroscopic plant remains for crop husbandry in prehistoric and early historic Ireland: a review, *Journal of Irish Archaeology* 3: 31–6.

1988. Appendix 3, in Gowen 1988: 184–7.

MURRAY, J. 1970. The first European agriculture. Edinburgh: Edinburgh University Press.

RALSTON, I.B.M. 1982. A timber hall at Balbridie Farm and the Neolithic in north-east Scotland, *Aberdeen University Review* 168: 238–49.

1984. Notes on the archaeology of Kincardine and Deeside District, *Deeside Field* 18: 73–83.

RALSTON, I.B.M. & N.M. REYNOLDS. 1979. Britain's oldest building? An early timber structure on Deeside, *Scottish Review* 14: 17–22.

1980. *Balbridie: excavations 1977–80*. Edinburgh: Scottish Development Department. Ancient Monuments, interim report.

REYNOLDS, N.M. 1978. Dark Age timber halls and the background to excavations at Balbridie, *Scottish Archaeological Forum* 10: 41–60.

ROBINSON, D. & D. KEMPFNER. 1987. Carbonized grain from Mortens Sande 2 – a Single Grave site in north west Jutland, *Journal of Danish Archaeology* 6: 125–9.

SELKIRK, A. 1980. Balbridie, *Current Archaeology* 6(70): 326–8.

VAN DER VEEN, M. 1985. Evidence for crop plants from north east England: an interim overview with discussion of new results, in N.R.J. Fieller, D.D. Gilbertson & N.G.A. Ralph, *Palaeobiological investigations*: 197–219. Oxford: British Archaeological Reports. International series S266.

VAN ZEIST, W. 1968. Prehistoric and early historic food plants in the Netherlands, *Palaeohistoria* 14: 41–173.

1970. On macroscopic traces of food plants in SW Asia, *Philosophical Transactions of the Royal Society of London* B 275: 27–41.

1984. List of names of wild and cultivated Cereals, *Bulletin on Sumerian Agriculture* 1: 8–16.

VAN ZEIST, W. & W.A. CASPARIE. 1984. *Plants and ancient man: studies in palaeoethnobotany*. Rotterdam; Balkema.

WASYLIKOWA, K. 1984. Fossil evidence for ancient food plants in Poland, in van Zeist & Casparie: 257–66.

WILLERDING, U. 1970. Vor- und frühgeschichtliche Kulturpflanzenfunde in Mitteleuropa, *Neue Ausgrabungen und Forschungen in Niedersachsen* 5: 287–375.

WILLIAMS, E. 1989. Dating the introduction of food production into Britain and Ireland, *Antiquity* 63 510–21.

WILSON, D.G. 1984. The carbonisation of weed seeds and their representation in macrofossil assemblages, in van Zeist & Casparie: 201–6.

ZOHARY, D. & M. HOPF. 1988. *Domestication of plants in the Old World*. Oxford: Clarendon Press.

1987: 'Portknockie: promontory forts and Pictish settlement in the North-East', in *ed.* Small, A., *The Picts: a new look at old problems*, 15-26. Dundee: University of Dundee.

Portknockie : promontory forts and Pictish settlement in the North-East

Ian Ralston

Since the Second World War, the promontory forts of North-East Scotland - here taken to mean essentially Grampian Region - have been the only category of sites in the area to have witnessed sustained excavation, sustained at least in so far as a number of examples have been tackled. Dundarg (Simpson 1954; 1960), Burghead (Small 1969; Edwards and Ralston 1978), Castle Point, Troup (or Cullykhan) (Greig 1970, 1971, 1972), the Green Castle at Portknockie (Ralston 1980), Dundarg again (Fojut and Love 1983), and two sites at Dunnottar (Foster *et. al.* 1985) have all been examined. One inland promontory may be added to this list - Hopewell Lodge at Tarland (*D & ES* 1957). It is fair to say that the approach has been piecemeal : various of the campaigns were funded from a stretched Rescue budget (notably Green Castle and Dundarg); but most have been small-scale research excavations, matched by work on the Angus promontories of West Mains of Ethie (Wilson 1980) and Castle Point, Auchmithie (Ralston and Close-Brooks forthcoming). In comparison with the head-way that has been made in recent years in the definition of structures which may reasonably be described as Pictish in 'peripheral' Pictland, to take up Alcock's felicitous phrase, progress on the North-East promontory forts has been disappointing. To summarize, if there is a diagnostically Pictish house type, complete with a diagnostically Pictish material assemblage, both continue to elude us almost entirely in Grampian; and, having failed to discover them on the most-fully examined set of sites, our problems are magnified when we proceed into the near-virgin lands of the river valleys and inland basins.

Such a problem is of course compounded if the strict definition of the term 'Pictish', suggested by Dr Anna Ritchie (1984), is adopted. Her proposal would split what is archaeologically-acceptable as Pictish from the chronological horizon indicated by the late Roman occurrences of the term *Picti* and would restrict the former usage to 'specifically Pictish material culture', perhaps first appearing in the mid-sixth century A.D. I find myself fundamentally out of sympathy with such a view, though not with Dr Ritchie's concurrent suggestion of eliminating the term 'Proto-Pictish' : the view taken here is that there is no *a priori* reason why Pictish traits and assemblages need be distinctive archaeologically. Thus, anything datable to the centuries after A.D. 300, and not ascribable to another cultural group, may reasonably be described as Pictish in this part of Scotland. The alternative, it seems to me, is entirely to suspend the archaeological use of the term in favour of an anodyne label until metaphorically speaking, houses are found and put into some form of order.

If this low-grade definition of 'Pictish' is utilised, what can be extracted from the promontory sites and attributed to the Picts? The Green Castle, Portknockie, may be used to illustrate the potential chronological parameters of this series of sites in the North-East; initially occupation is dated to around the ninth century b.c.; the timber-laced wall which marks the end of the site's protohistoric use is sufficiently late to have been constructed, as Alcock has pointed out, when there were Vikings sailing in the Moray Firth. The site thus spans the 1000 B.C. to A.D. 1000 bracket beloved of recent conference titles; this range of dates may be matched on some of the other sites, although intimations from field evidence and excavation require additional isotopic dates for confirmation. Furthermore, the lack of much stratification, compounded by more recent disturbance, tend to make these sites prone to the problem highlighted by Watkins (1984) in relation to his examination of cropmark sites in Kincardine and Perthshire; it is frequently difficult to obtain secure contexts from which to attempt to date the middle part of the sequence and, more generally, to determine whether occupation was continuous or not.

Before making some remarks about Portknockie, a brief comment on some of the excavated evidence from the other promontories is warranted. Several recent discussions of these are in print (Shepherd 1983; Alcock 1984; Ralston *et al.* 1983), and so this is restricted to a few points.

It is appropriate to begin with Burghead, still the only site to have produced sculpture as well as fortification of Pictish date. Alcock (1984) has rightly expressed reservations about the long span within the first millennium a.d. suggested by the radiocarbon dates obtained for the western, seaward wall of the upper fort. Against his scepticism about the practicalities of repairing a timber-laced wall as a means of accounting for the chronological spread indicated, it may be borne in mind that Small's view (1969) was that much of the timber in this portion of the fort related to structures affixed to the internal wall-face of the defence. It must be admitted, however, that the contexts of the more recently obtained dates are less

than impeccable, as the original report makes clear (Edwards and Ralston 1978). The use of timber in the seaward defences at Burghead merits discussion. The internal structure of this fortification appears to have been variable in detail, but included timbers interleaved with, as well as projecting beyond, the internal wall-face; transversal and longitudinal beams, more conventionally (in terms of Temperate European defensive architecture) disposed, are also recorded from Young's work (1891); iron spikes, some 0.20m in length, and perhaps augured, rather than driven, into the internal timber framework of the wall are intermittently attested (and appear different in scale from those associated with the wall at Dundurn; Alcock,, *pers comm)*, but unsurprisingly seem to be absent at the seaward end; at least one section suggested wall construction on a raft of timber; and vertical timbers appear to be absent. In general, the plan of the upper and lower forts, as bequeathed by Roy, may have been conditioned as much by this heavy use of wood as by the configuration of the topography; and this arrangement will find an echo at Castle Point, Troup. Alcock notes that the landward trivallate system, whether built or strengthened at this time, would make Burghead unique among Pictish promontory forts (1983, 7; 1984, 21). I retain the position taken in 1978, (Ralston 1980): the very different character of the outer rampart lines, as outlined by Macdonald (1862) (*pace* Alcock, 1984, fig. 2.4.1) means that all proof of a Pictish date for these works is lacking (Ralston, 1978, 38). This is not to deny that these ramparts

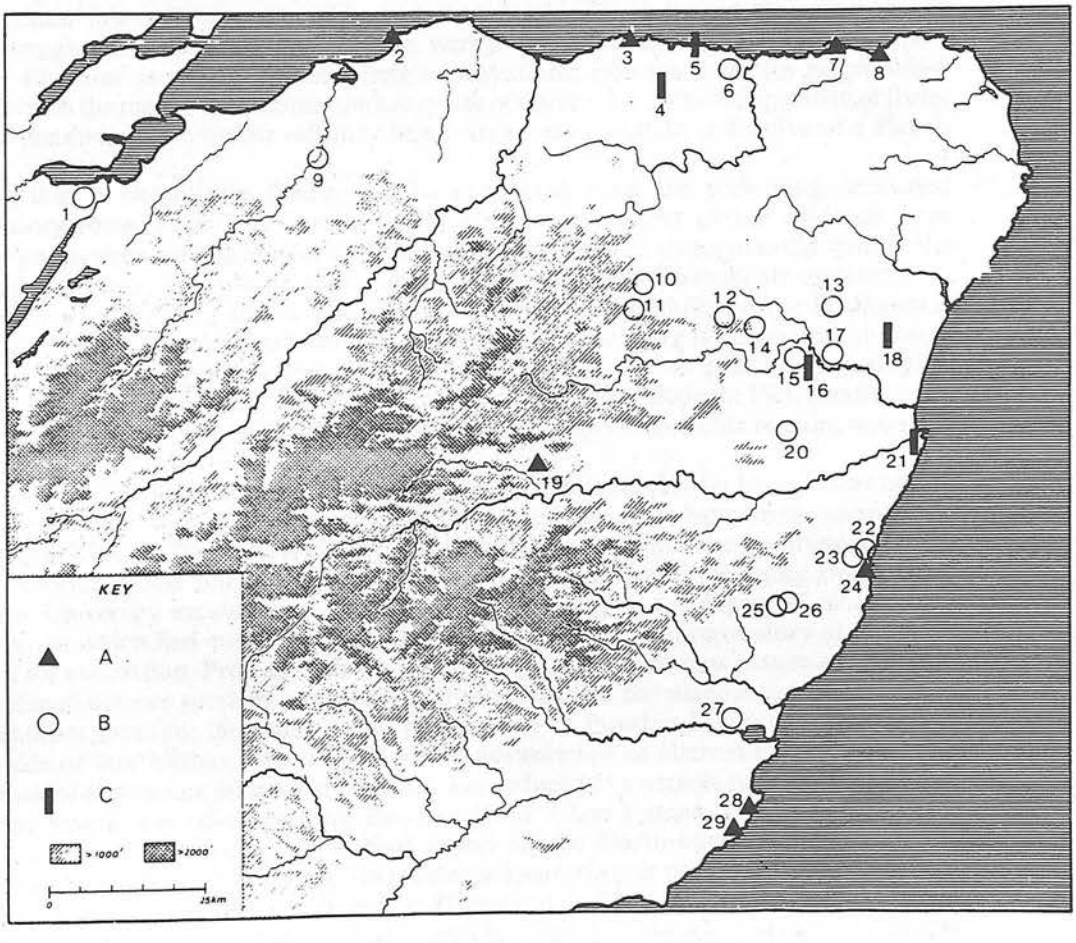


Fig. 1 Sites mentioned in the discussion.
A = promontory forts; B = other sites; C = artefacts.
(1) Craig Phadrig (2) Burghead (3) Green Castle, Portknockie (4) Gaulcross (5) Portsoy (6) Hills of Boyndlie (7) Cullykhan / Castle Point, Troup (8) Dundarg (9) Doune of Relugas (10) Tap o' Noth (11) Barflat (12) Tillymuick (13) Barra Hill (14) Mither Tap o' Bennachie (15) Bruce's Camp (16) Hill of Crichie (17) Wester Fintray (18) Parkhill, Newmachar (19) Hopewell Lodge (20) Barmekin of Echt (21) Nigg Bay (22) Bowdun Head (23) Dinnacaer (24) Dunnottar 1 & 2 (25) Monboddo (26) Burnhead of Monboddo (27) Arrat's Mill (28) West Mains of Ethie (29) Castle Rock, Auchmithie.
1 in Highland, 27-29 in Tayside, remainder in Grampian.

may have been part of a complex but unitary scheme; but even shorn of its outer works, and possibly of the rivalry of Dunnottar, Burghead remains by far the most extensive enclosed promontory in the regions under consideration (approx 2 ha).

If it is accepted that the upper and lower forts at Burghead represent a distinctively Pictish variant of defensive architecture on a coastal promontory site, it is possible to see a hint of the same arrangement at Castle Point, Troup (Greig, 1970, 1971, 1972). In this case, it is the partially-examined vitrified fort, set on the broadest part of the promontory and some distance seaward of the earliest defences, which is potentially of interest. Here, the removal of a mass of heat-shattered stone produced evidence of a vitrified wall which overlay the first millennium b.c. industrial focus of the site. Only part of the plan of this has been recovered: enough to produce a near right-angled corner, and a length of wall running along the seaward side of the promontory. The collapse of the roof of a cave here has removed part of this side of the fort, offering a spectacular example of the erosive potential of the sea; this vitrified wall could still be seen in section, suspended above the cliff, at the time of the excavation (Greig, *pers comm)*. The remainder of the plan of this enclosure has not been recovered, but may be assumed to lie buried beneath the debris on the central part of the promontory. A section of this vitrified wall demonstrated that it had been constructed on a raft of transversal timbers, a trait shared with Burghead. No contemporary occupation within this enceinte is known; the fourth century radiocarbon date for a wooden object found within this enclosure cannot be tied stratigraphically to it; and the wheel-turned sherds, suggested to be of late Roman date, were unearthed outwith this area (Greig, pers *comm)*. Charcoal is available from Greig's excavations; isotopic dates (in preparation) should clinch the matter. Meantime, the heavy use of timber, the possible regularity of form, and the presence of the timber raft may be advanced as potentially indicative of a Pictish date.

Little that is definitively Pictish can be exctracted from the remaining excavated promontory forts. Fojut and Love's (1983) sanguine treatment of the evidence from Dundarg adds a second position for a pre-medieval defensive line, closer in to the spine of the promontory, but both it, and the subsequently remodelled outer defences are undated both relatively and absolutely. In the light of the discovery of ard-marks on the Portknockie headland, the wooden ard-share from the middle ditch at Dundarg is interesting, although again close dating eludes us (Rees, 1983). There appears to be no positive archaelogical support for Simpson's identification of Dundarg as the *cathair* of Bede the Pict, mentioned in the marginal notes of the *Book of Deer*. Material of potentially Pictish date remains restricted to the few items published by Simpson (1954).

Of Alcock's Early Historic fortifications, in the narrow sense (1981 a,b), only one occurs on the North-East coast. This is Dun Foither, mentioned four times between the seventh and tenth centuries A.D. The name is usually equated with the conglomerate headland on which sits Dunnottar Castle but no confirmation of Pictish use was forthcoming from recent Glasgow University excavations. This may be attributable to the degree of more recent disturbance, which had even removed the natural capping of the promontory at the point selected for excavation. Professor Alcock (in Foster *et. al.* (1985) is now pessimistic that any pre-medieval defence survives on this site and proposes that the name may have migrated from another location; the rather larger promontory of Bowdun Head, which closes the South side of Strathlethan Bay to the North, is advanced as an alternative candidate. The rock stack of Dinnacaer, isolated at high tide, and reduced to a narrow spine for much of its surviving length, lies off-shore from Bowdun Head; Class I stones from it are the sole representatives of the type to have been found on the North-East coastline, with the exception of the set from Burghead. This evidence apart, there is presently nothing positive to support this revised attribution and, if Dunnottar is not the documented site, there appears to be no definite indication that it need be coastal, although reference to a Norse attack might be construed to support such a location (Anderson 1922, 396).

A section across the defences at Hopewell Lodge, Tarland, produced no dating evidence. Both the Angus promontories revealed indications of internal timber structures, perhaps post-built round houses, and a small range of material culture amongst which the datable items fall within the early centuries A.D., without precluding a wider date-range for the whole assemblages (Wilson, 1980; Ralston and Close-Brooks, forthcoming). In sum, considering all the excavated promontory forts in terms of our low-grade definition of the term 'Pictish', Burghead stands alone; and whilst it lacks clear evidence of Iron Age use, both Castle Point, Troup and Dundarg, which provide intimations of continuing use across this span, have been insufficiently examined for any definitive pronouncement.

The Green Castle, Portknockie, on the South coast of the Moray Firth 35 km East of Burghead and 30 km West of Castle Point, Troup, was excavated as a rescue operation

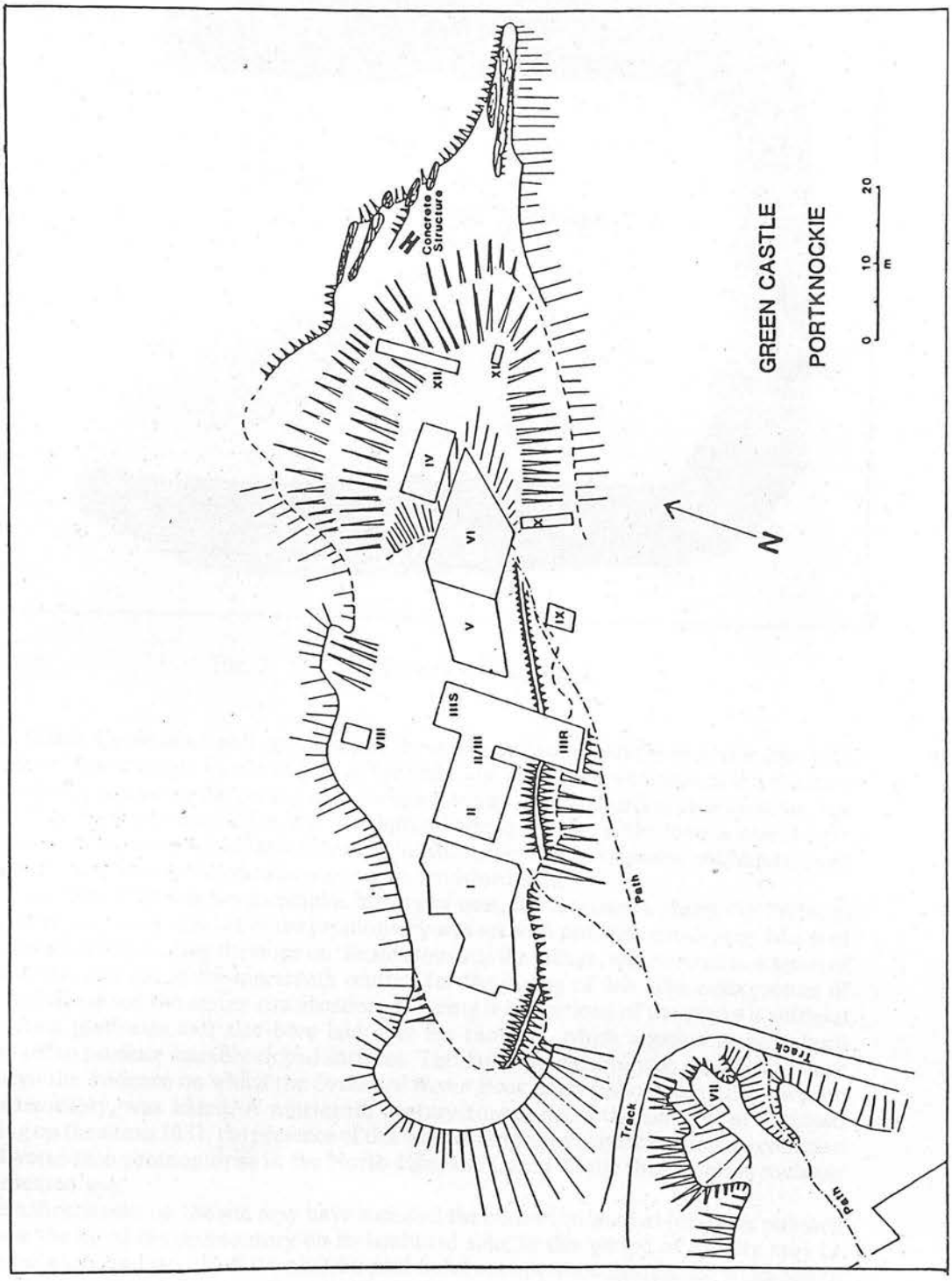


Fig. 2 Green Castle, Portknockie, showing excavated areas.

starting from an over-optimistic reading of an eroding section through the defences; this suggested a burnt timber-laced wall, with which was associated a number of sherds for which, in the vacuum in which we must perforce operate in North-East Scotland, an Early Iron Age date seemed possible. The reason for excavation was to try to find parallels for the earlier material from Castle Point, Troup. Post-excavation work is incomplete, and the following account will be restricted to the main elements for which a Pictish date seems secure.

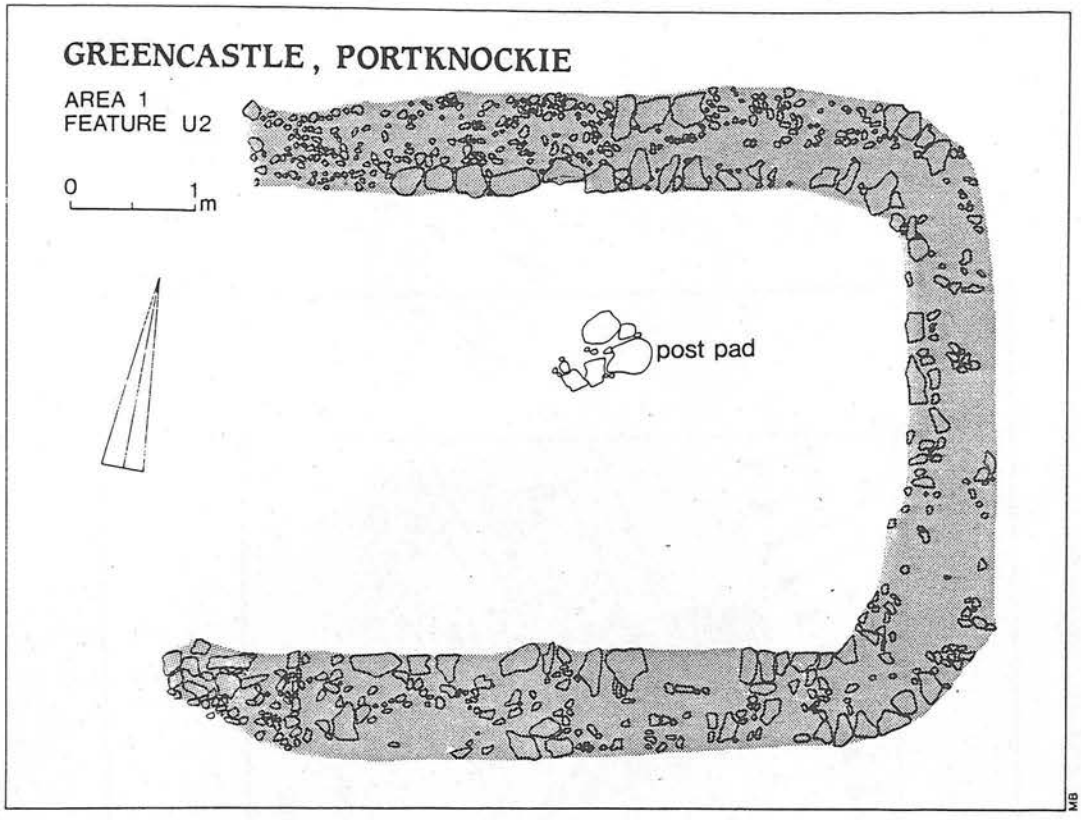


Fig. 3 Structure U2, Area I.

The Green Castle is a small promontory, the upper surface of which, at about 24m OD, extends to 70m in length by about 15m in breadth. The immediate environs of the site have been radically altered by the cutting of the original access route to Portknockie harbour, and by in-filling on either side of the site. The natural configuration of the terrain would have made this a much more formidable defensive location, to which easy access would have been restricted to the now-severed causeway on its landward side.

The interior of the site has a complex history of uses, terminating in about the 1930s, at which time the grassy summit of the promontory was set with poles for net-drying. Much of the promontory, including the slope on the side towards the village, was covered in a series of paved areas, laid out in the nineteenth century for the drying of fish. The construction of these had disturbed the earlier stratification, reducing it in portions of the site to a vestigial trace. Such platforms had also been laid over the rampart, which appears to have been graded off to produce suitably-sloped surfaces. This latter activity may be assumed to have produced the evidence on which the *Ordnance Name Book* entry indicating vitrification on the promontory, was based. A nineteenth century source notes the survival of a ruined building on the site in 1831; the presence of this was confirmed by the excavation. In common with several such promontories in the North-East, the Green Castle thus displays multiple and repeated use.

Prehistoric works on the site may have included the construction of at least one palisade line near the lip of the promontory on its landward side; to this period of activity may be attributed some, but not all, of the pits and post-holes cut into the consolidated wind-blown sand which masks the upper surface. Patches of ard-marking, unidirectional and parallel with the long access of the site, underlay the timber-laced rampart and scarred the upper surfaces of a few of the earliest features. An agricultural episode, after the initial occupation, is indicated; pollen evidence points to the cultivation of oats. The soil which covered the promontory produced a considerable assemblage of material culture, particularly pottery, and locally contained quantities of comminuted fragments of cremated bone. Despite detailed examination, it proved impossible to discern any inviolate stratification in this deposit. Much of the material recovered was concentrated at the South-West apex of the promontory, near the point at which the approach causeway had been amputated from the promontory last century. Here was found an internal structure for which a Pictish date, in the light of the dating of the last defence of the site, may be claimed. This consisted of a rectilinear structure, with rounded corners, of which three sides were still recognisable; the wall-lines are preserved for the most part to a single course, including water-rolled stones

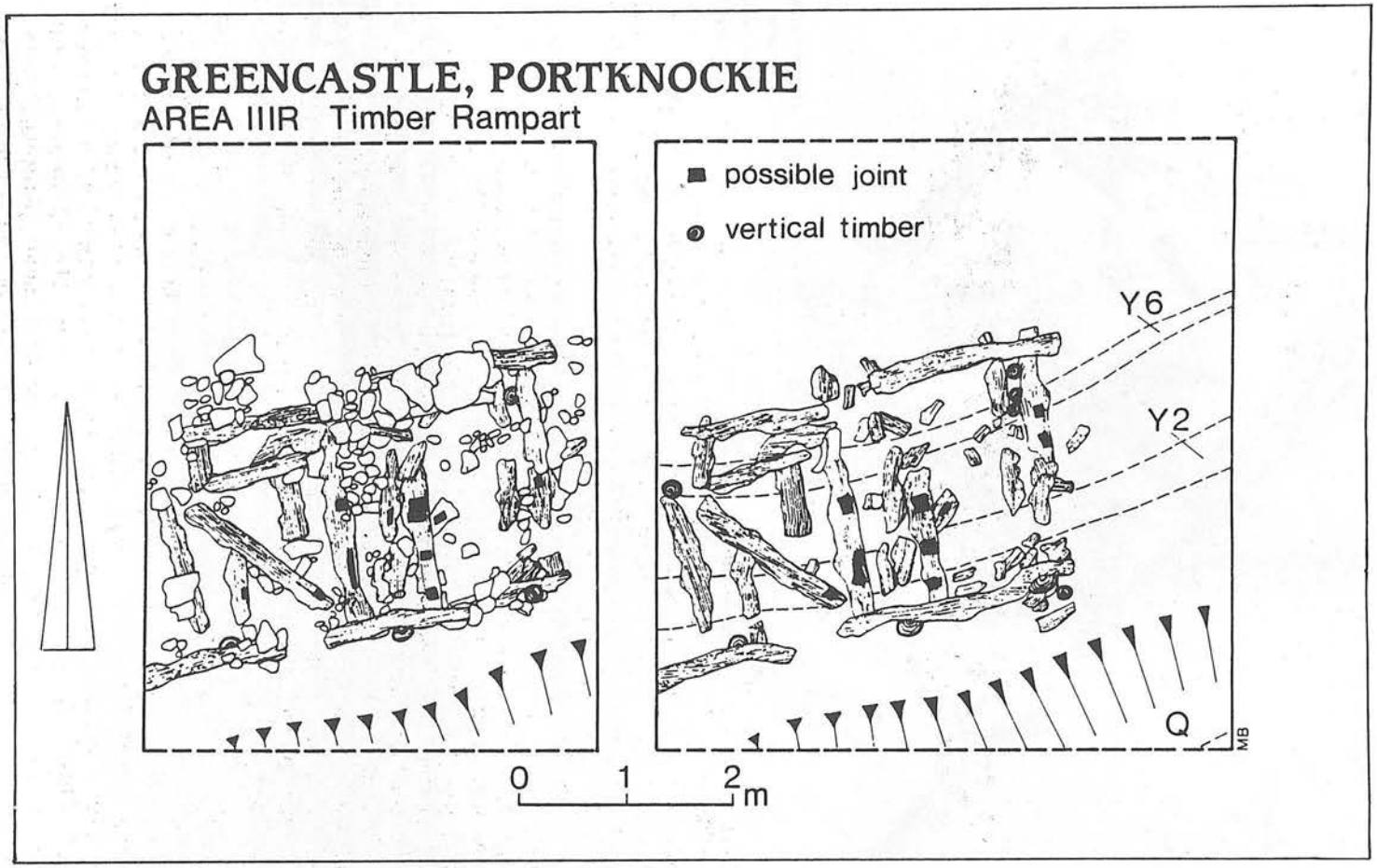


Fig. 4 Two successive stages in the excavation of the rampart timberwork. Y2 and Y6 are earlier palisade lines.

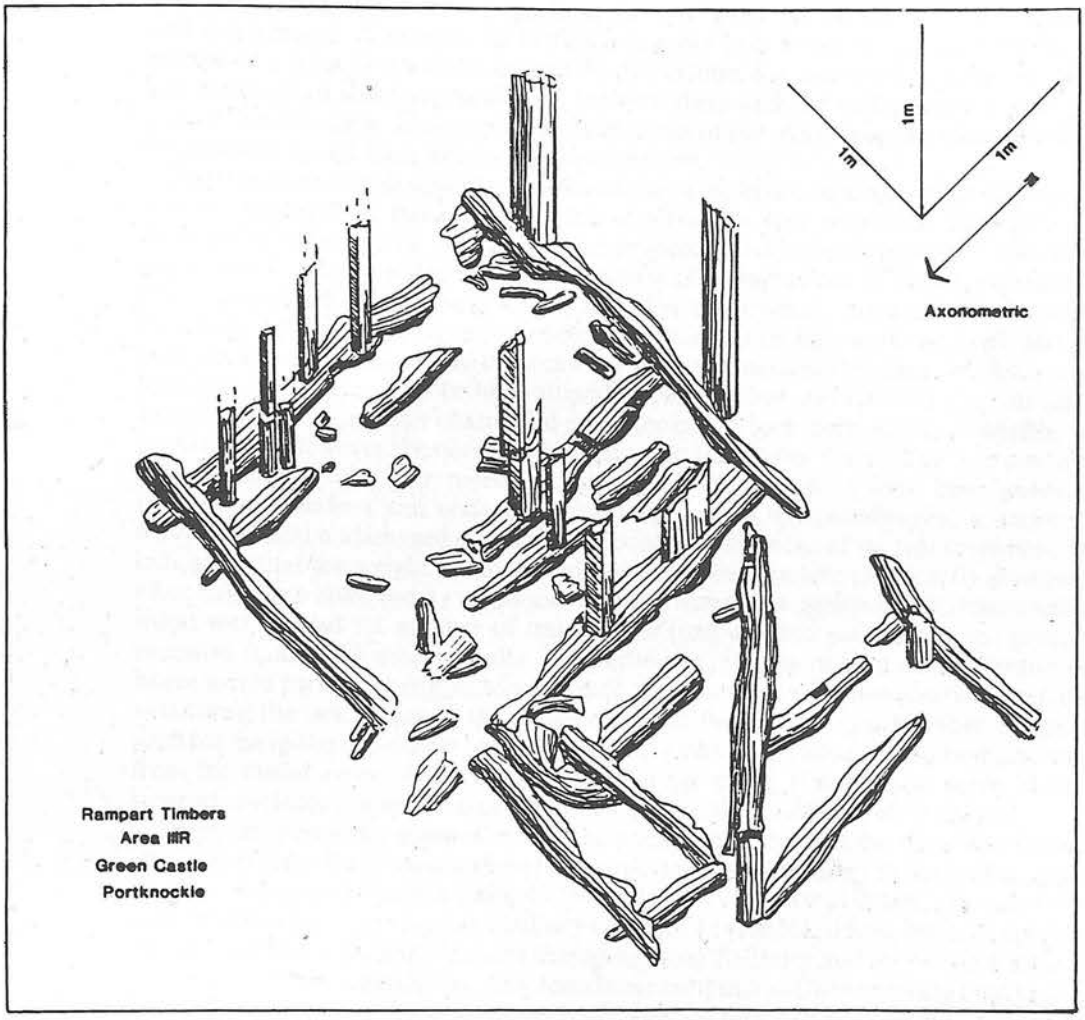


Fig. 5 Axonametric sketch of surviving timberwork in the rampart

from the beach; these formed inner and outer facings, between which the surviving fill was of organic soil. The south-east side of this building was contructed on the soil horizon, but the opposing long side was established almost at the level of the subjacent natural. One internal feature, a post-pad, may be taken as an indication of the former presence of internal supports for the roof. Debris within this structure included a notable concentration of crucible fragments, but no further indications of the actual working of metals. Although not so massively enclosed, this building bears some resemblance to Wag of Forse Building A, rather than to the other certain or possible Pictish houses collated by Alcock (1984, 12).

The most remarkable Pictish feature at Portknockie is however undoubtedly the timber-framed wall examined on the south-east side of the site. Limited sampling indicates that this ran out almost to the bare quartzite outcrop at the seaward point; its line can also be seen as an upstanding feature at the south-west end of the site, but both limited sampling above the cliff on the north-west side and at the break-of-slope between the upper and lower terraces failed to disclose any evidence of its presence. Whilst it is clearly possible that erosion may have eliminated all traces on the seaward side - where safety considerations in any case restricted our work - the surviving evidence thus indicates that the defence was not a closed form, as in the upper and lower forts at Burghead, and as postulated for the vitrified fort at Troup. Construction of this was preceded by a fence line, on broadly the same orientation; this has yielded an uncorrected radiocarbon date of a.d. 330 $\pm$ 115. A further palisade line, not yet dated, also underlay the wall.

The major section, 6m wide, provided good evidence for the inner revetment of this wall and for the characteristics of the internal timber framework, despite the damage caused by the laying of the platforms. The external face, like that at Dumbarton Rock for example, had

clearly been positioned downslope from the level platform on which the remainder of the wall was erected. A number of features, notably post-holes, which could have held the timbers of a front face were examined on this incline, but nineteenth century modifications had removed all stratigraphical links between them and the well-preserved portion of the wall. If these features are accepted as indications of the outer face, the overall width of this fortification would have been approximately 6m.

The fragment of wall which had survived above the break-of-slope was well-preserved, the internal timberwork having burnt; this destruction had produced only very localised evidence of vitrification. The excavated evidence conclusively points to the method of construction. This entailed the initial erection of a framework of mostly-squared timbers (those examined are of oak) which included transversal, longitudinal, vertical and - extremely doubtfully - diagonal elements. The vertical timbers were not earth-fast, but had been set into mortises and half-checks cut in the transversal timbers. Whilst some of the longitudinals appeared to be little-altered branches (they still retained the stumps of side-branches), others, in their charcoaled state, looked to have been planks. Roughly- squared timbers were however the norm. Indications that the timber framework was pre-fabricated are provided by the rear revetment: this could be shown to have been penetrated by transversal members and underlain by a longitudinal. Extraordinarily, a cache of shells survived almost undamaged on the surface beneath the blocks of the rear revetment, strongly indicating that the weight of this could not have been transferred directly downward and must have been absorbed by the timber frame. There is a suggestion that at least some of the wood was re-used : a number of transversals (one of each pair recovered) contained an excessive number of mortise holes. The elaborate jointing present in the Buston crannog house would permit the suggestion that such timbers could have been derived from domestic structures; the lack of oak in the pollen record at Burghead might be taken to support the need for the re-use of suitable beams. A fanciful alternative source would be dismantled craft from the Pictish navy. Whatever the origin of the wood, this complex work, it should be stressed, encloses a usuable area considerably less than 1,000 sq m in extent.

There are manifestly many echoes in this construction both of the Burghead fortification, although it is far from being an identical work, the more generally in the timber component of some crannogs (Morrison 1985, 42-50). In terms of structural details, there are also good parallels from Rampart East at Cadbury-Camelot 11 (Alcock, 1983), broadly datable to the decades around A.D. 500. Features shared between Cadbury and the Green Castle include: the presence of vertical timbers, only sometimes earthfast at Cadbury; suggestions of timber-jointing in the internal framework; and construction on a pre-existing plough-soil. A major difference is clearly in the scale of the area enclosed by these works; and, by inference, in the political role these sites may have fulfilled. Alcock has postulated that the elaboration of the defence of Cadbury 11 is an element in favour of the permanence of occupation behind it; and the same may perhaps be advocated for the Green Castle. Even allowing for the smaller scale of political centres in northern Britain, and the difficulty of arriving at any meaningful size-estimate for some of the rocky citadels, it seems hardly possible to elevate the Green Castle to an important political position, the more so since the site lacks any of the imported or 'status' items recovered on Craig Phadrig or Burghead, to cite only the two closest examples. Alcock (1984) and Ritchie (1985) have already proposed a possible link between historical indications of Pictish sea-power and promontory forts; and this is clearly one context into which the Green Castle may be fitted. More significant, perhaps, than the later siting of the fishing port to the west of the site, is the area of the Triple Creeks on the south east of the promontory, in the lee of its approach causeway. Here boat-building formerly took place, the craft being launched from the shelving beach.

Before leaving the Green Castle, a few points about its immediate cultural hinterland may be noted, drawing on the series of maps prepared by Shepherd (1983). The coastal lowlands, between Deveron and Spey, form a conspicuous gap in the distributions of both 'pit' place-names and symbol-stones. Contrastingly, there are two findspots of high-quality objects: the whetstone from Portsoy may have been found some 10 km to the east, whilst the Gaulcross hoard was unearthed about 7 km south east of the promontory. Both conform to the esstially coastal distribution of such fine metal-work in the North-East - the chains from Nigg Bay and Parkhill, Newmachar (from about 5 km inland) being the other principal examples. Whilst generalising on such a slender basis is unsafe, the existence of this set of material stands in stark contrast with the river-valley-and-inland-basin pattern of the surviving symbol stones. Lower Banffshire has now produced cropmark evidence of one of the barrow cemeteries, incorporating square enclosures and probably to be regarded as Pictish, at the Hills of Boyndlie, West of Banff (Ralston and Inglis 1984, 18). This remains, however, a grossly underprospected area.

The resemblaces between the architectural characteristics of the Green Castle wall and defences as far afield as Cadbury may be taken to be symptomatic of a trait noted in other contexts - that apparently Pictish material in this heartland area bears clear indications of participation in wider cultural patterning. Group I escutcheons and brooches of St Ninian's Isle type mapped by Alcock (1984), and the latter type commented on by Lane (1984, 52-3) in the light of his discovery of further mould fragments at Dunadd, may serve as examples. The lesson is perhaps that not only should we be prepared to discover the Picts reinhabiting earlier sites and perhaps continuing to build according to essentially later prehistoric models - if indeed the two are separable - but also adopting architertural types from other contemporary traditions. Such prosaic statements allow us to consider almost any site in inland Grampian in our further quest for Pictish settlement.

Since the broad patterning of the site and artefactual evidence has been ably considered by Shepherd (1983), a selection of sites of different categories will be considered. The guiding lights for this speculative foray will be two in number. First, assessment of possible similarities with site type elsewhere; and second the idea - argued persuasively by Watkins and proposed in a different guise, using geographical techniques, by Cottam and Small (1974) for Southern Pictland - that the archaeological record of settlements may contain some intimations of the increasing centralisation of power - albeit interrupted and perhaps volatile - that can be surmised from the late classical sources and suggested from the historical record. Clearly, any such attempt runs the risk of being torpedoed on the absence of dating evidence, as many critics of Cottam and Small made plain; but it is understood, from the *Observer,* that if the torpedo is British-made our chances of survival are not negligible. What follows is thus an attempt to list some of the locations where elites, replacing those whose power may once have been partially based on the edible contents of the souterrains - a contention now surely undermined by the burgeoning number of such monuments - may have become established or, more likely, may intermittently have been based.

One clear possibility is the stone-walled forts of central Aberdeenshire, for which no dating is available, but which appear to be later than multivallate (Barmekin of Echt) and bivallate (at Barra Hill) systems. A clear distinction from the coastal promontory forts is evident however in the relative slightness of their surviving defences. Of this series, Bruce's Camp at Inverurie, near the Urie-Don confluence with its concentration of symbol stones and the Hill of Crichie find of shale bobble-heads for pins, and two bronze items (Ralston and Inglis 1984, no. 34), has produced indications of vitrification from a much slighter defence than that usually represented on the earlier oblong vitrified forts. Another stone-walled example is to be found on the northern skirts of Bennachie at Tillymuick, some distance from the Mither Tap, a fort at which certain details, like the gallery immediately inside the outermost wall, suggest similarities with Dunadd. This site invites comparison with the nucleated series, now demonstrated not always to be unitary works, but the disposition of its defences is different in conception. Of course, it is possible to transfer many of the enclosed sites of North-East Scotland into the Pictish period, so scanty is our dating evidence. Even the celebrated series of vitrified forts, for which early dating is best established, include one example of refurbishment outside our area, at Craig Phadrig (Small, 1975, 84-5). The discovery of a bronze loose-ring in (Fanning, 1983) at the Doune of Relugas, Moray, may offer an intimation of a similar sequence there.

The highest and biggest fort in the Region is Tap o' Noth, near Rhynie. The perimeter here encloses about 21 ha, and consists of an irregular wall, part stone-built terrace, part piled stone, and entirely absent on the steepest side. Within it are well over 200 platforms, some linked by evidence of tracks. Most of these platforms may be surmised to have been occupied by timber structures, and some may be quarry-scoops for suitable stone for the defences; one or two, however, carry remnants of structural stonework. I have elsewhere used the evidence that some of these platforms are overlain by debris from the massive vitrified wall on the summit to argue for a precocious date for this set of evidence (Ralston *et. al.* 1983). Against this, a small collection of material (Shepherd, 1983; Ralston and Inglis 1984, 10-11, nos 13 and 29) from the skirts of the hill could be used to advocate a date in the early centuries A.D. Should one wish a large central place for the Picts of the North-East, this assuredly is the prime candidate. Although it is of course hazardous to transfer the terminal date for the Angus/Perthshire souterrains northwards, some at least of the concentration of examples on Donside are within sight of this conspicuous hill.

In the absence of excavation evidence, it is equally difficult to select from the aerial photographic record which sites to advocate. An exception is perhaps the enclosure round the Craw Stane at Barflat, Rhynie, already discussed by Ian Shepherd (1983). A classic example of what happens to the best laid schemes o' mice an' men is illustrated by the saga of

Balbridie, on Deeside, east of Banchory - one of the rare sites to have been dug in the area with the expectation of finding the Picts. I still find the closeness of the basic ground-plan of Doon Hill A to this timber hall (Reynolds, 1978) as convincing a case as could be made from aerial photographic evidence; convincing, but in the event, wrong (Ralston, 1982).

There seems nonetheless no reason to abandon the possibility that at least some of the halls apparent as cropmarks from the air may yet prove to be Pictish. Two reasons in Grampian merit brief attention. At Wester Fintray, Kintore, the cropmark of a hall lies riverward of a palisaded enclosure and a complex of ring-ditches; one bowed gable-end is clear, for what, in the light of the Neolithic date of Balbridie, that is worth as a diagnostic trait. A more attractive case can perhaps be made out for two sites near Monboddo, in the north of the Howe of the Mearns (Ralston 1984a, 74 and 80). Here were found traces of two cropmarks of circular structures with which are associated sinuous marks that may be equated with those examined by Watkins (1980) at Dalladies 2. Such 'embryo' souterrains, closely paralleled at Arrat's Mill on the South Esk (Maxwell, 1983, pl 6) are not complemented by the more substantial variants of such monuments in northern Kincardineshire (Maxwell, 1983, fig. 1). To that extent, Watkins' suggestion, based on Dalladies 2, that sites of this type may have run on into the early centuries A.D. (1984, 69), might allow the recognition of a chronological relationship between the Burnhead sites and another, about 1 km away in the direction of Monboddo House. Here, aerial photography has revealed the traces of what appears to be another timber hall, though in this case conforming much more closely to usual standards of post-Roman structures, as categorised by James and his collaborators (1984): the building has an entrance on its long east-side, lacks any indication of bowing at the gable ends, and sits within an enclosure defined by a thin line which, except in so far as the latter was polygonal, bears some resemblance to the stockade around Doon Hill (Hope-Taylor, 1980). These two sites might offer a possibility for sequencing Pictish settlement near the divide between North and South Pictland; and Alcock (1983) has described Doon Hill as a 'princely' site, an epithet which the spade might prove appropriate to the Monboddo building.

Confirmation of the dating of all these classes of site will depent on the spade and - anticipating a restricted range of material culture - radiocarbon assays. The case for reverting to limited sampling across the potential data set appears strong.

In conclusion, Watkins (1984) has already forced our attention onto some of the likely archaeologically-recognisable concomitants of the emergence of statehood in Pictland. The land over which we habitually write this name on our maps is characterised by landscapes as diverse as any found in Britain, and by difficulties of communications. The small portion of this zone under consideration nonetheless corresponds to one of the larger (in areal terms) local authority units in Britain today. Approximately 9,000 sq km in extent, this is about half the size of one of the great - and some would have us believe, highly centralised - *civitates* which emerged in Central France in the decades before Julius Caesar. Whatever the contribution of Rome in provoking the coalescence of tribal groups in frontier areas of Scotland, scale considerations (Ralston, 1984b), variations in terrain and resources, historical indications of less-than-total unity, not to mention the differentiation in subsequent rural settlement types, might lead us to suggest considerable cultural variability within Pictland. It is surely too much to expect that the settlement record of this fragile early state, during the few centuries of its existence, will display other than an initially-perplexing diversity. If the Picts ceased to be a 'problem' in this and other ways, they would stop being interesting.

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Bibliography

Alcock, L. (1980) 'Populi bestiales Pictorum feroci animo : a survey of Pictish settlement archaeology' in Hanson, W.S. and Keppie, L.J.F. 'Roman Frontier Studies 1979'. *B.A.R.* 7 (i), 61-95

Alcock, L (1981a) 'Early historic fortifications in Scotland' in Guilbert, G. (ed.) *Hill-Fort Studies : Essays for A.H.A. Hogg*. Leicester, 150-180

Alcock, L. (1981b) 'Early Historic Fortification of Scotland'. *Current Archaeol.*, 7, 230-6

Alcock, L. (1983) 'Cadbury-Camelot : a fifteen year perspective'. *Proc. Brit. Acad.* 68, 357-88

Alcock, L. (1984) 'A Survey of Pictish Settlement Archaeology' in Friell, J.G.P. and Watson W.G. (eds.) 'Pictish Studies'. *B.A.R.* 125, 7-41

Anderson, A.O. (1922) *Early Sources of Scottish History. A.D. 500-1286*. Edinburgh

Cottam, M.B. and Small, A. (1974) 'The Distribution of Settlement in Southern Pictland'. *Medieval Archaeol.* 18, 43-65

Edwards, K.J. and Ralston, I.B.M. (1978) 'New dating and environmental evidence from Burghead Fort, Moray'. *Proc. Soc. Antiq. Scot.* 109, 202-10

Fanning, T. (1983) 'Some aspects of the bronze ringed pin in Scotland' in O'Conner, A. and Clarke, D.V. *From the Stone Age to the Forty-Five*. Edinburgh. 324-42

Foster, S.M. *et. al.* (1985) *Excavations at Urquhart and Dunnottar Castles 1983 and 1984 : Interum Reports*. Dept of Archaeology, University of Glasgow

Fojut, N. and Love, P. (1983) 'The defences of Dundarg Castle, Aberdeenshire'. *Proc. Soc. Antiq. Scot.* 113, 449-56

Greig, J.C. (1970) 'Excavations at Castle Point, Troup'. *Aberdeen Univ. Rev.* 143, 274-83

Greig, J.C. (1971) 'Excavations at Cullykhan, Castle Point, Troup, Banffshire'. *Scott. Archaeol. Forum* 3, 15-21

Greig, J.C. (1972) 'Cullykhan'. *Current Archaeol.* 6, 227-31

Hope-Taylor, B.K. (1980) 'Balbridie ... and Doon Hill'. *Current Archaeol.* 72, 18-9

James, S. *et. al.* (1984) 'An Early Medieval Building Tradition'. *Archaeol. J.* 141

Lane, A. (1984) 'Some Pictish Problems at Dunadd' in Friell, J.G.P. and Watson, W.G. (eds.) 'Pictish Studies'. *B.A.R.* 125, 43-62

Longley, D. (1975) 'Hanging-Bowls, Penannular Brooches and the Anglo-Saxon Connexion'. *B.A.R.* 22

Macdonald, J. (1862) 'Historical Notices of 'The Broch' of Burghead in Moray, with an account of its Antiquities'. *Proc. Soc. Antiq. Scot.* 4, 321-69

Maxwell, G.S. (1983) 'Recent aerial survey in Scotland' in Maxwell, G.S. (ed.) 'The Impact of Aerial Reconnaissance on Archaeology'. *Council Brit. Archaeol. Res. Rep.* 49, 27-40

Morrison, I.A. (1985) *Landscape with Lake Dwellings. The Crannogs of Scotland.* Edinburgh

Ralston, I.B.M. (1980) 'The Green Castle, Portknockie, and the promontory forts of North-East Scotland'. *Scott. Archaeol. Forum* 10, 27-40

Ralston, I.B.M. (1982) 'A timber hall at Balbridie Farm'. Aberdeen Univ. Rev. 168, 238-49

Ralston, I.B.M. (1984a) 'Notes on the archaeology of Kincardine and Deeside'. *The Deeside Field* 18, 73-83

Ralston, I.B.M. (1984b) 'The later prehistoric settlement record : some considerations' in Cahen-Delhaye, A. *et. al.* (eds.) 'Les Celtes en Belgique et dans le Nord de la France'. *Revue du Nord,* numero special, 147-50

Ralston, I.B.M. and Close-Brooks, J. (198-) 'The Arbroath Antiquary Club's excavations at Castle Rock promontory fort, Arbroath and St Vigeans, Angus District. *Proc. Soc. Antiq. Scot.* (forthcoming)

Ralston, I.B.M. and Inglis, J.C. (1984) *Foul Hordes : the Picts in the North-East and their background.* Aberdeen

Ralston, I.B.M. *et. al.* (1983) 'Later prehistoric settlements in North-East Scotland : a preliminary assessment' in Chapman, J.C. and Mytum, H.C. (eds.) 'Settlement in North Britain 1000 B.C. - A.D. 1000' *B.A.R.* 118, 149-73

Rees, S.E. (1983) 'A wooden ard-share from Dundarg, Aberdeenshire, with a note on other wooden pieces'. *Proc. Soc. Antiq. Scot.* 113, 457-63

Reynolds, N. (1980) 'Dark Age Timber Halls and the Background to Excavations at Balbridie'. *Scot. Archaeol. Forum* 10, 41-60

Ritchie, A. (1984) 'The archaeology of the Picts : some current problems' in Friell, J.G.P. and Watson, W.G. (eds.) 'Pictish Studies'. *B.A.R.* 125, 1-6

Ritchie, A. (1985) 'Orkney in the Pictish Kingdom' in Renfrew, A.C. *The Prehistoric of Orkney*. Edinburgh, 183-204

Simpson, W.D. (1954) *Dundarg Castle*. Edinburgh

Simpson, W.D. (1960) 'Dundarg Castle Reconsidered'. *Trans. Buchan Club* 17 (pt. IV), 9-25

Small, A. (1969) 'Burghead'. *Scott. Archaeol. Forum* 1, 61-69

Small, A. (1975) 'The Hill Forts of the Inverness Area' in Inverness Field Club. *The Hub of the Highland.* Edinburgh 79-89

Small, A. and Cottam, M.B. (1972) *Craig Phadrig*. Dept. of Geography, Occasional Paper No. 1. University of Dundee

Shepherd, I.A.G. (1983) 'Pictish settlement problems in North-East Scotland' in Chapman J.C. and Mytum, H. C. (eds.) 'Settlement in North Britain 1000 B.C.- A.D. 1000. *B.A.R.* 118, 327-56

Watkins, T.F. (1980) 'Excavation of an Iron Age open settlement at Dalladies, Kincardineshire'. *Proc. Soc. Antiq. Scot.* 110, 122-64

Watkins, T.F. (1984) 'Where were the Picts?' An essay in settlement archaeology in Friell, J.G.P. and Watson, W.G. (eds.) *'Pictish Studies', B.A.R.* 125, 63-86

Wilson, E.M. (1980) 'Excavations at West Mains of Ethie, Angus'. *Proc. Soc. Antiq. Scot.* 110, 114-21

Young, H.W. (1891) 'Notice on the Ramparts of Burghead, as revealed by recent Excavations'. *Proc. Soc. Antiq. Scot.* 25, 1890-1, 436-47

1986: 'The Yorkshire Television vitrified wall experiment at East Tullos, City of Aberdeen District', *Proc Soc Antiq Scot*, **116**, 1986 (1987), 17-40.

Proc Soc Antiq Scot, 116 (1986), 17–40

The Yorkshire Television vitrified wall experiment at East Tullos, City of Aberdeen District

Ian Ralston*

ABSTRACT

Experimental firing of a full-scale model of a pine-laced wall provoked limited localized vitrification of the hearting. The results may be added to previously-garnered evidence to refute the suggestion that vitrification was constructional in intent. The large-scale vitrification of some Scottish sites must have provided a spectacular intimation of destructive power.

INTRODUCTION

During late March and early April 1980, a timber-laced wall, corresponding approximately to a later prehistoric type, was reconstructed on the margin of the City of Aberdeen District Council Cleansing Department's waste disposal tip at Tullos Hill, Aberdeen City District, with a view to attempting to reproduce experimentally the characteristics of the vitrified walls recorded in north Britain. The project was financed totally by Yorkshire Television, a division of Trident Television, and justifiably work on the wall had to comply with the necessities of a tight filming schedule. Although firing of the wall took place in less than optimum conditions, and although the wall had to be demolished in its entirety some 28 hours after its ignition (when it was still alight), small quantities of vitrified rock were obtained. This reconstruction and its subsequent firing formed part of one episode of *Arthur C Clarke's Mysterious World*, broadcast in the autumn of 1980.

A principal difference from the walls built by Childe and Thorneycroft for the experiments reported in these *Proceedings* (1938a, 54) was the intention to build the East Tullos wall at approaching full scale. The larger of the 1930s' experimental walls – that at Plean Colliery – measured 12 ft (c 3·65 m) long, by 6 ft high (c 1·82 m) and the same broad. Whilst wall breadths in excess of 6 m have been recorded in excavation, as, for example, at Craig Phadraig, Inverness District (Small & Cottam 1972), such dimensions appear to represent broader-than-average constructions, and so East Tullos was built to a basal width of 4 m.

Childe and Thorneycroft's experiments demonstrated that localized vitrification could be provoked simply by setting fire to a timber-laced wall. Despite this demonstration, the theory of 'creative vitrification' – the hypothesis that vitrification was a constructional process to strengthen walls – has lingered on. In its minimalist form, the latter theory can be expressed as follows: despite the absence of analytical evidence that the vitrified walls contained anything except wood and stone (and, doubtfully, bone, discussed below), it seems unlikely that vitrification could be produced simply by the combustion of timber-laced walls. Some of the conclusions of the most sanguine of the

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laboratory-based reports available at the time of the experiment are worth quotation *in extenso*, since they run counter to the Childe-Thorneycroft view:

> 'The temperatures necessary for partial melting are in the range of >900–1100°C. These high temperatures, while not serving as direct proof of a constructional intention, do preclude the hypothesis that vitrification resulted from simply setting fire to a timber-laced wall of *murus gallicus* type' (Youngblood *et al* 1978, 119–20).

It was this contrast in views which constituted 'the mystery' that attracted the Television Company's attention. It is necessary first of all to dispose of the *murus gallicus* label. In recent discussions of the vitrified forts, this epithet implies nothing more than the inclusion within the wall-core of horizontal timbers disposed longitudinally and transversally – the timber-laced wall of Scottish terminology. The latin name is a survival from the time when Scottish Iron-Age material was compressed into an ultra-short chronological span, and when derivation of the Scottish series of fortifications with internal timberwork from those of late la Tène France, encountered by Julius Caesar at Avaricum (Bourges, Cher) in 52 BC, seemed a tenable position. True *muri gallici* – often identified archaeologically by the presence of long iron spikes, presumably augered into the intersections of their longitudinal and transversal timbers – remain resolutely late in the West European sequence. Early examples may date to the second century BC. Radiocarbon determinations have made it plain that the Scottish series of fortifications begins at a much earlier date, so that the retention of this term cannot be justified, especially as architectural variants on the stone/earth/timber theme have increasingly been recognized on the Continent as in Britain.

A recent review of the archaeological record from excavations (MacKie 1976, 206–10) has indicated the strength of the field evidence for vitrification as a product of the destruction of defences. The writer concurs entirely with MacKie's arguments in this regard. The theories that have previously found favour are equally outlined by Nisbet (1974; 1975), who also presents the most thorough data set yet assembled to demonstrate that vitrified works display no evidence for the selection of particular geological types, but are rather built of the materials that were available locally. These three papers (MacKie 1976; Nisbet 1974; 1975) contain all the most cogent arguments that have been advanced to suggest that vitrification is a destructive process, frequently coinciding – in archaeological terms – with long-term, if not definitive, abandonment of the affected site. The East Tullos experiment provided an opportunity to review afresh the practicalities, previously considered by Childe and Thorneycroft (1938a) on the basis of their experimental work, of provoking vitrification in a wall containing an internal timber framework.

THE CONSTRUCTION OF THE WALL

The design of wall finally selected for construction and the materials employed were chosen partly on the basis of the knowledge of the timber-laced and vitrified forts of Scotland and elsewhere and partly on the basis of expediency. The materials were obtained by Mr Nick Lord, Researcher at Yorkshire Television.

The European heritage in stone-earth-and-timber-built ramparts is a rich and varied one (Büchsenschütz & Ralston 1981), with many of the better-preserved examples displaying indications of burning on excavation. Vitrification of these works has been noted widely on the Continent as well as in Scotland in areas with appropriate geologies, there being, for example, an extensive series of sites in France (Ralston 1981; Büchsenschütz 1984, 227–30, fig 104). Whilst there are certainly differences within the set, as Déchelette (1913, 704–13) noted, it is certainly not the case that the Scottish vitrified sites are 'unique in Europe' (MacKie 1976, 206).

Before the reconstruction took place, Mr Lord and the writer sought advice from Dr Olivier

Büchsenschütz (CNRS, France), Professor Fred Glasser (Chemistry Department, University of Aberdeen), Mr Peter Hill (Edinburgh), Mr David Longley (then Teaching Fellow at the University of St Andrews), Miss Helen Nisbet (Lasswade) and Dr Elizabeth Youngblood (Arizona State University). Whilst we are grateful to them all for their assistance, none of them bears any responsibility for the eventual form of the wall, nor for the conduct of the experiment.

In essence, three possible designs for the wall were considered, a major variant in each option being the spacing of the timbers to be incorporated. The distribution and size of the timbers are clearly of predominant significance in determining the amount of combustible material in the wall, whilst the disposition of the timbers conditions the ease with which they may be ignited. The designs were, first, the timber-laced wall, as most commonly identified in Scotland, with transversal and longitudinal beams (but not vertical elements and no jointing of the timbers) – essentially the Ehrang type (Collis & Ralston 1976) of Continental Europe. A variant of this, incorporating vertical timbers set in individual postholes, and positioned in the external wall-face, interspersed with panels of stonework, was the second option considered. Again such architecture is widely known, although, generally speaking, the recovery of upright timbers in defensive wall constructions is a feature more of central than of western Europe, and is more frequently documented in excavation in southern than northern Britain. Exceptions, however, occur in some numbers; the entranceway at Cullykhan, Banff and Buchan District (Greig 1972) may be cited by way of example. Reconstruction drawings of such walls, with the vertical posts providing the major supports for a breastwork, added to the potential attraction of this design. The third model, essentially based on the author's own excavations of a Pictish fortification at Green Castle, Portknockie, Moray District, equally has the merit of exposed vertical elements, which it was believed would have been of assistance in actually setting the wall alight. This rather elaborate variant (Ralston 1987) consists of a framework of prefabricated 'boxes' of vertical, longitudinal and transversal timbers, around which the stonework could have been erected subsequently. Since the timber framework could have been constructed under cover, this design was proposed in the event of inclement weather during the building stage.

Despite suggestions that it would be very difficult to ignite the wall in the absence of exposed vertical structural timbers, constraints of labour availability and of time, and the intention to use machinery to speed construction, prompted the eventual selection of the basic timber-laced wall incorporating only longitudinal and transversal beams. Furthermore, the prohibitive costs of hardwoods, more particularly oak, dictated the choice of scrap Columbia pine for the transversal elements, and rather less substantial pine for the longitudinal elements. The main transversal beams, trimmed by chainsaw, were approximately 5·5 m long; these beams measured approximately 0·23 m by 0·12 m (9 in by 5 in). The lengths of pine supplied for use as longitudinals were of the order of 4 m; these had to be stitched together, using 4 in (0·10 m) wire nails, to run the entire length (about 6·5 m) of the reconstructed section of wall. The longitudinals were either 4 in by 4 in (0·1 m by 0·1 m) in cross-section, or 4 in by 3 in (illus 1). The preparation and insertion of the timberwork were organized by Mr George Blackhall.

The stonework comprised a variety of materials. Most of the facing-stones of the wall were obtained from a drystone dyke which had been demolished in the area: these were predominantly granites. The bulk of the hearting consisted of gabbros from Balmedie Quarry, Gordon District; these gabbros included both head-sized stones and smaller chips, the latter usually 0·10 to 0·15 m in length. This plutonic rock was selected on the advice of Professor Glasser: it displays 'ready flow' at a relatively low temperature (Nisbet 1975, 5). Stones of equivalent size were also obtained from Cove Quarry (City of Aberdeen District) in a metamorphic rock, a quartzose mica-schist. Some of the larger gabbros were required for the wall faces; most of the little stones were employed in the upper layers of the hearting – particularly from the third layer of transversal timbers upwards. The building



ILLUS 1 An early stage of the construction, looking north. The second row of longitudinals is visible on the surface

of the wall-faces was undertaken by Mr Robin Callander, who also supervised the remainder of the construction.

Site preparation and wall construction occupied approximately four cold, blustery and intermittently very wet days in late March. The site selected for construction was a low gorse-and-grass-covered knoll (altitude approximately 80 m) a little to the west of the triangulation point on Tullos Hill (NGR NJ 956 037). The gorse was removed prior to construction but no effort was made to strip the turf. The wall was built in three and a half days by a squad of seven, who also had to transport the bulk of the materials to the site along a muddy track from a drop-point some 300 m away. A Leyland tractor with rear-mounted shovel and trailer, and an International tractor with front-mounted shovel which could be raised vertically were used. It is thus impossible to arrive at an accurate estimate of the time that would have been taken had only appropriate prehistoric technology been employed. The crew worked long days (08.30–18.00 hrs) and the time spent in site preparation, transport of materials, and construction may be estimated at 30 man-days – perhaps not much less than would have been required (excluding transport of materials), had animal traction been available to help to lift the upper transversal beams. Much of the small hearting material used in the upper part of the wall was lifted by machine (illus 2), and then spread by hand. Childe and Thorneycroft (1938a, 46, note 1) identified certain practical merits in the inclusion of such small angular rubble. At East Tullos, a disadvantage of the use of this material was that some soil, incorporated in the loads that were brought to the site, was incidentally employed in the make-up of the wall and subsequently contributed locally to smothering the fire. However, had the hearting material consisted of larger lumps of stone, it is possible that the total man-days required would not have been very different from what was actually achieved, assuming the materials necessary to have been available on site, since two of



ILLUS 2 Small gabbro chips being added to the hearting of the upper part of the wall

the crew were employed essentially in moving wood and stone to the place of construction. The estimate may be presented thus:

> Actual time taken in building wall (as opposed to transporting material to the site): 3·5 days for 5 workers=17·5 man-days.
> Additional time required for manual positioning of upper courses of transversals (35 beams): 1 day for 5 workers=5 man-days.
> Dyker's estimate for the additional time required to place large gabbros as hearting (as opposed to the chips actually supplied)=7·5 man-days.
> Total: 30 man-days.

The sector of wall was built with its long faces running south-east/north-west, with the intention that the most likely winds – either from the south-west or off the sea – would blow at right-angles to the wall. It was hoped that air currents from either of these directions would encourage the transversal timbers to burn back into the wall core. At ground level, the wall was some 9·4 m in length and 4 m wide; the width tapered in to approximately 3·3 m at the summit. The wall was generally 2·45 m high, but locally reached 2·9 m because of the sloping nature of the terrain.

Only the central portion of the wall was timber-laced; this was some 6·75 m long. Both ends were rounded-off purely in drystone construction, in an effort to minimize the effects of draughts and heat loss, which would have been absent in the continuous wall-lines of the original vitrified forts themselves. Once the area of operations had been defined by the construction of the basal course of stonework, dykers, carpenters and core-fillers were able to work in tandem with minimal disruption to each others' efforts. The facings were built only one stone thick, and were not bonded into the core as thoroughly as the dyker would have liked, had more time been available for the construction. The selection of stones to bridge across the beam-ends was successfully achieved; the general quality of the drystone construction was borne out in due course by its solidity when fires were lit against it.

The first layer of timbers was inserted almost at ground level: eight of the slender timbers were evenly spaced out and arranged parallel to the principal wall faces; each subsequent horizon of longitudinal timbers used the same number of elements. The hearting at this level consisted essentially of the more substantial gabbros. The initial layer of transversals was incorporated at approximately 0·5 m above the ground surface, though this varied because of the sloping nature of the site. Each subsequent horizon of transversal timbers was off-set slightly, so that the centre-to-centre distance between the end transversals in the second horizon was 6·2 m. Moreover, the transversal beams in the second and third layers were set end-on, since it was felt that this might subsequently be of use in coaxing the beam-ends to ignite. In all, four rows of transversals were employed: 12 beams were placed in each of the three bottom rows, and 11 in the uppermost. The vertical separation of these beams, centre-to-centre, was (from bottom to top) 0·50 m, 0·50 m and 0·55 m. Exact distances were of course determined by the nature of the wall coursing. Midway between each row of transversals, a horizon of eight longitudinals was inserted, and a fifth row of longitudinals overlay the top horizon of transversals, this uppermost set of timbers being sealed by a final layer of stone chips, before the rampart was finally capped with a thin (0·10 m thick) layer of turf and soil (illus 3). It may



ILLUS 3 The wall nearing completion; measurement in progress as the final capping is spread on the wall-head

be noted that none of the horizons of longitudinal and transversal timbers was in contact with each other.

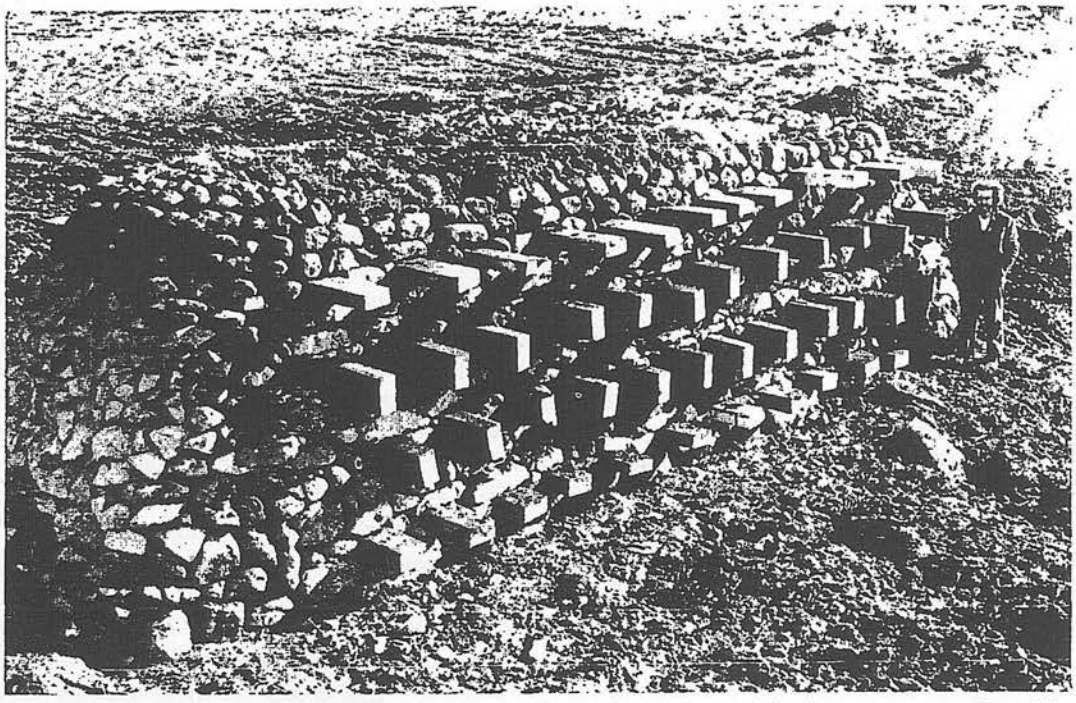
In addition to this structural timber component, various off-cuts from the transversal beams were also put into the core. Such items were used for example to chock the horizontal structural timbers while the hearting was built up around them. It was also suggested to us that it might be advantageous to roughen the surfaces of the transversal timbers with an axe or adze to enable fire to spread along them more readily, but again this proved impossible to achieve because of time constraints: in retrospect, this would seem to be an unnecessary refinement. In sum, the volume of timber placed in the wall may be estimated at a little under 8 cubic metres, for a wall approximately 62 cubic metres in total volume. The amount of softwood employed was thus of the order of 14% of the total volume of the wall. Nisbet has estimated that 25% wood must have been incorporated in the subsequently-vitrified wall at Langwell (1982, 26). At Plean Colliery, the pit-props used by Childe and Thorneycroft (51 transversals and 20 longitudinals) are estimated to have represented some 2·15 cubic metres of timber, weighing one ton. In that experiment, a further 6 cwt of timber was used in the packing of the wall-core, and therefore it is legitimate to add 30% to the above calculation of the volume of timber, to give a total timber volume of about 2·8 cubic metres. The total volume of the wall must have been approximately 12·1 cubic metres, so that the wood content was of the order of 23%. Childe and Thorneycroft's figures for the weights of materials used (7·35 tons of stone and 1·3 tons of wood) suggest that the wood constituted about 15% of the total weight.

The only metal deliberately placed in the East Tullos wall was a set of narrow steel tubes, three along each principal face, to allow thermocouples to be inserted and withdrawn. These penetrated at right angles to the principal wall-faces and ran approximately 1·80 m into the hearting; they were positioned at the level of the second row of transversals, approximately 1·10 m above ground level. Various extraneous pieces of iron, notably bolts and nails attached to the timber that was supplied, were also incorporated into the wall, as we had insufficient manpower to remove them, but these elements were quantitatively insignificant. Iron items have rarely been recovered from vitrified walls. Only one case has been documented in Scotland (Nisbet 1975, 3); and there is only one French example known to the author, at La Courbe in Orne (Ralston 1981, no 91); here, the observation, originally due to Coutil, has been borne out by recent work (Mlle C Peuchet, pers comm).

Had time permitted, we had intended to cloak the wall-faces with turves, since, in various contacts' opinions, such a coating would have helped to impede air flow through the wall, thereby contributing to the achievement of higher temperatures in a somewhat oxygen-starved environment in the core of the wall. Since such a turf cladding was proposed, although not actually erected, the transversal timbers were left protruding rather further from the wall-faces than is usually in such reconstructions (illus 4). Additionally, it was felt that this external woodwork might diminish the difficulties associated with the initial firing of the timbers; and moreover, they made more of a visual impact for television viewers to whom the idea of a timber-laced wall might well have been an entirely unfamiliar concept. The writer feels that the exposed lengths of timber did not impair the validity of the experiment. The existence of such woodwork is, by its nature, not demonstrated archaeologically, but it is worth remarking that the ends of the transversal beams provided an excellent series of footholds which helped during the construction of the upper parts of the wall.

GENERAL CONSIDERATIONS ON THE CONSTRUCTION OF THE WALL

If it is accepted, as a working hypothesis, that vitrification is a by-product of the destruction, accidental or deliberate, of a timber-laced wall, it follows that such events are likely to have affected walls which were constructed some time previously, and which may thus have differed materially



ILLUS 4 Oblique view of the completed wall, showing the south-west face and the drystone construction of the north-west end

from the state of the East Tullos reconstruction. For example, the hearting may well have been subject to a degree of settling; and drying, and perhaps decay, could have altered the internal timberwork. Even disallowing the possibility of a turf or equivalent cladding, it is possible to argue that vegetation may have begun to establish itself in apertures in the wall-faces: vegetation was noted colonizing the upper part of the wall-face of the *murus gallicus* recently erected in the Bois de Boulogne, Paris, within two years of its building. Perhaps, continuing in this vein, it is legitimate to speculate further that later prehistoric warfare may have had a seasonal element to it, and that late summer or autumn may have been a favoured time for attempting to put the torch to such walls, when these structures may have been at their driest. Such speculative comment must be recognized for what it is, but such considerations may be borne in mind in relation to the course of events to be described below. It may be argued that setting fire to a pristine wall, built in the spring, and using timber which had been overwintered in the open in a builder's yard, less than adequately duplicates the most likely conditions that may be surmised to have prevailed when such walls were originally ignited. There were also periods of heavy rain during the building of the wall, both at the outset, when the materials were being assembled and, more critically, on the afternoon of 31 March, when building was being completed. This necessitated the postponement of the firing of the wall until the next day. It is, however, possible that wholly-dry materials would have hindered the onset of conditions suitable for vitrification – a consideration which will be treated more fully in due course.

A more specific objection which may be raised concerns the quantity of wood employed in the construction. It is this writer's impression that the proportion of wood, whilst perhaps marginally on the high side relative to the amount detectable on excavation in non-vitrified examples (a figure for the quantity of wood incorporated is frequently difficult to assess on the basis of the excavated data

from such forts), is of the right order of magnitude. It is certainly lower than the proportion used at the Plean Colliery experiment. The quantity of wood may further be justified on account of the newness of the wall and, more importantly, the different burning properties of the pine that was used, rather than the oak which wood identifications suggest was the prevalent timber used in such walls, but which was understandably denied to us on the grounds of cost.

THE CONFLAGRATION

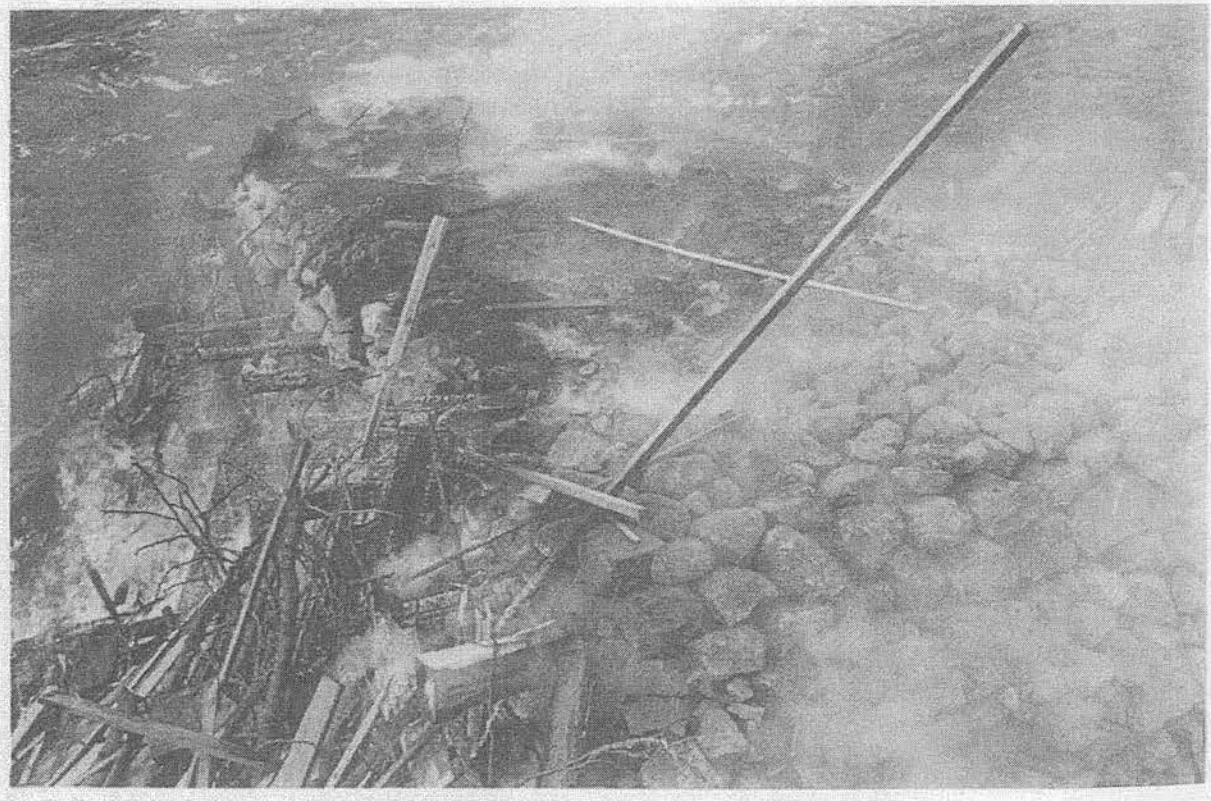
The original intention was to ignite brushwood piled against the middle of one of the long sides of the wall, such that a south-west or north-east breeze might assist in carrying the fire along the transversals into its core. In the event, the prevailing wind on the day the fire had to be ignited was from the north-west and was of the strength of a moderate to stiff breeze; this blew intermittently. Accordingly, the writer decided that the best plan would be to pile an articulated lorry-load of off-cuts of timber and brushwood along the south-west face of the wall, concentrating on the north-west sector, such that the breeze might fan the flames along the brushwood as well as into the wall by way of the transversal timbers.

Although we would have preferred not to have done so, we were prepared to use petrol to get the brushwood to ignite, since the actual lighting of this material did not form an essential component of the experiment; moreover, the brushwood had been soaked when an attempt was made to deliver it on the previous evening. Rather more controversial was the decision to smear the beam ends of the transversals with animal fat (in the form of dripping) to assist them to catch fire: this course of action was again determined by the downpour noted above. In all, some 10 lb (c 4·5 kg) of dripping were used, primarily on the beam-ends at the north-west end of the south-west face. As the north-west end of the north-east wall-face was subsequently set on fire successfully without recourse to any such artificial aids, it is clear that their use cannot be regarded as of critical significance. It may be stated categorically that there were no added materials in the core of the wall by way of chemical fluxing agents, brushwood, fuels or animal fats. Nor was refuse such as bone incorporated, although concentrations of Phosphorus pentoxide, noted in some analyses, have been taken to suggest that such debris may have been one of the constituents of the core (Youngblood *et al* 1978; Frederiksson *et al* 1983), the conclusion having been reached on the basis of the weight per cent pentoxide present in the vitrified glasses relative to that in the source rocks.

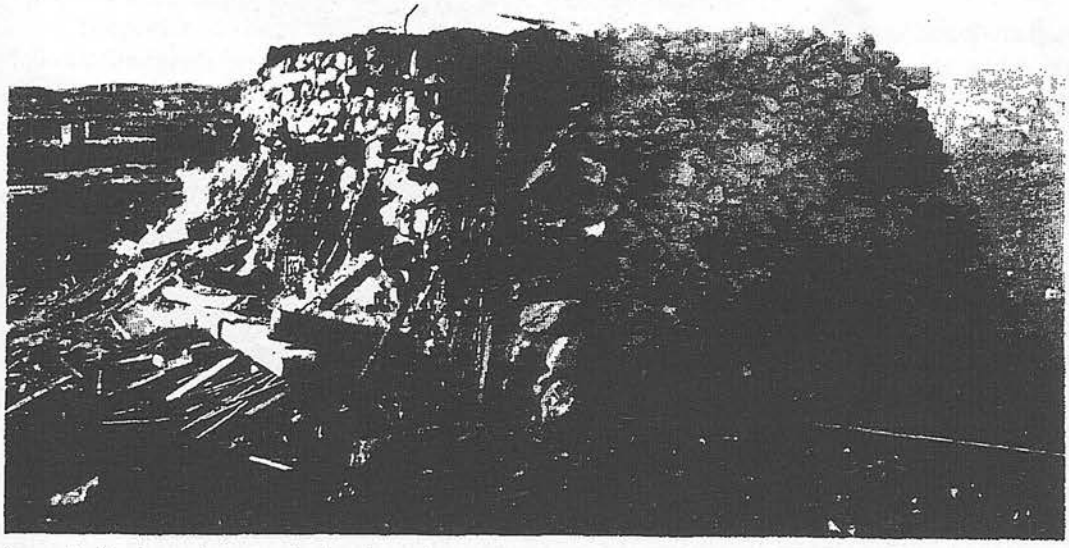
The brushwood fire at the north-west corner of the wall was ignited shortly after 12 noon on 1 April, at which time the thermocouples in the core of the wall were indicating a temperature of 1–3°C (illus 5). Somewhat contrary to expectations, the beam ends of the transversals ignited quite readily, and were well alight in the north-west sector of the south-west side within the first hour. By 13.00 hrs, smoke and steam were beginning to emerge in quantity from the north-east face of the wall and the wall-head (illus 6), and temperatures in the core began to rise slowly if steadily from 4°C at 13.00 hrs, to 14° at 14.20, 22° at 14.35, to reach 52°C some 20 minutes later. Unfortunately, this was to be the highest temperature recorded from the core of the wall for some considerable time. By this stage, the fire against the south-west wall-face was beginning to burn down (illus 7) and, whilst some of the visible beam ends were still alight, having burnt back level with the wall-face, those in the top row, no longer reached by the external fire, were either smouldering gently or appeared to be extinguished; the bottom horizon of beam-ends (and some of the second row) were still obscured behind the still-blazing debris of the brushwood fire. By 13.45 hrs, it was none the less clear that all the beam ends that had been attained by the brushwood fire had ignited successfully; furthermore the stonework of the wall-face was beginning to crack and bulge outwards. The heat radiating from the external wall-face was intense; it was measured at 750–800°C at 14.30 hrs.



ILLUS 5 Lighting the external fire of brushwood and timber off-cuts against the south-west side just after noon



ILLUS 6 Smoke and steam emerging from the wall-head, seen from above the south angle of the wall



ILLUS 7 Smoke and steam issuing from the south-east end wall as the initial external fire burns down. Time: approximately 14.00 hrs

By mid-afternoon, the breeze, which had been oscillating between north-west and west (when westerly, it was striking the major wall-face obliquely – the most advantageous wind we were to enjoy during the course of the experiment), finally settled in the north-west. This meant that it arrived end-on to our detached sector of walling. By 15.00 hrs, smoke and steam ceased to emerge from the rear of the wall in any quantity, and temperatures in the wall-core began to decline: 35°C was recorded at that time. Some of the transversal timbers were still on fire, and were continuing to burn in towards the hearting. Cold air was manifestly penetrating the wall in quantity. Our reactions were twofold. First, the crew continued to pile material on the brushwood fire against the south-west face: materials used included further scrap wood, as well as a miscellaneous cargo of domestic refuse, delivered by the City of Aberdeen Cleansing Department. Thus it was that old mattresses and a wardrobe were hurled into the blaze! The transversals continued to burn, or reignited successfully, and many were alight some 0·10 to 0·15 m behind the apertures of the beam-holes by this stage. Second, it seemed necessary to impede the airflow into the wall-core. At this juncture, it would not have been practical to erect turf cladding, as we had initially intended, and thus the writer decided to employ the best available substitute in the circumstances. This involved masking the exposed north-west end and the adjacent part of the north-east side with a tarpaulin. This treatment was markedly unsuccessful: the hearting temperature continued to fall, stabilizing in the low 20°C around 16.00 hrs. The writer then decided to remove the tarpaulin; the temperature in the wall-core continued to drop. At 17.00 hrs, five hours after the brushwood had been fired, the core temperature registered 13°C. After an equivalent timespan, the core of the Plean Colliery experimental wall is reported to have been a 'glowing red mass' (Childe & Thorneycroft 1938a, 49), the wall-faces having disintegrated two hours previously.



ILLUS 8 Removing partially-burnt debris of off-cuts from the wall-head; the tarpaulin has been removed from the north-west end, and lies folded at its base. Note that some of the facing stones display cracking

At about this time, the writer clambered on to the top of the wall. The earth and turf capping had baked slightly; smoke was emerging in small quantities from cracks in this surface (illus 8). A small hole was gouged out of this upper layer by hand to expose the small gabbros below; these proved to be only mildly warm to touch. Smoke was no longer appearing from the north-east face of the wall, despite the fact that the transversal beams in the opposite face were continuing to glow red and were burning back slowly into the wall-core. A thermocouple was inserted along one of these channels to a point about 0·3 m beyond the position at which the particular beam was burning: the temperature recorded, 79°C, was well below the range at which vitrification might be expected to occur. It was assumed that cold air was still penetrating the wall-core in sufficient quantities for low temperatures to be maintained. In a few cases, particularly in the uppermost row of transversals, where the timbers had burnt back beyond the beam-holes, small rubble had cascaded down, making further activity unlikely as the beam-channels were choked. Retrospectively, the employment of this small material, with its tendency to smother the fire, may be seen to have been a serious error.

The arrival of a further lorry-load of stakes and off-cuts of timber about 17.15 hrs prompted a further change of plan. The wind remained north-westerly, and so the decision was taken to concentrate on augmenting the fire at the north-west end of the wall. The external fire was now focused on the north-west end of the south-west face, and was extended around the north-west end of the wall as far as the north-west beam-ends in the north-east face. In this way, it was hoped that the main flow of air into the wall which, on the basis of desultory smoke rising from the south-east end wall, was considered to be north-westerly, would be pre-heated before flowing into the wall-core. The fire was successfully led round the north-west end from the north-west end of the main south-

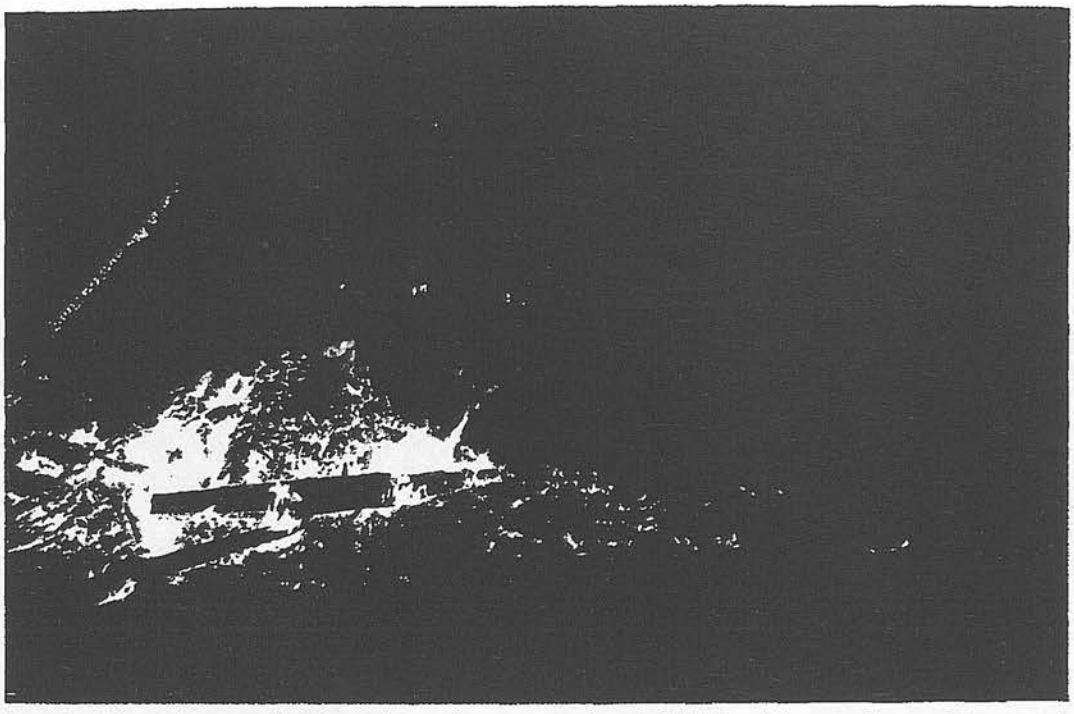
west face, such that the transversal beam-ends at the north-west end of the north-east face were alight by 17.30 hrs. The smoke direction now showed that heated air was apparently being drawn into the wall-core from the fire ignited against the drystone-built north-west end of the wall. Despite this, an hour later the temperature of the core of the wall, as measured by the thermocouples, remained at what it had been at 17.00 hrs, although there was still intense heat emanating from the south-west wall face, where the majority of the beam ends were still alight.

The position at 18.30 hrs, after the fire had been alight for some six-and-a-half hours was thus as follows: the revetment stones of the south-west face showed extensive signs of cracking, and many of the beam-ends on that side were at least smouldering; the temperature in the hearting was however only just in double figures; and the north-westerly airflow meant that the external fire on the long sides was being drawn along the wall-faces, rather than directed towards the wall-core. The wall showed few signs of deterioration beyond those noted earlier – a slight bulging on the south-west side, and the localized blocking of some beam-channels by tumbled hearting. Temperatures in excess of 100°C had not been recorded, except on the south-west wall-face itself, and, with the north-west breeze still blowing, the possibility of producing vitrified material seemed as remote as ever. Rather in desperation, a final load of scrap timber was summoned.

This was delivered around 19.15 hrs, and consisted of much more substantial planks (up to 8·0 m long and 0·07 to 0·1 m thick) than had been the case previously. We hoped to keep the fire alight into the night with this material. By that time, there were two separate fires burning against the wall faces, one along most of the south-west side, and a second at the north-west end of the north-east face. The new supply was deployed at the north-west ends of the south-west and north-east faces; there was insufficient wood to re-kindle the fire against the footings of the north-west wall. By 20.00 hrs, all the timber had been put in position and was successfully alight. Flames leapt skyward from the conflagration on the south-west side, and the fire was also spreading along the beam-ends of the north-east side. Smoke began to billow from the south-east end, and from the neighbouring sector of the north-east side. A thermocouple inserted a little way into the stonework at the north-west end produced a reading of 190°C, but the temperature of the hearting had only recovered to 20°C before the batteries of the digital thermometer unfortunately failed. As will become clear, much higher temperatures must have been attained subsequently.

Between 20.30 and 21.15 hrs, as the bonfire against the north-west sector of the south-west face began to die back, various features could be noticed through the intense heat (illus 9). The stonework of the south-west wall-face at the upper limit of the flames was locally glowing red-hot. A few of the beam-ends in the middle two rows of transversals (about the fourth and fifth from the north-west end) exhibited signs of the fire being actively drawn into the core of the wall, here some distance from the position of the external fire. Elsewhere, most notably in the case of the southernmost timber in the bottom row of transversals, timbers which had been smouldering gently were now glowing red without having been re-kindled. On top of the wall, directly above the north-west sector of the south-west face, the occasional small flame could be seen. The impression we obtained from the intermittent character of these flames was that they were related to the burning of the upper part of the internal timber-lacing but, in the heat and the darkness, it is impossible to state categorically that these flames were not produced by the burning of debris from the external fire which had landed on the wall-head. The localized collapse of this part of the wall subsequently means that the writer remains unable to confirm this observation.

At 21.30, the remaining personnel temporarily left the site in order to eat. The wall had withstood four bonfires lit against it in the space of nine hours. Almost all the transversal beams had burnt back to the wall-face on the south-west side; and some were well alight some distance, perhaps 0·25 m, into the wall-core. The south-west face also showed some signs of settling and bulging;



ILLUS 9 The north-west end of the south-west face at approximately 21.15 hrs. Above the flames of the external fire, individual timbers can be seen burning in towards the hearting

individual stones therein were extensively heat-cracked and some of the granites seemed to be exfoliating. There had been no collapse of the wall-faces whatsoever.

Returning to the wall at 23.00 hrs the same evening, the position was as follows: on the north-east side, the external fire had almost burnt itself out, but some of the beam-ends of the transversals were still alight, although still forward of the beam apertures. On the south-west side, two distinct sectors could be seen to be glowing red. One was produced by the embers of the external fire at the north-west end; this still blanketed the bottom two rows of transversals. The other corresponded to the positions of various beam-channels, where the transversals had now burnt some distance into the core of the wall; these included the southernmost beam in the bottom row, remote from the later external fires. More spectacularly, the upper portion of the north-west end of the south-west face had collapsed on top of the embers of the external fire, bringing a small part of the hearting with it. Examination by torchlight did not reveal any signs of vitrification. The night was dry and by 23.00 hrs the wind seemed to have died away considerably; a light breeze from the west, as earlier in the afternoon, again blew.

The next morning was still dry; there had been no rain overnight. The wind had reverted to the north-west, but was no stronger than previously. No further collapse had taken place, and no more general settling of the wall material had ensued from the previous evening's fall (illus 10). The fire on the north-east side of the wall had been extinguished; this side displayed localized cracking of the facing stones and charred beam ends. Contrastingly, the beams on the south-west side, immediately to the south-east of the area that had collapsed, were still alight a considerable distance – approximately 1 m – back into the core of the wall (illus 11). The beams directly behind the tumbled sector of



ILLUS 10 The south-west face at 08.30 hrs on 2 April

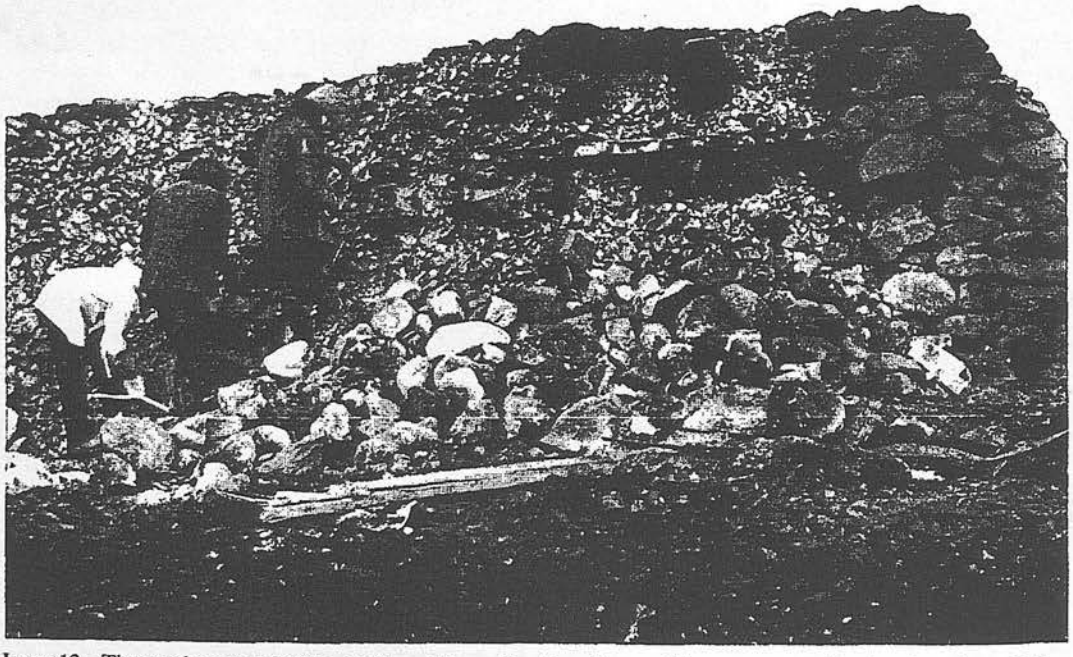


ILLUS 11 Detail of the wall-face adjacent to the collapsed section of the south-west face. Note the condition of the stonework, the beam still alight in the aperture, and the bent steel pipe – once used to insert the thermocouple

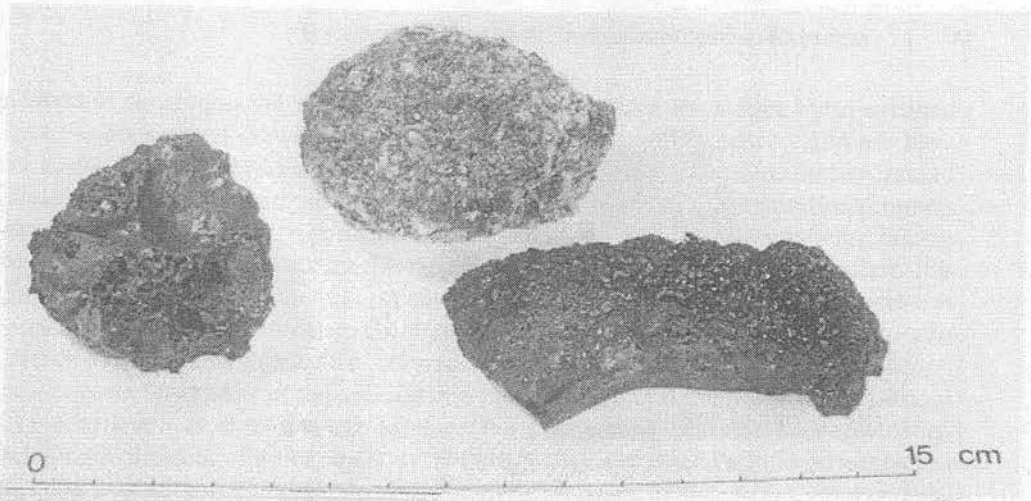
the wall could be seen to be still glowing red through chinks in the core material, and a small amount of smoke was emerging lazily from the top of the wall. The stonework at the south-east angle of the wall (remote from any of the positions of the external fires) was warm to the touch, and elsewhere the surface stonework was too hot to handle with comfort, despite low ambient air temperatures. There were no visible signs of vitrification.

At 10.00 hrs, some 22 hours after the first bonfire had been ignited, work began on the demolition of part of the wall adjacent to the collapse to see whether any vitrified material could be located before the departure of the television crew. The team began by attempting to remove the collapsed wall-face in the north-west sector, thereafter delving into the adjacent hearting by hand. Four points conspired to make such an approach impractical. Of these, the safety aspect was most important: as has been noted previously, the upper parts of the hearting contained substantial quantities of small stones, and these were acknowledged to be particularly prone to further slumping. A second factor was the heat of much of the stonework, which could only be removed with gloved hands and which was melting rubber-soled footwear; a third was the slowness of progress; and fourth was the proximity of timber elements which were still alight. Moreover, the small quantity of material that was removed by hand failed to produce any signs of vitrified rock – almost all the core material that had ended up near the surface looking singularly unaltered. Examination also revealed that the timber framework displayed signs of having moved: in particular, it was apparent in the restricted view that we had into the wall-core that localized settling had resulted in some longitudinal beams resting on the transversals and in direct contact with them, rather than supported above them as was the case when the wall was built.

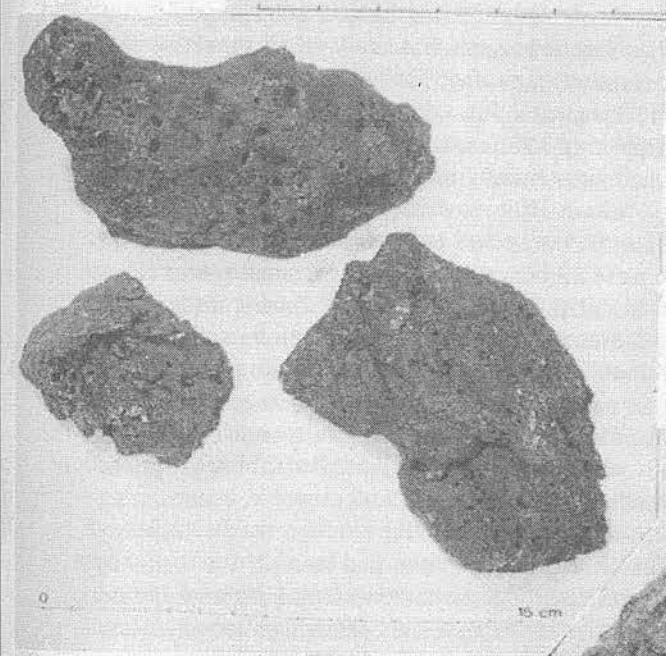
The next plan was to dig into the north-west sector of the south-west face using the mechanical



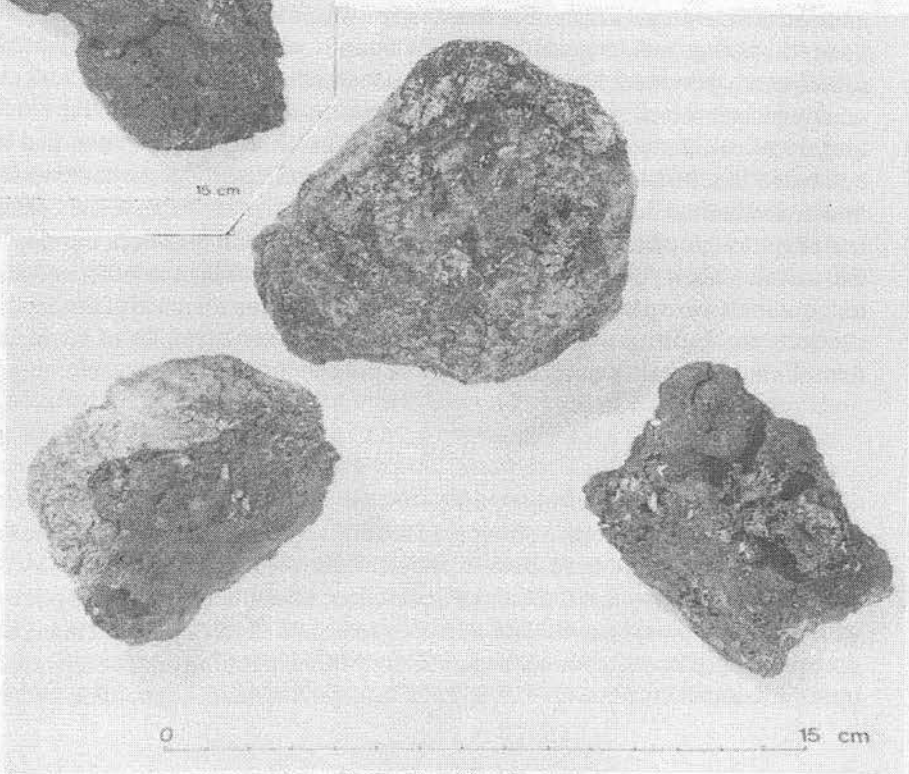
ILLUS 12 The south-east end of the south-west face after the collapse of the revetment, showing the substantially-intact timber lacing



14

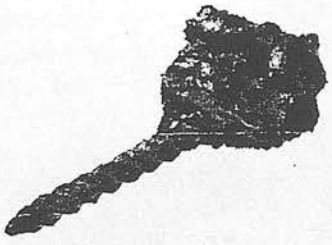


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ILLUS 13–15 Examples of vitrified stonework recovered from the wall at East Tullos



ILLUS 16 Nail partially enveloped in vitrified material

shovel on a Drott caterpillar tractor. The material thus extracted from the wall was spread for the crew to check for signs of vitrification, while the author remained at the wall to supervise the extraction and to check for the presence of any substantial lumps of vitrified material. A small portion of the north-west core of the wall was removed by this means. In so doing, much of the south-west revetment of the wall, which had looked very unstable at 08.30 hrs, fell away, but the core materials behind it, retained by the timber lacing, remained substantially intact (illus 12). No substantial blocks of vitrified stonework were revealed *in situ*, but small pieces were recovered from the core of the wall, essentially from behind the temporary face of the exposed hearting towards the end of the wall, where, as has been remarked above, there were timbers still alight. These small pieces (illus 13–16) were noted amongst the material spread from the Drott's shovel, and came from approximately 1–1·2 m above the ground level, roughly the level of the second row of transversal timbers.

When several such pieces had been recovered, this procedure was stopped and final filming was completed. The wall was still smouldering, with the occasional visible timber still glowing red in the interior. There seems little doubt that the fire would have continued to burn for some considerable time; the writer would guess at least 24 hours, on the basis of the quantity of unburnt timber subsequently revealed. The structure appeared markedly unstable and Yorkshire TV, with filming schedules completed, was not prepared to accept the insurance risk represented by the wall any longer. Accordingly, at 16.00 hrs, some 28 hours after the experiment had started, the wall was bulldozed flat. Much of the internal timberwork, particularly at the south-east end of the wall, was intact, and limited burning of some of the timbers, particularly transversals, was still under way. Very few of the longitudinals, except those at the north-west end, had been burnt at all, and nowhere had fire travelled along a longitudinal to ignite, or even to scorch, a transversal, despite the fact that the longitudinals were parallel to the prevailing wind direction for much of the experiment. The scope for checking the bulldozed element of the wall for further examples of vitrified rock was obviously limited, but this was done as thoroughly as possible in the circumstances: none was noted.

THE OUTCOME OF THE EAST TULLOS EXPERIMENT

The amount (approximately 3 kg) of vitrified stonework produced as a result of this experiment is undoubtedly small, both in absolute terms and relative to the volume of the length of wall that was fired. Various factors have been mentioned above in mitigation: the newness of the wall; the continuing combustion at the time of demolition; the number of airholes offering ingress to cold air, with its quota of oxygen; the lack of hardwoods; and the dampness of many of the materials at the time of firing. The writer none the less feels justified in setting these results alongside those obtained by Childe and Thorneycroft (1938a) at Plean Colliery and Rahoy, and by Engström (1982) using

limestones in Sweden, to support the refutation of the suggestion that the vitrified and calcined elements which have been noted in fortifications widely distributed across Europe could not have been produced as the result of the conflagration of varieties of timber-laced and timber-framed ramparts. There is, however, undeniably a major difference in the magnitude of vitrification products recovered from East Tullos and that represented at sites like Tap o' Noth. Whether the factors mentioned above are sufficient to account for this differential cannot be assessed by this author. It is important to emphasize that, of itself, the experiment offers no support to the continuing conjectures as to whether such alterations to the stonework of these walls was deliberately intended or not; and if deliberately intended, whether as a process of construction or destruction.

The experiment merely allows us to conclude that the burning of a timber-laced wall, without added fluxes (Frederiksson *et al* 1983), can produce the phenomena characteristic of vitrified stonework, including indications of timber casts. It should equally be stressed that it does not follow that all ramparts that display these features do so as a result of a sequence of destructive events akin to those outlined above. At one extreme, Nicolardot and his colleagues (1974, 44–5; Büchsenschütz 1984) have demonstrated that apparently 'calcined' material does not invariably imply the presence of heat in the range 900–1100°C that is proposed for vitrification (Frederiksson *et al* 1983, 165). Problems of potential misidentification, especially in older field observations, are perhaps more acute in calcined than in vitrified ramparts, and the calcined series should perhaps be set to one side here. Equally, it is not possible to use the results of this experiment *in vacuo* directly to refute the opposing case – that vitrification was an intentional constructional process, designed to strengthen these structures.

Examination in thin-section of the vitrified rocks produced experimentally suggests that they had been heated to a temperature of the order of 950°C (Prof I Parsons, pers comm). This result is consistent with temperatures in the range 1000–1100°C advocated as the solidus temperature for granite-based glasses from Scottish sites (Brothwell *et al* 1974, 105).

The location of the vitrified stones at the interface between the lower fill of large gabbros and the upper fill of smaller ones, combined with the observation that alteration was restricted to the smaller pieces, suggest that surface-to-volume ratios may be particularly critical with respect to limited vitrification of this kind. It may be surmised that the upper fill, packed with small stone, produced too restricted a circulation of gasses for vitrification to be successful. Against this, it must be remarked not only that steam and smoke were noted emerging from the wall-head but also that the small gabbros displayed a marked propensity to tumble into the beam-channels. Contrastingly, the larger material of the lower fill clearly differed in terms of surface-to-volume ratio, and may have contained too much airspace for the creation of the reducing conditions essential to the process of vitrification.

Small wood casts were noted on one of the pieces of vitrified stone, again duplicating a phenomenon noted in field observations. One of the nails incidentally incorporated in the wall was partially enveloped in vitrified material (illus 16), an observation which may offer support for the hypothesis that some vitrified forts may yet be shown to have contained nailed timber frameworks.

Rain occurred during both the Torsburg (Engström 1982) and East Tullos experiments; snow fell during the firing at Plean Colliery. The usual view, supported above, is that wet, or indeed rotten, timber-lacing would be inimical to the production of satisfactory results (Brothwell *et al* 1974, 103); Hogg has even contrasted the usual climatic picture, of increasing rainfall, proposed for the early Sub-Atlantic with the prevalence of sites north of the Forth–Clyde isthmus displaying indications of vitrification (1975, 62–3). However, it may be suggested that rainfall during the experiments was more critical for its effects in dousing the external fires and contributing to the lowering of temperatures on exposed surfaces than for any material difference it may have made to the moisture levels in

the core. At Torsburg, a giant fan (Engström 1982, illus 6) was employed to simulate wind, which was lacking at the beginning of the experiment: this appears to have made little impact, and was switched off. Rain began to fall gently some 10 hours after the external fire had been lit, and subsequently became heavier; it was also accompanied by wind. The fire burnt-out after 24 hours.

The observation of steam issuing from the East Tullos wall is consistent with chemical analyses indicating low water contents for vitrified glasses from Scottish sites (Brothwell *et al* 1974, 104). Furthermore, Frederiksson *et al* (1983, 165) have suggested that the reducing conditions under which vitrification took place demonstrated analytically by Youngblood and her collaborators (1978) imply a 'confined, slow and oxygen-starved fire', in which direct distillation of the wood could produce methanol and other gasses with high ignition temperatures that could provoke localized vitrification. They also put forward the water-carbon reaction [$H_2O+C>CO+H_2>CO+H_2+O_2>CO_2+H_2O+$energy] to account for the phenomena seen; and this would be consistent with the steam noted at East Tullos, and also at Plean Colliery. Sustained substantial water pressures would also lower the temperatures at which partial melting would occur (Frederiksson *et al* 1983, 169), but such conditions are unlikely to have pertained in the East Tullos wall, except very locally. The vitrified material that was recovered from the hearting did however appear at approximately the level at which the larger gabbros gave way to the smaller chips to which reference has already been made, and it is possible that mechanical settling of the core materials at this interface may have permitted water pressure to build up, if only to a limited extent.

At East Tullos, we did not incorporate any bone material or other refuse in the wall. It is therefore not possible to comment on the conclusion reached by Youngblood and collaborators (1978, table 1) that the high Phosphorus pentoxide content of certain glasses relative to the parent rocks of the ramparts whence they came is consistent with the presence of domestic rubbish or turf in the fabric of the wall. The use of such debris in later prehistoric fortifications is not unknown; on occasion, even when this would have weakened the structure, as at Crosskirk Broch, Caithness (Fairhurst 1984, 41–2). Bone was certainly recovered from Rahoy (Childe & Thorneycroft 1938b). Shells were incorporated in vitrified material recovered from Duntroon, Argyll and Bute District, but were not believed to have been a constituent of the wall (Christison *et al* 1905, 281); and shells were also recovered directly below a carbonized longitudinal beam in the inner face of the slightly-vitrified wall at the Green Castle, Portknockie, Moray District. We may provisionally conclude that observations of bone and shell have certainly as yet been too infrequent to postulate that such materials were regularly incorporated in the core, but that an admixture of such material – especially on sites with evidence of occupation prior to the construction of the wall – need occasion no surprise. An assessment of the volume of bone necessary to account for the observed Phosphorus pentoxide enrichment would clearly be of assistance. It is, however, possible that the proportion of Phosphorus pentoxide can be explained without recourse to the hypothetical addition of minor components of the kinds proposed above (D Sanderson, pers comm).

It has also been suggested to the author that the burning of apparently Potassium-rich woods (such as *Quercus*) might contribute to lowering the temperature at which the silica component of the parent rocks might melt (D Longley, *in litt*). Youngblood and co-workers' table 1 (1978, 103–4) does show that many, although by no means all, of the analysed glasses have enriched levels of potash relative to the parent rocks. Whilst these workers considered that the K_2O figures, like all except those for Phosphorus pentoxide, could be explained perfectly satisfactorily by partial melting (1978, 117), these analyses do not preclude potash having played a role in the system. If this hypothesis is sustainable, it would further account for the limited vitrification achieved using pine in the East Tullos experiment. However, it would seem that the role of potash as a fluxing agent – even with higher proportions of wood in the walls than was the case at East Tullos – can only have been

marginal. Whilst potash may have been of slight significance in producing conditions favourable to vitrification in the immediate vicinity of the timbers themselves, it appears unlikely that this substance could have been present in anything like sufficient quantities to produce wider effects. On the whole, given the general absence of evidence for fluxes after a century of analytical effort, it is perhaps best to discount potash having played a role in the vitrification system.

Arguments against the constructional use of the techniques of vitrification derived from this experiment certainly appear strong to this author; but it has to be acknowledged that they are not incapable of being overturned. Clearly, such arguments have as much to do with the condition of the wall by 2 April as with the amount of altered stonework produced. For the constructional hypothesis to be sustainable, an experiment in which the techniques of vitrification were employed as part of the constructional process might be of assistance by demonstrating the feasibility of such an exercise: either vitrification could be attempted as, so to say, the terminal act of wall-construction, or stage by stage, as has been proposed for certain French sites exhibiting calcination: la Brèche-au-Diable in Calvados (Edeine 1966, 258–9) is a case in point. Déchelette (1913, 709, n 3), following de la Noë, documents the unsuccessful efforts of a French officer to vitrify the brick foundation for a gun-battery in 1782! No matter how such an experiment were to be conducted, it is important to stress that, as far as the Scottish field and excavation evidence is concerned (MacKie 1976), radical reinterpretation would still be required, perhaps even to the extent of proposing a function for vitrified walls other than defensive enclosure.

GENERAL CONSIDERATIONS

Points that may be advanced in favour of the destructive nature of vitrification can be put forward by juxtaposing the results of the trial with observations from excavation and fieldwork at other sites, as MacKie has done (1976). Even at well-preserved sites such as Tap o' Noth, Gordon District (Ralston *et al* 1983, pl 1), where there is little reason to suspect subsequent robbing, where individual vitrified blocks reach impressive dimensions, and where vitrified material is present around much of the circuit of the enclosure, the volume of unaltered stone which has tumbled from the rampart appears quantitatively greater. Clearly, the results of the East Tullos experiment offer almost a *reductio ad absurdum* in this regard, since the quantity of vitrified material produced was so meagre. Despite the problems which afflict the experimental results, it seems worthwhile stressing that the vitrified material was recovered, as predictable from field observations (Nisbet 1974, 6), from the core of the wall – and in that sector of it which showed the severest disintegration during the course of the conflagration. The unstable state of much of the structure at the end of the experiment has been outlined already; it seems entirely likely that fuller vitrification would have rendered the unvitrified portion of the wall even less stable. If this assumption is accepted, it seems a reasonable conjecture that the irregular patterns of vitrified blocks and less-altered stonework that is represented in the field by most of even the more-fully vitrified sites cannot ever have provided a serviceable defence without supplementation. To the limits of this author's knowledge, no excavated wall has yet produced evidence for a built second-phase defensive construction enveloping the vitrified material and broadly contemporary with the apparent date of the vitrification. This argument, since it is *ex silentio*, is admittedly weak; but the indications, at sites like Craig Phadrig, betoken refurbishment of the defences only after the passage of considerable time (Small & Cottam 1972). Elsewhere, as at the Camp des Chastres, Aubusson, Creuse, France, refurbishment was achieved by building over the burnt wall (Léger 1972), or by the selection of a new line.

Whilst the provisioning of most later prehistoric forts with water is unknowable, it seems reasonable to suggest with Nisbet (1982, 28) that extinguishing fires that had got hold either in lean-to

structures built against the fortifications or in the fortifications themselves would have been difficult to achieve. It thus seems feasible for fire to have spread into the wall from fires accidentally started in adjacent buildings; however, the quantities of timber required to ignite the external face of the experimental wall suggest that destructive conflagrations provoking vitrification during the heat of battle would appear to have been difficult to arrange. Whilst the large quantities of material used in the external fires at the experimental wall may have been partially conditioned by circumstances at the time, including the wind direction, this factor might help to explicate Caesar's comment (*de Bello Gallico*, VII, 23) on the difficulty of burning such walls. It is therefore proposed that vitrified walls which show evidence of having been ignited from their external faces are more likely to indicate a controlled episode of destruction after the cessation of hostilities than an event that took place when fighting was actually in progress. All the indications, from scientific analyses to field experiments, are that getting the rampart timbers to ignite was not casually achieved. Dixon (1976, 165–6), for example, reports problems in setting fire to a replica built in Gloucestershire in 1970.

Furthermore, both Engström's work (1982) and the East Tullos experiment suggest that the times put forward by Childe on the basis of the results achieved at the scaled-down replicas built at Plean Colliery and Rahoy for vitrification to occur represent considerable underestimates for full-scale works. Indeed, neither the Torsburg nor the East Tullos walls were particularly thick: the former burned for 24 hours; and the latter was alight after 28 hours and still contained substantial quantities of timber. Its condition on the morning of 2 April strongly suggests that, had it been encouraged to burn longer, more extensive vitrification could have been provoked. Clearly, the duration of heating may have been significant to the extent of lowering the temperatures at which vitrification could have occurred. However, the writer suspects that this consideration is likely to have been of very limited significance, in so far as the temperature attained at any particular point in the wall may be considered to have been dominated by the proximity or otherwise of burning wood and charcoal.

Whether or not it is accepted that vitrification is a by-product of destruction by fire, there can be little doubt that enclosures which display widespread evidence of altered stonework demonstrate very considerable pyrotechnical abilities on the part of the fire-raisers. It may be not unreasonable to propose specialists – akin to the specialist builders of the post-Roman centuries discussed by Graham (1951, 65–74). Isotopic dates for the first millennium ad (Ralston 1980; Alcock 1987, fig 4), to set alongside those for the first millennium bc, make it abundantly clear that the ability to produce vitrification is not restricted to a narrow chronological band (*pace* Brothwell *et al* 1974). Whether the evidence from Scotland alone, or from Europe, is considered, instances of vitrification are almost coterminous with the extreme dates for the erection of timber-laced walls themselves. It is noteworthy that Graham's compilation of references to the destruction of sites includes several references to the use of fire, in some instances at least clearly after a site had been captured. The application of TL-dating to vitrified forts should increase the number of sites for which an element of absolute chronology is available (Sanderson *et al* 1985).

Finally, it is worth drawing attention to the matter of spectacle. The experimental wall at East Tullos, edged by flame and glowing red at night, made an impressive sight, even against the backdrop of a modern city. The progress of widespread vitrification around the 563 m-high summit of Tap o' Noth must have appeared awesome to the prehistoric communities of great tracts of the Garioch and neighbouring areas – a spectacular advertisement of power.

NOTE

The vitrified stone produced in this experiment has been deposited in the Anthropological Museum, University of Aberdeen.

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REFERENCES

Alcock, L 1987 'Pictish Studies: present and future', *in* Small 1987, 80–92.

Brothwell, D R, Bishop, A C & Woolley, A R 1974 'Vitrified forts in Scotland: a problem in interpretation and primitive technology', *J Archaeol Sci*, 1 (1974), 101–7.

Büchsenschütz, O E 1984 *Structures d'Habitats et Fortifications de l'Age du Fer en France septentrionale*. Paris. (=*Mémoires de la Société préhistorique française*, 18.)

Büchsenschütz, O E & Ralston, I B M 1981 'Les remparts des âges des métaux', *Archéologia* (Dijon), 154 (1981), 24–36.

Childe, V G & Thorneycroft, W 1938a 'The experimental production of the phenomena distinctive of vitrified forts', *Proc Soc Antiq Scot*, 72 (1937–8), 44–55.

Childe, V G & Thorneycroft, W 1938b 'The vitrified fort at Rahoy, Morvern, Argyll', *Proc Soc Antiq Scot*, 72 (1937–8), 23–43.

Christison, D, Anderson, J & Ross, T 1905 'Report on the Society's excavations of forts on the Poltalloch Estate, Argyll, in 1904–5', *Proc Soc Antiq Scot*, 39 (1904–5), 259–322.

Collis, J R & Ralston, I B M 1976 'Late la Tène defences', *Germania*, 54 (1976), 135–46.

Déchelette, J 1913 *Manuel d'Archéologie Préhistorique, Celtique et Gallo-Romaine*: Vðl II, part 2 – *Premier Age du Fer*. Paris.

Dixon, P 1976 'Crickley Hill, 1969–72', *in* Harding 1976, 161–75.

Edeine, B 1966 'Le rempart de l'éperon barré de la Brèche-au-Diable (dit aussi du Mont-Joly) commune de Soumont-Saint-Quentin (Calvados)', *Gallia Préhistoire*, 9 (1966), 247–62.

Engström, J 1982 'Ett murexperiment på Gotland', *Tor*, 19 (1980–2) (1983), 53–75.

Fairhurst, H 1984 *Excavations at Crosskirk Broch, Caithness*. Edinburgh. (=*Soc Antiq Scot Monogr Ser*, 3.)

Frederiksson, K, Youngblood Anthony, E & Frederiksson, B J 1983 'The Celtic vitrified forts', *in* Kempe, D R C & Harvey, A P (eds), *The Petrology of Archaeological Artefacts*, Oxford, 154–70.

Graham, A 1951 'Archaeological gleanings from Dark Age records', *Proc Soc Antiq Scot*, 85 (1950–1), 64–91.

Greig, J C 1972 'Cullykhan', *Curr Archaeol*, 3 (1971–2), 227–31.

Harding, D W (ed) 1976 *Hillforts. Later Prehistoric Earthworks in Great Britain and Ireland*. London.

Hogg, A H A 1975 *A Guide to the Hill-forts of Britain*. London.

Léger, P 1972 'Le camp des Chastres, commune d'Aubusson: campagne de fouilles, 1972', *Mémoires de la Société des Sciences naturelles et archéologiques de la Creuse*, 38, 1 (1972), 35–9.

MacKie, E W 1969 'Timber-laced and vitrified walls in Iron Age forts: causes of vitrification', *Glasgow Archaeol J*, 1 (1969), 69–71.

MacKie, E W 1976 'The vitrified forts of Scotland', *in* Harding 1976, 205–35.

Nicolardot, J-P 1974 'Structures d'habitats de hauteur à caractères défensifs dans le Centre-Est de la France', *Antiquités Nationales*, 6 (1974), 32–45.

Nisbet, Helen C 1974 'A geological approach to vitrified forts, Part I', *Sci & Archaeol*, 12 (1974), 3–12.

Nisbet, Helen C 1975 'A geological approach to vitrified forts, Part II', *Sci & Archaeol*, 15 (1975), 3–16.

Nisbet, Helen C 1982 'Vitrification phenomena in hill-forts', *Readings Glass Hist*, 15–16 (1982), 21–30.

Ralston, I B M 1980 'The Green Castle and the promontory forts of North-East Scotland', *Scot Archaeol Forum*, 10 (1978) (1980), 27–40.

Ralston, I B M 1981 'The use of timber in hill-fort defences in France', *in* Guilbert, G (ed), *Hill-Fort Studies: essays for AHA Hogg*, Leicester, 78–104.

Ralston, I B M 1987 'Portknockie: promontory forts and Pictish settlement in the North-East', *in* Small 1987, 15–26.

Ralston, I B M, Sabine, K A & Watt, W G 1983 'Later prehistoric settlement in North-East Scotland: a preliminary assessment', *in* Chapman, J C & Mytum, H C (eds), *Settlement in North Britain 1000 BC–AD 1000*, Oxford, 149–73. (=*Brit Archaeol Rep*, 118.)

Sanderson, D C W, Placido, F & Tate, J O 1985 'Scottish vitrified forts: background and potential for TL dating', *Nucl Tracts*, 10 (1985), 799–809.

Small, A & Cottam, M B 1972 *Craig Phadraig. Interim report on 1971 excavation.* Dundee. (=*Occas Pap, Dept Geography, University of Dundee*, 1.)

Small, A (ed) 1987 *The Picts. A new look at old problems*. Dundee.

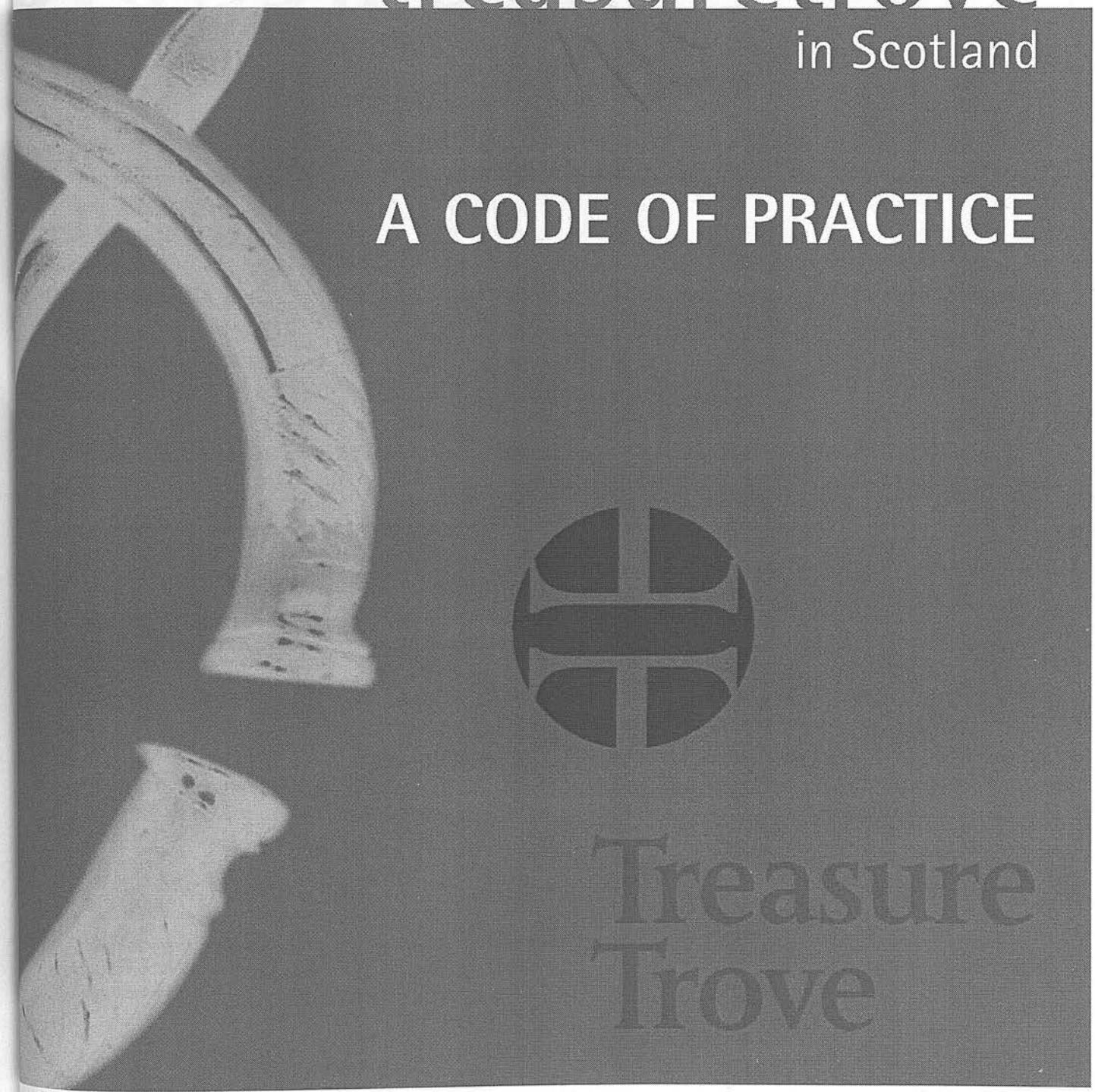
Youngblood, E, Frederiksson, B J, Kraut, F & Frederiksson, K 1978 'Celtic vitrified forts: implications of a chemical petrological study of glasses and source rocks', *J Archaeol Sci*, 5 (1978), 99–121.

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FOREWORD

I very much welcome the publication of the *Code of Practice*, which has been prepared by the Scottish Archaeological Finds Allocation Panel.

The Code is intended to represent a major step forward in clarifying all the procedures involved in the processing and allocation of archaeological finds from Scotland. Like the Panel, I very much hope that the Code will be of value to the diverse communities affected by it, who include professional and amateur archaeologists, metal detector users, museum staff and members of the general public with an interest in archaeology and Scotland's Heritage.

The *Code of Practice* is a living document and users and readers are invited to offer comments to my office on its operation



Norman McFadyen
Queen's and Lord Treasurer's Remembrancer
Crown Office
Edinburgh

1. INTRODUCTION

1.1 Origin of this document. In its published response to a review of the Treasure Trove system the then Scottish Executive determined that a 'comprehensive and authoritative Code of Practice should be drawn up'.[1]

1.2 Compilation. The Code of Practice has been compiled for the Scottish Government by the Scottish Archaeological Finds Allocation Panel (SAFAP) in conjunction with the Queen's and Lord Treasurer's Remembrancer (QLTR).

1.3 Status. This Code of Practice, published with the approval of Scottish Ministers, is an advisory notice setting out guidance and best practice in relation to the law in Scotland as applied to portable antiquities. The guidance and best practice it contains may be relevant considerations in any legal proceedings involving Treasure Trove matters.

1.4 Review. The Code of Practice will be subject to periodic review and it will therefore be important to use the most up-to-date version. This first version (2008) of the Code supersedes all previous booklets and leaflets pertaining to Treasure Trove in Scotland. Updated versions will be prepared and distributed as necessary, and the most recent version will be accessible on the following website: www.treasuretrovescotland.co.uk. Comments from users will be welcome and will be considered when the Code is revised. (Comments should be sent to the QLTR at the address in **Appendix O**)

1.5 Using this document. The first sections of the code set out the aim and policy of the Treasure Trove system. They describe which bodies are involved and what are their responsibilities, and give definitions of the main terms used. Following these are sections which provide a guide to the Treasure Trove process, from the discovery of a portable antiquity or fieldwork assemblage through to its acquisition by a museum, and to the roles and responsibilities of finders, museums and official bodies.



TT.74/07 Neolithic stone axehead from Dunragit, Stranraer, Dumfries & Galloway. Allocated to Stranraer Museum

Stone axeheads were part of the toolkit of Neolithic farmers some 5,000 years ago. This example is a roughout for the finished product. This roughout however, is not made from a local stone but from Langdale tuff, a pale green stone found high up on the fells in the Lake District in Cumbria. Axeheads from these Cumbrian Neolithic 'axe factories' have been found across Britain and in Ireland and it seems that the sites where the stone was quarried or perhaps the stone itself, was of special significance to Neolithic people.

[1] *The Reform of Treasure Trove Arrangements in Scotland.* Edinburgh: Scottish Executive, November 2004.

2. THE TREASURE TROVE SYSTEM

2.1 Definition. Treasure Trove system is the traditional descriptive phrase given to the practices governing the administration by or on behalf of the QLTR of the Scots common law about portable antiquities found in Scotland. 'Treasure Trove' has been applied in Scotland since medieval times, but the system was substantially modified in the 1990s and was adopted in its present form in 1999.[2]

2.2 Purpose. The Treasure Trove system safeguards portable antiquities of archaeological, historical and cultural significance found in Scotland, and enables their allocation to Scottish museums.

2.3 Policy. In 2004 the Scottish Executive published the following statement of policy:

> The Treasure Trove system forms an important part of the Scottish Executive's approach to the preservation of the nation's cultural heritage. The Treasure Trove system will be used to safeguard Scotland's heritage of portable antiquities and archaeological objects by preserving significant claimed objects in the public domain. In accordance with the Executive's policy of increasing access to, and understanding of, our cultural heritage, claimed objects will be held by suitable institutions (usually the National Museums of Scotland or a local museum) for the benefit of the Scottish public. The presumption will be that display worthy objects will be placed on exhibition and, where appropriate, will be made available on loan to other museums.[3]

2.4 Responsibility. Policy and financial responsibility for the Treasure Trove system lie with Scottish Ministers and are exercised through the Culture Division of the Scottish Government.

2.5 Statement of the legal position.

(i) Found items from anywhere in Scotland (on land, in buildings, from inland waters, from within harbours, and from the coast and other tidal waterways down to mean low tidal water level) which are not otherwise owned and for which there is not a demonstrable heir (*bona vacantia*) are the property of the Crown at Scots common law. Portable antiquities form a subset of *bona vacantia*.

(ii) Found portable antiquities must be reported to the Crown by the finder through the Treasure Trove Unit or an appropriate intermediary (e.g. a museum). Misappropriation of found portable antiquities is the crime of theft and dishonest dealing in such items is the crime of reset, or receiving stolen property. Failure to report the finding of portable antiquities or the removal of found portable antiquities from Scotland (including to elsewhere in the United Kingdom) may provide evidence of misappropriation. Cases of apparent dishonesty will be reported to the Procurator Fiscal or Police for investigation and consideration of criminal proceedings. Offences are punishable by a fine or a term of imprisonment or both.

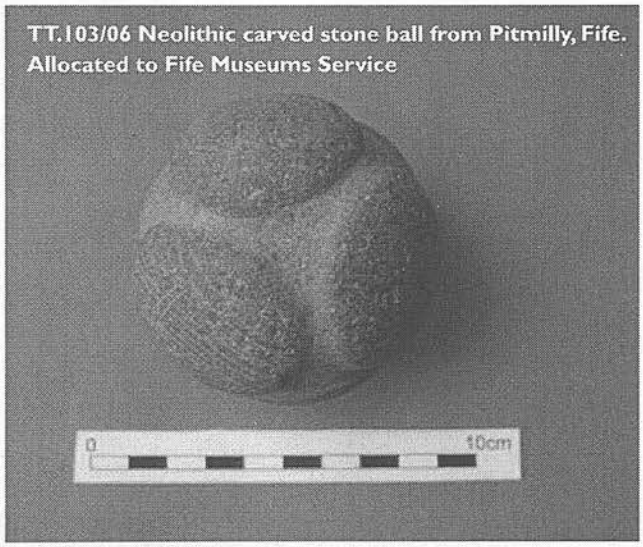
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[2] *Treasure Trove in Scotland: Information on Treasure Trove Procedures – Criteria for Allocation and the Allocation Process.* Edinburgh: Scottish Executive Education Department, August 1999.

[3] *The Reform of Treasure Trove Arrangements in Scotland.* Edinburgh: Scottish Executive, November 2004.

(iii) Non-reported portable antiquities have the status of being unclaimed Crown property. They cannot be owned by anyone else if the Crown has not been given the opportunity, by reporting, of exercising its right of ownership. There is no time limit with respect to non-reporting of items which thus remain the property of the Crown in perpetuity. Finders have no ownership rights to found objects unless and until the Crown determines, after they have been reported, not to claim, or subsequently to disclaim. Landowners have no property rights to portable antiquities, nor do sponsors of organized archaeological fieldwork have any claim to any finds made on their projects. Finders must ensure they have any appropriate permission to search land for portable antiquities.

(iv) Many chance finds are made with the aid of a metal detector. It is a criminal offence (under section 42 of the Ancient Monuments and Archaeological Areas Act 1979) to use a metal detector on a scheduled monument or a monument in the ownership or guardianship of Scottish Ministers, or of a Local Authority, without prior written permission from Scottish Ministers (further information can be obtained from Historic Scotland's Inspectorate – see **Appendix O** – and from Local Authority archaeologists).



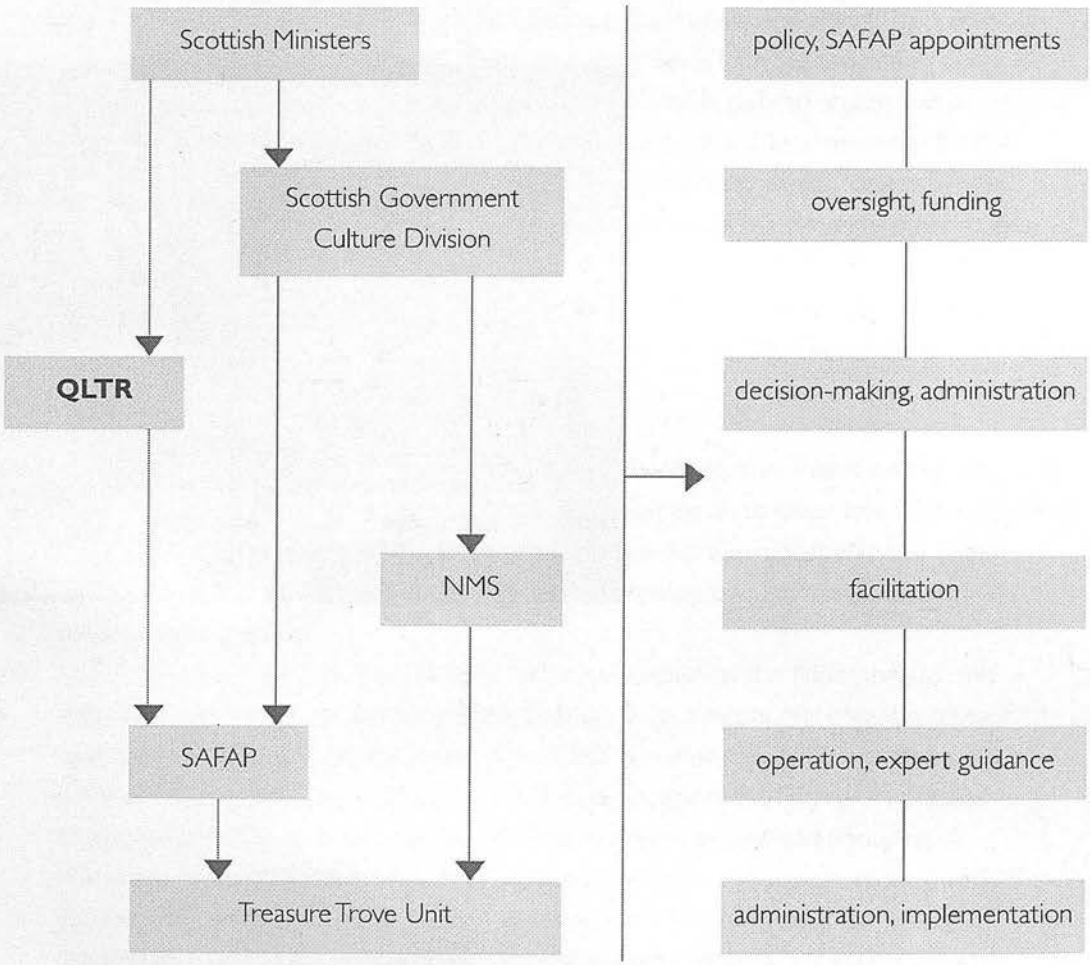
TT.103/06 Neolithic carved stone ball from Pitmilly, Fife. Allocated to Fife Museums Service

3. OPERATING THE TREASURE TROVE SYSTEM: THE BODIES INVOLVED (Fig. 1)

3.1 QLTR. The Queen's and Lord Treasurer's Remembrancer (QLTR) operates the Treasure Trove system. The QLTR is the Crown appointee ultimately responsible for all decisions over the claiming, valuation and allocation of portable antiquities found in Scotland.

3.2 SAFAP. The Scottish Archaeological Finds Allocation Panel (SAFAP) is a non-statutory specialist advisory panel which makes recommendations to the QLTR on the valuation and allocation of portable antiquities and archaeological assemblages claimed by the Crown. It meets at least three times per year (see **Appendix A** for its terms of reference). In its present form (since 2005) the Panel represents an amalgamation of the former Treasure Trove Advisory Panel and the former Finds Disposal Panel.

Fig. 1: Treasure Trove Responsibilities Tree



Abbreviations
QLTR: Queen's & Lord Treasurer's Remembrancer NMS: National Museums Scotland
SAFAP: Scottish Archaeological Finds Allocation Panel

3.3 TTU. The Treasure Trove Unit (TTU) undertakes the day-to-day administration of the Treasure Trove system. The Unit is funded by the Scottish Government and housed within NMS (see Appendix B for its functions).

3.4 NMS. National Museums Scotland (NMS) provides accommodation and facilities for the TTU and makes available expert advice and other resource support to assist the TTU. The Director of NMS nominates one member of staff to represent NMS on SAFAP.

3.5 MGS. Museums Galleries Scotland (MGS) provides a channel of communication to and from the museum sector for Treasure Trove matters. The Director of MGS nominates one member of staff to represent MGS on SAFAP.

3.6 HS. Historic Scotland (HS), as a major sponsor of archaeological fieldwork, reports all finds and assemblages from work it has sponsored or co-sponsored directly to the TTU for consideration by SAFAP. HS also undertakes Scottish Ministers' responsibilities in relation to scheduled monuments and monuments in the guardianship of Scottish Ministers, under the terms of the Ancient Monuments and Archaeological Areas Act 1979.

3.7 NFA. The National Fund for Acquisitions (NFA) can on application provide grants towards the purchase of portable antiquities by non-national museums. In any one year such museums can obtain 50 per cent of the *ex gratia* payment for allocated Crown-claimed material, for as long as NFA funds allow.

3.8 Contact details for the above bodies are listed at the end of this Code (**Appendix O**).

3.9 Many other organizations and individuals assist in operating the Treasure Trove system; the role of regional/local museums and Local Authority archaeologists is considered in sections 9 and 10 of this Code.



TT.4/07 Neolithic carved stone ball from Newburgh, Fife. Allocated to Fife Museums Service.

Carved stone balls are unique to Scotland and are one of the most enigmatic of all European prehistoric objects. Some are perfectly symmetrical and have decorative lines incised on them such as TT.103/06, found during potato harvesting near Pitmilly Law in Fife, whilst others like TT.4/07, found in a garden near Newburgh in Fife, are asymmetrical and seem to be less finely finished. Most carved stone balls are found north of the Firth of Forth in the east and north of Scotland but we do not know what they were used for nor what significance they held for the people who made them.

4. DEFINITIONS

Allocate/Allocation The final stage of the Crown claiming process of the Treasure Trove system is the allocation of a claimed item to an accredited/registered museum. This is deemed to transfer ownership to that museum.

Accreditated/registered To be eligible to receive allocated portable antiquities a museum must have formal accreditation/registration under the Museums, Libraries and Archives scheme administered in Scotland by MGS.

Archaeological context A stratigraphic entity within which it is reasonable to assume found objects are directly related to each other (see assemblage).

Archaeological site An archaeological site consists of a series of linked archaeological contexts, such that it is reasonable to assume that associated items form an assemblage. Delimiting the total extent of an archaeological site, particularly an unexcavated one, is often difficult and SAFAP members will exercise their best judgement (and make use, for example, of cartographic information) to assess whether particular finds are, or are not, a part of an assemblage from a particular site.

Assemblage A general term used for an associated group of portable antiquities. This term is used in a narrow sense to describe a group of finds from a single restricted archaeological context, or in a wider sense to refer to all the finds from a particular archaeological site or (in some cases) from an entire fieldwork project.

Assessing/Assessment The process of determining the significance of a reported portable antiquity with regard to claiming or unclaiming.

Bona vacantia A Latin term which is translated as 'ownerless goods'. The Crown has the right to claim *bona vacantia*, including portable antiquities.

Case All Crown-claimed material is allocated a case number by the QLTR. A single case number may cover a single object, a group of objects from the same findspot, or an assemblage from a fieldwork project.

Chance finds Refers to all portable antiquities other than those recovered by organized archaeological fieldwork. All discoveries made by users of metal detectors are regarded as chance finds, other than those made in conjunction with organized archaeological fieldwork. Chance finds are normally objects without an archaeological context.

Claim/claiming These terms refer to the exercise by the Crown through the QLTR of its right to own a portable antiquity under the Treasure Trove system.

The Crown This term refers to the entity entitled at common law to assert its right of ownership of apparently ownerless goods (*bona vacantia*) and is represented in Scotland by the QLTR.

Data Structure Report (DSR) The initial outcome of most archaeological fieldwork interventions is a DSR, which briefly describes the project and its results, and lists the contexts recorded and summarizes the site archive (drawings, photographs, finds, etc.).

Disclaim/disclaiming These terms refer to the action by the Crown through the QLTR in rejecting ownership of a portable antiquity previously claimed under the Treasure Trove system. By this means ownership is passed to the finder (see also unclaim/unclaiming).

***Ex gratia* payment** This is an award made at the discretion of the QLTR to the finder(s) of a chance find. The payment takes into account the circumstances of discovery, the treatment of the object by the finder, the nature of the item(s) and any delays in reporting.

Finder/reporter The assumption is made in this document that the finder(s) and the reporter(s) of a portable antiquity is (are) one and the same, as in practice is the norm. When this is not the case with a chance find, it will normally be the finder, not the reporter, who is eligible for any *ex gratia* payment, for example when a third party such as a museum acts as reporter on behalf of a finder.

Findspot The exact location at which a portable antiquity is discovered.

Hoard (or cache) Two or more items in association which are judged to have been deliberately deposited together.

Local Authority archaeologist Local Authorities either employ archaeological staff directly or have contractual arrangements for the provision of professional archaeological expertise as required. The term Local Authority archaeologist in this Code is used to describe any person acting on behalf of a Local Authority in this way. This term does not normally include Local Authority museum staff.

Local museum/regional museum A museum will normally be considered local when its collecting policy specifies all, or part of, a single Local Authority area, and regional when the collecting policy extends beyond a single Local Authority area. On behalf of SAFAP the TTU maintains a library of the collecting policies of all accredited/registered museums in Scotland which are interested in acquiring Crown-claimed items.

Museum ready Refers to the state of an archaeological assemblage after the post-excavation process is complete and the assemblage is ready to be transferred to a museum collection.

Organized archaeological fieldwork Describes any field project undertaken to recover data according to recognized archaeological standards, whether involving professional archaeologists or not.

Portable antiquity This term in Scotland covers any ownerless item (*bona vacantia*) which is portable, has been humanly manufactured or modified, is of any size, type or material, is not integral to a site or monument, and has been found in Scotland. Normally the human manufacture or modification of the item will have occurred more than 100 years before its discovery.

Reporting The legal requirement under the Treasure Trove system whereby any possible portable antiquities are formally notified to the TTU. (see **Appendices C and I** for standard reporting forms)

Scheduled monument An archaeological site or monument of national importance that Scottish Ministers have given legal protection under the Ancient Monuments and Archaeological Areas Act 1979. The boundaries of scheduled monuments are defined in their legal documentation (which can be downloaded from www.pastmap.org.uk).

Significance This is the criterion used to determine whether a portable antiquity should be claimed or unclaimed. Significance is determined by the potential of any portable antiquity to contribute to the cultural record of Scotland.

Standard application This term describes a museum's expression of interest in the allocation of a Crown-claimed item (see **Appendix K**).

Treasure Trove Under Scots common law the Crown has ownership rights to treasure, in the specific sense of items wholly or partly composed of precious metal (gold and silver). This aspect of the law has given its name to the whole portable antiquities system described here. In practice, however, since the common law Crown rights pertaining to *bona vacantia* are all-embracing, those relating purely to precious metal items are rarely used separately from the general claiming and allocation processes.

Unclaim/unclaiming These terms refer to the action whereby the Crown through the QLTR (and delegated to the TTU) chooses not to claim a reported portable antiquity. In such cases a transfer certificate is issued by the TTU to the person, group or organization reporting the find, making them the owner of the object (see **Appendix D**).

Unreported An unreported portable antiquity cannot be owned legally by individuals or institutions.

Valuation The process whereby SAFAP determines for a chance find the *ex gratia* payment to recommend to the QLTR.

5. THE TREASURE TROVE PROCESS – CHANCE FINDS (Fig. 2)

5.1 The process by which chance finds of portable antiquities are dealt with under the Treasure Trove system is summarized in Figure 2. This section expands upon the flow-chart and provides a definitive step-by-step account. The responsibilities of the parties involved and the mechanisms for achieving the steps are considered in subsequent sections of the Code.

5.2 Whenever a chance find of a portable antiquity is made the item or items recovered are required, within one month of initial discovery, to be reported to the TTU (see Appendix C). Delays in reporting a find will affect any *ex gratia* payment.

5.3 Normally it will be necessary for the item to come to the TTU, which will retain it in safe storage until its future is determined. The TTU will liaise with the finder and/or reporter regarding delivery. Reporting may be assisted, where circumstances permit, through a regional/local museum or a Local Authority archaeological service.

5.4 The TTU will assess all received finds of portable antiquities and determine their significance, leading either to a recommendation to the QLTR to claim, or to a decision on delegated authority from the QLTR to unclaim.

5.5 If the portable antiquity is unclaimed, it will be returned to the finder (or in some cases the reporter). The TTU will issue a certificate to the finder for each unclaimed item or group of items (see Appendix D).

5.6 If a find is to be recommended for claiming, the TTU may contact the finder to establish further details of the findspot and the circumstances of finding. Withholding information about a find or improper treatment of it will affect any *ex gratia* payment.

5.7 The TTU passes the recommendation to claim a find to the QLTR, who formalizes the claim by allocating a case number, and notifies the finder and the TTU that the find has been claimed. At this stage the finder is invited by the QLTR to provide any available evidence relevant to valuation of the claimed item.

5.8 The TTU undertakes further research and consultation on the claimed item, including arriving at a guideline valuation.

5.9 The TTU advertises the claimed item to the museum sector and invites museums to submit standard applications for allocation. Museums will be notified if claimed items require additional conservation before they can be transported.

5.10 If multiple standard applications are received, these will be exchanged by the TTU between the submitters, who are given the option of submitting revised applications.

5.11 SAFAP considers current claimed items at its regular meetings. Normally all the claimed items being considered (other than excavation assemblages) will be available for SAFAP to inspect. SAFAP deliberates and arrives at its recommendations to the QLTR for allocations and *ex gratia* payments.

5.12 The TTU advises the relevant museum of SAFAP's recommendations and requests confirmation that the museum still seeks the allocation.

5.13 After SAFAP has considered multiple applications for a claimed item, the TTU will inform the museums involved of what SAFAP is minded to recommend to the QLTR. It will request confirmation of the museums' agreement or disagreement with this outcome. If there is a disagreement, the case will be deferred for reconsideration at SAFAP's next meeting, and the museums involved will be invited to submit further details. These further details are not exchanged between museums by the TTU.

5.14 The TTU advises the QLTR of SAFAP's recommendations.

5.15 If for any reason the QLTR decides to reject a SAFAP recommendation, the case is referred back to the next meeting of the Panel for reconsideration (this is rare).

5.16 If the QLTR decides to accept SAFAP's recommendation then the recipient museum is requested by the QLTR to forward the full amount of the *ex gratia* payment.

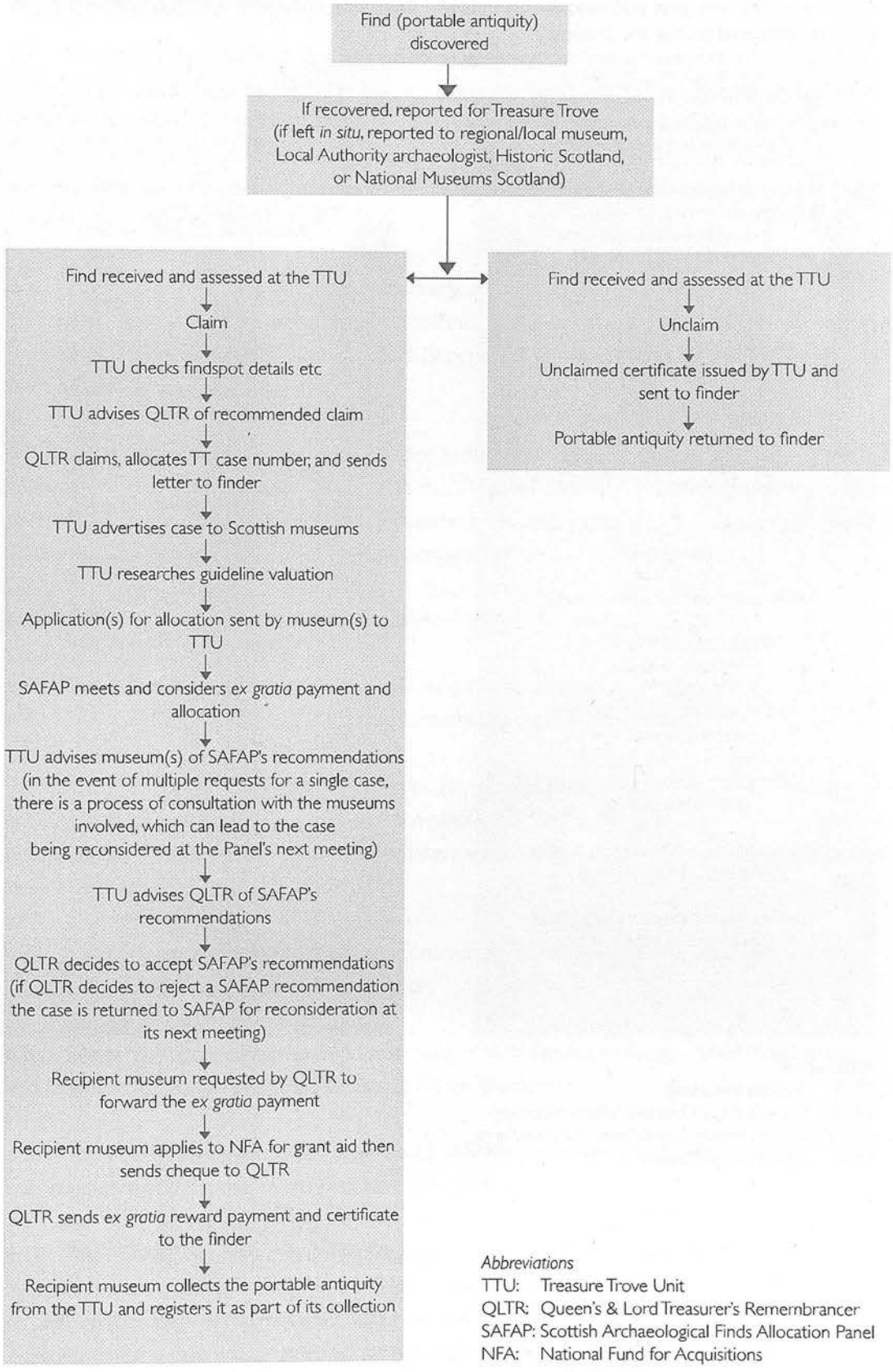
5.17 On receipt of the museum's payment, the QLTR sends the *ex gratia* payment and a certificate to the finder (see **Appendix E**), and notifies the TTU to close the case.

5.18 The recipient museum collects the find from the TTU and accessions it into its collection.

5.19 The process from initial reporting to allocation to a museum and completion of any *ex gratia* payment to a finder will normally be completed within 12 months.

5.20 If for any reason no museum has expressed interest in acquiring a claimed item, the QLTR may, on SAFAP's recommendation, disclaim the find and it will be returned to the finder.

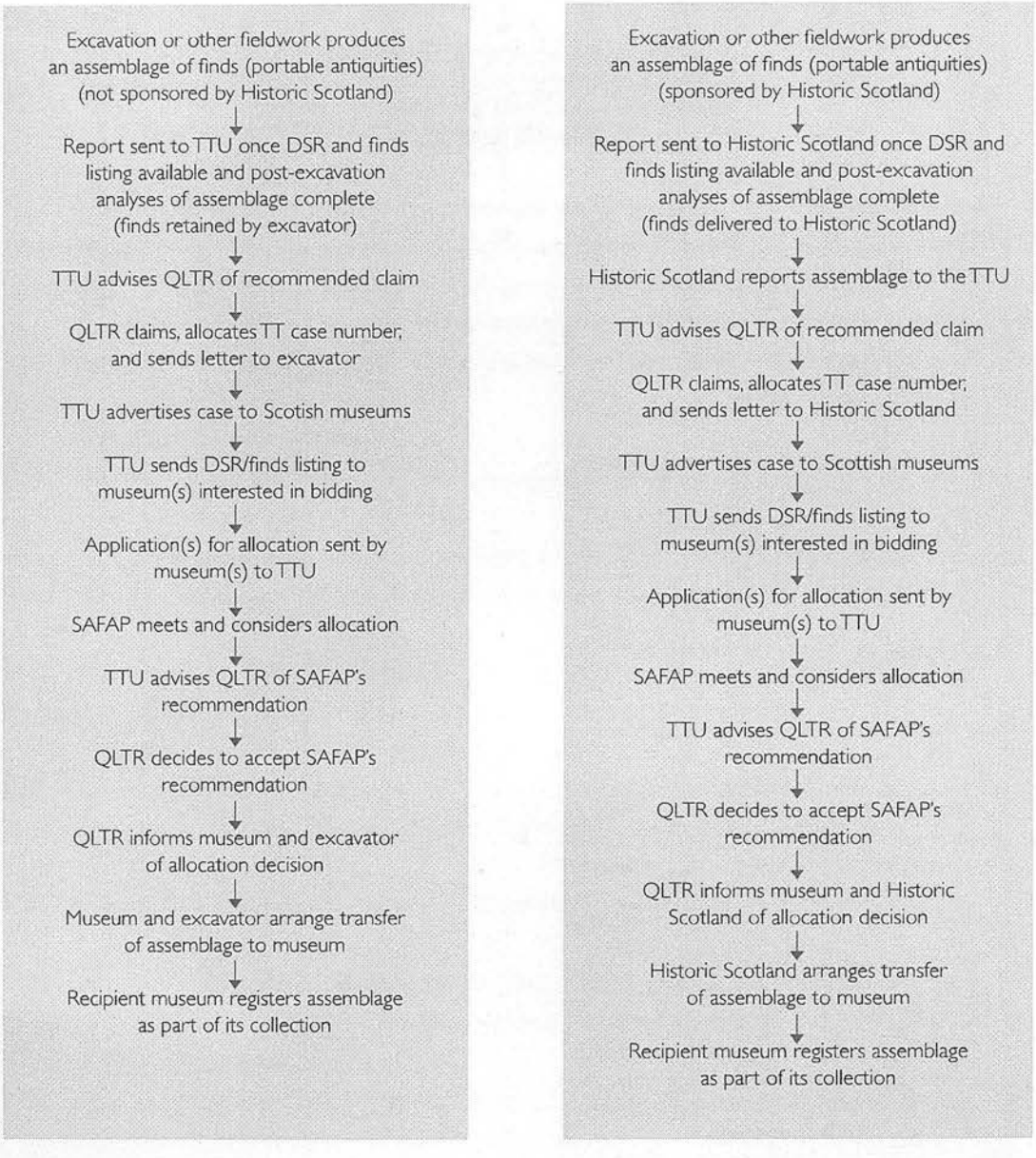
Fig. 2: Treasure Trove process flow-chart: chance finds



Abbreviations

TTU: Treasure Trove Unit
QLTR: Queen's & Lord Treasurer's Remembrancer
SAFAP: Scottish Archaeological Finds Allocation Panel
NFA: National Fund for Acquisitions

Fig. 3. Treasure Trove process flow-chart: assemblages from organized archaeological fieldwork (n.b. there are slightly divergent pathways for assemblages depending on whether or not they derive from projects sponsored by Historic Scotland)



Abbreviations

TTU: Treasure Trove Unit
QLTR: Queen's & Lord Treasurer's Remembrancer
SAFAP: Scottish Archaeological Finds Allocation Panel
DSR: Data Structure Report

6. THE TREASURE TROVE PROCESS: FIELDWORK ASSEMBLAGES (Fig. 3)

6.1 All significant portable antiquities from organized archaeological fieldwork in Scotland are automatically claimed for the Crown and no *ex gratia* payments are made. The process by which fieldwork assemblages are dealt with under the Treasure Trove system is summarized in Figure 3. This section expands upon the flow-chart and provides a definitive step-by-step account. The responsibilities of the parties involved and the mechanisms for achieving the steps are considered in subsequent sections of the Code.

6.2 Assemblages, normally when museum ready, are reported directly to the TTU in the case of fieldwork other than that involving Historic Scotland. The assemblages themselves remain with the excavators until allocation, but Data Structure Reports (or equivalent), including a finds listing, must be sent to the TTU.

6.3 In the case of fieldwork involving Historic Scotland, the assemblages are reported by the excavator directly to Historic Scotland, not to the TTU. Historic Scotland then reports these finds to the TTU. In this case the assemblages remain with Historic Scotland until allocation and the Data Structure Reports are sent to Historic Scotland, which copies them to the TTU.

6.4 The TTU advises the QLTR of the reported fieldwork assemblages.

6.5 The QLTR formalizes the claim by allocating a case number, and notifies the excavator (or Historic Scotland) and the TTU that the assemblage has been claimed.

6.6 The TTU advertises the claimed assemblage to the museum sector and invites museums to submit standard applications for allocation. If multiple standard applications are received, these will be exchanged by the TTU between the submitters, who are given the option of submitting revised applications.

6.7 The TTU supplies a copy of the Data Structure Report (or equivalent), including a finds listing, to the museum(s) interested in allocation.

6.8 SAFAP considers current claimed assemblages at its regular meetings. SAFAP deliberates and arrives at its recommendations to the QLTR for allocation.

6.9 The TTU advises the relevant museum of SAFAP's recommendation and requests confirmation that the museum still seeks the allocation.

6.10 After SAFAP has considered multiple applications for a claimed assemblage, the TTU will inform the museums involved of what SAFAP is minded to recommend to the QLTR. It will request confirmation of the museum's agreement or disagreement with this outcome. If there is a disagreement, the case will be deferred for reconsideration at SAFAP's next meeting, and the museums involved will be invited to submit further details. These further details are not exchanged between the museums by the TTU.

6.11 The TTU advises the QLTR of SAFAP's recommendations.

6.12 If for any reason the QLTR decides to reject a SAFAP recommendation, the case is referred back to the next meeting of the Panel for reconsideration (this is rare).

6.13 If the QLTR decides to accept a SAFAP recommendation then the excavator (or Historic Scotland) and the recipient museum are notified by the QLTR, who also alerts the TTU to this decision.

6.14 The recipient museum arranges with the excavator or Historic Scotland for receipt of the assemblage and accessions it into its collection.

6.15 If, for any reason, no museum has expressed interest in acquiring a claimed assemblage, the QLTR may, on SAFAP's recommendation, disclaim the assemblage and it will remain with the excavator (or Historic Scotland). Responsibility for the retention or disposal of disclaimed assemblages (or any assemblages which the Crown has chosen not to claim) rests with the excavator (or Historic Scotland), who should retain relevant documentation.



TT.62/07 Middle Bronze Age spearhead from Mennock Water, Dumfries & Galloway. Allocated to Dumfries Museum

Bronze Age weapons and tools are found both singly and in hoards. Some have been deliberately broken or buried in or near water or in prominent places in the landscape suggesting ritual deposit as in the case of TT.62/07 a Middle Bronze Age spearhead which was discovered wedged in a rock crevice in a burn at Mennock Water in Dumfriesshire. It is in remarkable condition having survived in the water for around 3,500 years.

7. THE ROLE OF THE FINDER: CHANCE FINDS

7.1 The finder has the most important role to play in the Treasure Trove process, since only if chance finds are observed and reported can they be acquired and preserved by museums, and thus contribute fully to public understanding and enjoyment of Scotland's past.

7.2 Finders are required, within one month of its initial discovery, to report anything believed to be a portable antiquity (see section 2.5 above for the legal position). This can be done by reporting directly to the TTU or by taking the object to a regional or local museum or to a Local Authority archaeologist. Advice on reporting can be obtained from the TTU by phone, letter, or email or from the website, from which a standard reporting form is available to download (see Appendix C). A delay in the reporting of portable antiquities may have a negative impact on any potential *ex gratia* payment.

7.3 Participants in metal-detecting rallies or similar events have an individual responsibility to report their finds, and organizers of such rallies and events should remind participants of this fact. Metal-detector users must not work on a scheduled monument without prior permission from Scottish Ministers.

7.4 The finder should provide as accurate a location as possible for the findspot. The TTU may send the finder a copy extract of the relevant map so that the position can be marked. Further details of the circumstances of finding may be required. Wilful misreporting of a findspot or the circumstances of finding is an offence.

7.5 The finder must take care not to damage a portable antiquity in any way. Objects must not be improperly cleaned, repaired, or marked. Items of wood, leather, fabric, or other organic material should be kept in the condition in which they are found (e.g. if wet keep wet). Advice on the treatment of finds can be obtained from the TTU. Damage to a portable antiquity in the care of the finder may result in a reduced *ex gratia* payment.

7.6 Sometimes it will be in the best interests of a portable antiquity to leave it where it has been found for investigation by an archaeologist. For example, removing organic items from peat can easily damage them and disturbing an object which is part of a hoard can destroy valuable information. Such discoveries should be notified immediately to the TTU, to a Local Authority archaeologist, to Historic Scotland, or to a museum. Such notification will in no way prejudice the reporter's position as the original finder for Treasure Trove purposes; indeed, such responsible actions are likely to be reflected favourably in SAFAP's determination of *ex gratia* payments.

7.7 The discovery of portable antiquities with human remains requires a different course of action. The human remains and associated artefacts should not be disturbed and must immediately be reported to the police (or local Procurator Fiscal's office) and to Historic Scotland.

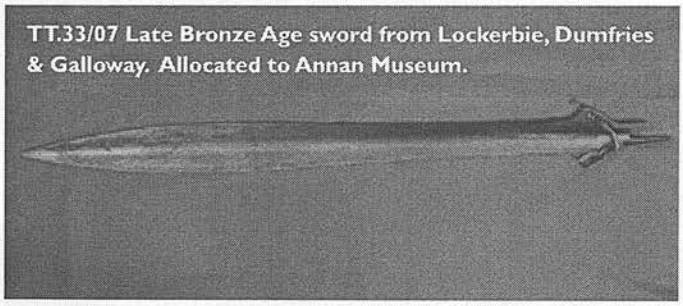
7.8 Whilst Appendix F lists some of the most commonly claimed categories of portable antiquities it is not an exhaustive list and if in doubt it is best for finders to err on the side of caution and report any object they think may be relevant.

7.9 Most portable antiquities must come to the TTU for assessment. The TTU can advise on how this should be accomplished. Items which are claimed through the Treasure Trove process will be retained by the TTU pending allocation to a museum.

7.10 When a portable antiquity is claimed, the finder receives a letter to that effect from the QLTR. This letter advises the finder that the QLTR will consider an ex-gratia payment to the finder and invites the finder to communicate any information relevant to the assessment of the payment to the TTU (Appendix G). The finder also has the opportunity at this stage to waive any possible *ex gratia* payment altogether, thereby benefiting any museum which acquires the find.

7.11 Once a decision has been taken over the valuation and allocation of a claimed portable antiquity, the finder will receive from the QLTR a letter setting out the sum determined as the *ex gratia* payment, the museum to which the allocation will be made, and the offer of a finder's certificate. The QLTR's decisions are final.

7.12 A portable antiquity which is returned to a finder after assessment is accompanied by an unclaim certificate. Finders must retain this certificate for as long as they retain the object, and must pass it on with the object if it is given away or otherwise disposed of.



TT.33/07 Late Bronze Age sword from Lockerbie, Dumfries & Galloway. Allocated to Annan Museum.

Other bronze objects have often been hoarded to melt down for re-use but it is rare to find an almost intact object in such fine condition as TT.33/07 a Late Bronze Age sword found near Lockerbie of a type rarely found in Scotland and dating to 1,150-1,000 BC.

8. THE ROLE OF THE FINDER: EXCAVATION ASSEMBLAGES FROM ORGANIZED ARCHAEOLOGICAL FIELDWORK

8.1 For the purposes of the Treasure Trove system the finder of portable antiquities from an excavation or other fieldwork project is: a) the project director; or b) the organization which employs the director; or c) in certain cases Historic Scotland as the sponsoring body. Finders in this category are never eligible for any *ex gratia* payment and there is no valuation process for assemblages from organized archaeological fieldwork. The procedures listed below replace those previously used by Historic Scotland's Finds Disposal Panel, which was disestablished in April 2005.

8.2 The finder is responsible for the security and stable conservation of the assemblage throughout the time which elapses between the field phase of a project, the post-excavation analyses, and the reporting and deposition. Assemblages held in this way are unallocated Treasure Trove and belong to the Crown. Finders are not authorized to lend or otherwise hand over excavated finds directly to a museum.

8.3 The finder may not remove from Scotland any of the portable antiquities originally found in Scotland, unless the appropriate loan form (obtainable from the TTU; see **Appendix I**) is authorized by the QLTR. The finder remains responsible for the security and integrity of the assemblage throughout the loan and must ensure the assemblage is returned to Scotland at the due date at her/his own expense.

8.4 Once the post-excavation process has reached the point at which an assemblage is museum ready or within a maximum of five years of the completion of fieldwork the finder must report it for claim by the Crown. This applies to all organized archaeological fieldwork commenced after the date at which this Code was first introduced (i.e. after [31 December] 2008), or started previously but still ongoing thereafter. In the case of organized archaeological fieldwork which was completed before the date at which this Code was first introduced, the finder must report it for claim within five years of that date (i.e. after [31 December] 2008)

8.5 If the assemblage derives from a project with which Historic Scotland has no involvement, it must be reported to the TTU using the standard form for this purpose available from the TT website (see **Appendix J**). In this case the finder retains the actual assemblage in safe keeping until the QLTR's decision on allocation is announced.

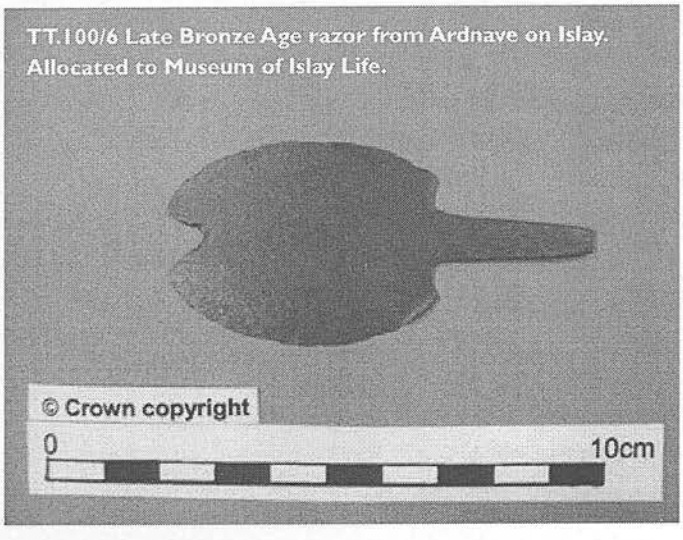
8.6 If the assemblage derives from a project sponsored by Historic Scotland then it must be reported to Historic Scotland and the assemblage itself will be deposited with Historic Scotland. Historic Scotland will then report the assemblage to the TTU using the standard reporting form.

8.7 Finders must provide the TTU with two hard copies of the Data Structure Report or equivalent, including a finds listing, at the time the assemblage is reported. It is envisaged that electronic rather than hard copies will in due course become the norm; the TTU can advise finders on this matter.

8.8 Finders will be informed by letter from the QLTR that their assemblage has been claimed and to which museum it has been allocated.

8.9 Following receipt of the QLTR's letter indicating allocation, finders are responsible for arranging delivery of the assemblage to the allocated museum.

8.10 In the event that no museum wishes to acquire a particular fieldwork assemblage, it will be disclaimed by the QLTR, who will communicate with the finder to that effect.



TT.100/6 Late Bronze Age razor from Ardnave on Islay. Allocated to Museum of Islay Life.

This is one of only a dozen Late Bronze Age double-edged 'bifid' razors from Scotland dating to 1,000-800 BC. The function of these razors is uncertain but clearly they could have served a number of purposes from shaving to cleaning skins.



TT.11/07 Bronze Age flint knife from Rothesay, Isle of Bute, Argyll & Bute. Allocated to Bute Museum

Flint tools also continued to be made in the Bronze Age and TT.11/07 is an interesting example of how flint, which is scarce in Scotland, was recycled from a Neolithic axehead of an earlier period to make this knife.

9. THE ROLE OF MUSEUMS

9.1 Museums are the ultimate custodians, on behalf of the public, of all portable antiquities claimed through the Treasure Trove system.

9.2 All portable antiquities acquired by museums since the publication in 1999 of the guidance that this document now replaces must have the status of either being claimed, unclaimed or disclaimed by the Crown (see Appendix M).

9.3 Museums must monitor the advertised lists of claimed items and send completed standard application forms for acquisition to the TTU before the closing submission date.

9.4 Museum involvement can begin at a much earlier stage, such as when an object is brought in for identification. In this case museum staff may be able to advise the finder on whether the object is a portable antiquity and therefore whether it should be reported as potential Treasure Trove (and the TTU can provide guidance for museum workers if there is uncertainty).

9.5 In such cases museum staff should where possible assist the finder to report her/his find to the TTU. They should be able to outline the Treasure Trove system (see Appendix N for a suitable information sheet to give enquirers), and it may be possible for them to retain the object, issue a receipt, and forward the object to the TTU themselves.

9.6 When applying for a portable antiquity or assemblage which has been claimed, museums must use the standard application form, available from the TT website (see Appendix K).

9.7 Only Scottish museums which have accredited/registered status through the scheme administered by Museums Galleries Scotland (MGS) are eligible to apply for Crown-claimed material. Provisional status may in some cases be sufficient (MGS can provide information on this issue).

9.8 Museums may normally only apply for Crown-claimed items which fall within the remit of their own collecting policies. This requires every museum to ensure that a copy of its current collecting policy is lodged with the TTU.

9.9 When compiling an application, museums should have regard to the criteria for allocation as defined elsewhere in this Code (Appendix L).

9.10 In applying for Crown-claimed items museums ought to have a reasonable expectation of being able to meet the *ex gratia* payment where applicable, bearing in mind the assistance available from the National Fund for Acquisitions.

9.11 SAFAP encourages the development of memoranda of understanding between museums with overlapping collecting policies in order to reduce the number of competitive applications and to facilitate the loan of objects to one museum even if allocation is made to another. It is not permissible, however, for one museum to apply to acquire Crown-claimed material on behalf of another, even if that museum is itself accredited/registered.

9.12 If competing applications are submitted, the TTU and SAFAP will follow the procedures outlined above (section 6.10) and the QLTR will determine the allocation.

9.13 Where no applications are received from museums for a claimed item, SAFAP will give NMS the option of accepting allocation.

9.14 Where an *ex gratia* payment is due to a finder, the QLTR will direct the allocated museum to pay the appropriate amount to the Crown Office. Only once the payment has been received by the QLTR will the TTU be authorized to release the find to the allocated museum.

9.15 Museums may wish to access claimed but unallocated items for display. This is possible by means of a loan arrangement authorized by the QLTR, for which appropriate forms are available to download from the TT website (see **Appendix H**).

9.16 Although allocation is deemed to transfer ownership of Crown-claimed items, museums are expected for audit purposes to notify the TTU of any intended long-term transfer of allocated items to another museum. The transfer of allocated items to non-accredited/registered bodies is not permitted.



TT.105/06 Iron Age horse harness from Dumfries, Dumfries & Galloway. Allocated to Dumfries Museum.

Most metal objects from the Iron Age are not in fact made from iron, a metal which rarely survives well in Scottish soils, but are of bronze. A good example of fine Iron Age metalworking in bronze is TT.105/06 a decorative strap junction from a horse harness with intact yellow and red enamelling in very good condition although part of one of the two decorative bronze lobes is missing. Enamelling is a common decorative technique in the Iron Age and this example gives some idea of how colourful many metal objects would have been particularly when new and the bronze was highly polished.

10. THE ROLE OF THE LOCAL AUTHORITY ARCHAEOLOGIST

10.1 Local Authority archaeologists ought to be familiar with the Treasure Trove system and must make reference to it when making provision for organized archaeological fieldwork to be undertaken through the planning system.

10.2 All permissions for organized archaeological fieldwork approved by a Local Authority should state clearly that any finds recovered must be reported for Treasure Trove purposes to the TTU (or directly to Historic Scotland in the case of work which it funds).

10.3 If a chance find is notified to a Local Authority archaeologist she/he may be able to advise the finder on whether the object is a portable antiquity and therefore whether it should be reported as potential Treasure Trove.

10.4 In such cases the Local Authority archaeologist should where possible assist the finder to report her/his find to the TTU. She/he should be able to outline the Treasure Trove system (see **Appendix N** for a suitable information sheet to give enquirers) and it may be possible for a Local Authority archaeologist to retain the object, issue a receipt, and forward the object to the TTU.

10.5 If a chance find is notified which remains *in situ* a Local Authority archaeologist should arrange for its immediate protection and organize appropriate specialist recovery, if necessary in liaison with other bodies such as Historic Scotland, National Museums Scotland and/or a regional/ local museum.



TT.37/07 Iron Age loop fastener from North Uist, Western Isles. Allocated to Museum nan Eilean, Stornoway.

This fastener is an example of an object with a typically Iron Age motif, the comma scroll, but the object itself has no direct parallels although it is probably a loop fastener for a harness. It is often the case that in outlying areas beyond the main sphere of influence, objects were adapted to suit local tastes rather than following purely mainstream fashions.

11. THE ROLE OF THE TREASURE TROVE UNIT

11.1 The overall functions of the TTU are listed at Appendix B.

11.2 This section clarifies some of the specific procedures of the TTU in relation to claiming, unclaiming, and valuation within the Treasure Trove system.

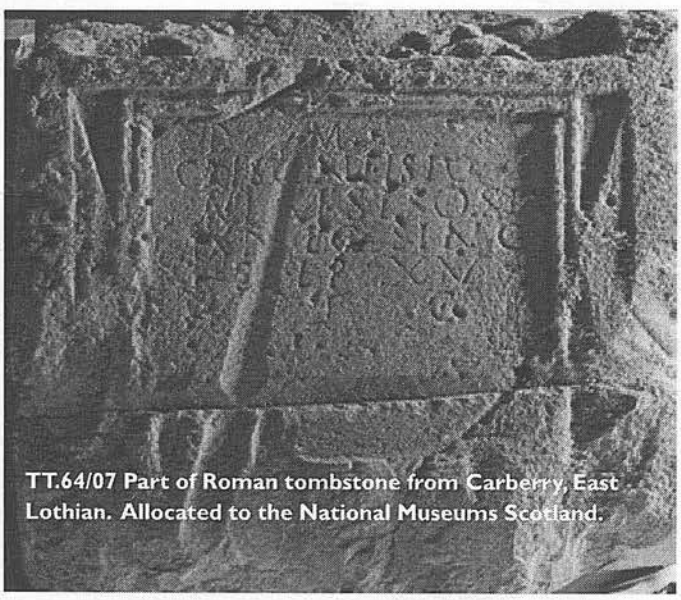
11.3 The TTU assesses reported portable antiquities to determine their suitability for claiming. If necessary, opinions are obtained from NMS curators or from other experts.

11.4 Portable antiquities are treated on a case-by-case basis, normally in the chronological order in which they are reported to the TTU.

11.5 The TTU recommends to the QLTR which items should be claimed.

11.6 If any reported item is considered unsuitable for claiming, the TTU has delegated authority from the QLTR to unclaim. In this case the TTU will return the item and issue a certificate of unclaim to the finder.

11.7 The TTU undertakes the initial research to assist SAFAP in determining the *ex gratia* payment to recommend to the QLTR. Sources of data on portable antiquities values elsewhere in the UK are monitored by the TTU and in some instances the opinions of outside experts are sought. Information gathered by the TTU, along with any representations made by the finder, is presented to SAFAP in advance of each meeting.



TT.64/07 Part of Roman tombstone from Carberry, East Lothian. Allocated to the National Museums Scotland.

This is a large rectangular fragment of a Roman tombstone in red-brown sandstone found by chance in a field near Carberry in East Lothian. The inscription in translation reads: *'To the shades of Crescens, cavalryman of the Ala Sebosiana, from the detachment of the Equites Singulares, served 15 years, his heir (or heirs) had this set up.'*

The tombstone dates to the period 140-180 AD and Crescens appears to have died whilst accompanying the Governor on a visit to nearby the nearby Roman site of Inveresk. The stone is a highly significant find being the first evidence of the Governor's bodyguard in Scotland.

12. THE ROLE OF SAFAP

12.1 The terms of reference for SAFAP are listed at Appendix A.

12.2 This section clarifies specific procedures of SAFAP practice in relation to claimed items.

12.3 Where there is a single application for a claimed item, once SAFAP is satisfied that the applicant is eligible to apply, the recommendation to allocate is normally made without further discussion.

12.4 When considering a case for which there are multiple applications, SAFAP assesses the latter against the criteria for allocation (see Appendix L) and determines a provisional view, which is communicated to the applicant museums by the TTU. Should an applicant museum disagree with SAFAP's view, then the procedure in paragraph 6.10 applies.

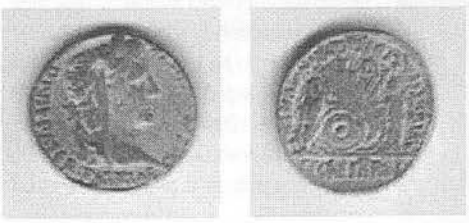
12.5 In cases where there is no application for a claimed item, SAFAP may direct the TTU to seek an appropriate depository, bearing in mind the residuary role of NMS (see 9.13 above).

12.6 SAFAP has the option to recommend to the QLTR the disclaiming of any items previously claimed.

12.7 SAFAP may defer a recommendation on allocation or ex *gratia* payment for any case if it requires further information.

12.8 The sum recommended to the QLTR for an ex *gratia* payment for any claimed item is that which has been discussed and agreed by SAFAP.

TT.76/07 Roman Augustus gold aureus from East Linton, East Lothian. Allocated to East Lothian Museums Service.



Gold coins of any period are obviously scarce finds and would rarely be casual losses unlike many base metals coins. TT.76/07 a Roman Augustus gold aureus, minted in Lugdunum/Lyons, 2 BC – 4 AD from East Linton is unusual in that it has a score mark on the obverse face which was most likely an ancient test to ensure the coin really was made from pure gold.

13. THE ROLE OF THE QLTR

13.1 The QLTR is head of the Treasure Trove system and institutes any legal procedures necessary.

13.2 The QLTR takes all final decisions on the claiming (and disclaiming), valuation and allocation of portable antiquities, bearing in mind the recommendations of the TTU and SAFAP.

13.3 All formal notifications concerning claimed (and disclaimed) items, allocation, and rewards are issued from the QLTR unit, as are the certificates awarded to finders of claimed items (see Appendix E).

13.4 The financial arrangements for claimed items involving museum payments and finders' *ex gratia* payments are undertaken by the QLTR unit. Current practice requires a museum first to provide payment before the QLTR unit issues an *ex gratia* payment to the relevant finder.

13.5 After cases involving multiple applications have been determined the QLTR unit will notify unsuccessful applicants of the outcome as well as the successful applicant.

13.6 The QLTR convenes an annual meeting with SAFAP and the TTU (see Appendix A:12).

13.7 The QLTR is required to report annually to the Scottish Ministers on the operation of the Treasure Trove system. This report comprises a list of all claimed cases and any that have been disclaimed. It may also include further information and analysis about the working of the Treasure Trove system and the activities of the bodies involved.



TT.101/06 Viking hacksilver from Crail, Fife. Allocated to Fife Museum Service

There are very few Viking finds from the East of Scotland and these two fragments of silver from Crail – one possibly from a Viking trefoil brooch and the other from an Irish style penannular brooch, bear deliberate cut marks indicating that they are Viking hacksilver – that is they have been cut up to be used as currency. They probably belonged to a dispersed hoard buried in the 10th-11th centuries although the Irish brooch may be several centuries earlier in date as fragments of old silver objects could remain in circulation for centuries because of their bullion value.

Appendix A: Scottish Archaeological Finds Allocation Panel (SAFAP) – terms of reference

SCOTTISH ARCHAEOLOGICAL FINDS ALLOCATION PANEL

TERMS OF REFERENCE

Status

1. The Panel is a non-statutory advisory committee established to assist the Queen's and Lord Treasurer's Remembrancer (QLTR) in discharging his functions in relation to portable antiquities. Scottish Ministers appoint the Panel and provide resources in order to allow the Panel to carry out its remit.

2. The Panel is supported in its work by a secretariat (i.e. the Treasure Trove Unit). The secretariat is currently hosted by National Museums Scotland (NMS).

Membership

3. The Panel comprises a Chair and five members. The Chair and Panel members are appointed for a fixed term (renewable) by Scottish Ministers, except in the case of each of the two *ex officio* members, one from each of NMS and Museums Galleries Scotland (MGS), who are nominated by the respective directors of NMS and MGS on behalf of Scottish Ministers. The Panel will be quorate when two members and the Chair are present, and at least one of the members is a ministerial appointment. The Chair may nominate another Panel member to act in her/his stead at a Panel meeting (or other occasion when he would be representing the Panel), which she/he is unable to attend.

4. Members of the secretariat attend Panel meetings to provide information as required by the Chair and to record the Panel business.

5. The QLTR is entitled to attend Panel meetings and members of the QLTR staff may attend Panel meetings with the agreement of the Chair.

6. Other individuals may on occasion be invited to attend Panel meetings at the discretion of the Chair.

Remit

7. The Panel's role is to advise the QLTR on valuations and allocations of portable antiquities claimed by the Crown. In carrying out its valuation and allocation work in relation to portable antiquities the Panel is to apply the criteria and follow the procedures set out in the Code of Practice. When considering the valuation and allocation of any claimed item, the Panel may recommend disclaiming to the QLTR.

8. The Panel will respond to requests from the QLTR for advice, comment or action.

9. The Panel will respond to requests from Scottish Ministers.

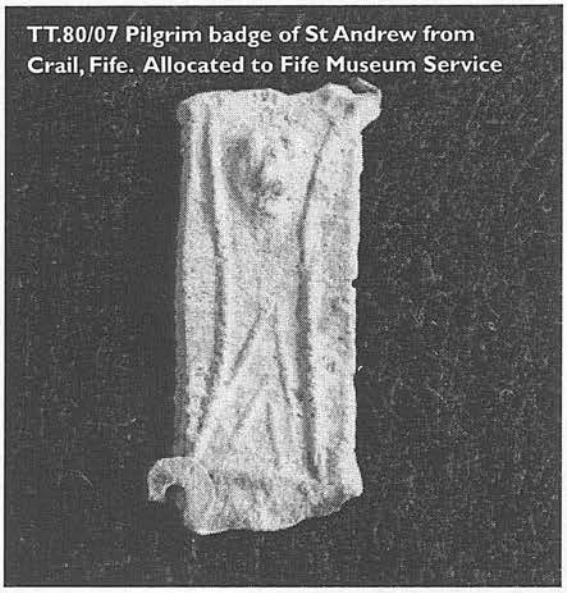
10. The Chair will liaise with other relevant bodies at his discretion.

11. The Panel will, as required by the QLTR, assist in the definition and dissemination of good practice in relation to Scottish portable antiquities and will assist the QLTR in the production of an annual report on the work of the Panel.

Meetings

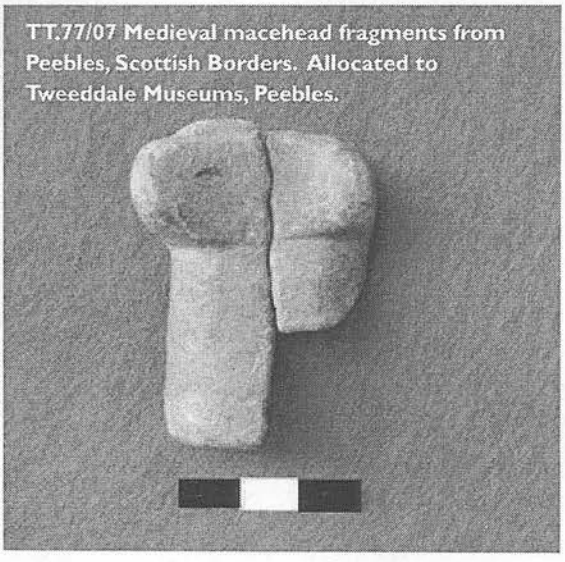
12. The Panel will normally meet three times a year. Additional meetings may be held if required by the Chair. The Chair has the power to deal with items of business other than at Panel meetings, in urgent and exceptional cases.

13. In addition to its normal meetings, the Panel and its secretariat will meet annually with the QLTR to review the year's business and discuss items of mutual concern.



TT.80/07 Pilgrim badge of St Andrew from Crail, Fife. Allocated to Fife Museum Service

A rare example of a lead pilgrim badge of St Andrew, probably dating to the 14th century when the depiction of St Andrew on this type of 'X' cross came into fashion. Fewer than a dozen of these badges of this type are known with the majority coming from the Thames foreshore in London. Pilgrims could buy these badges as a souvenir of their visit to the shrine either at the ferry crossing over the river Forth or at the shrine itself at St Andrews. Pilgrim badges were sewn onto clothing and this example has loops in each corner for this purpose although two of these have broken off.



TT.77/07 Medieval macehead fragments from Peebles, Scottish Borders. Allocated to Tweeddale Museums, Peebles.

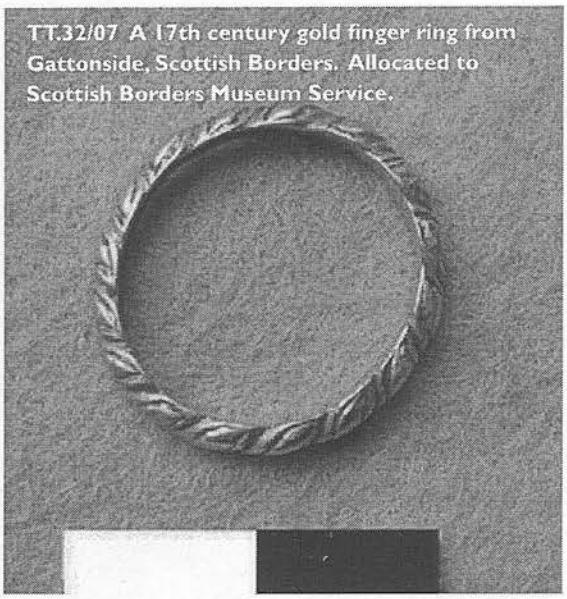
This is only the fifth recorded medieval example from Scotland of a knopped and socketed copper alloy macehead. The function of these maceheads is unclear and suggestions range from weaponry to church use although they could have fulfilled either or both functions.

Appendix B: Functions of the Treasure Trove Unit (TTU)

The TTU manages and delivers the TT system in Scotland and current functions include:

- to provide specialist services by identifying and assessing which archaeological and historical objects submitted by the public are appropriate for claiming or disclaiming as TT
- to provide a front-line service for public, professional and other enquiries relating to TT in Scotland
- to promote awareness of the TT system in Scotland through publications, lectures and participation in public events
- to register and curate all TT objects submitted to the TTU
- to provide Scottish museums with information on TT cases and offer advice on aspects of conservation, interpretation and display
- to monitor compliance by finders, museums, archaeology units and other bodies with TT law, timescales and deadlines to ensure the effective operation of the system
- to undertake all case-work associated with claimed, unclaimed and disclaimed objects from initial receipt to final transfer
- to organize, where appropriate, the scientific analysis of TT objects, other than those from organized archaeological fieldwork
- to organize, where appropriate, the conservation of TT objects insofar as is necessary to ensure they are in a stable condition at the time of transfer
- to ensure that all significant assemblages from archaeological fieldwork are declared for TT purposes
- to operate the TT pre-allocation loans system on behalf of the QLTR
- to advise, liaise and maintain close operational links with the QLTR and his staff and with other relevant bodies including the Scottish Government Culture Division, Scottish museums, MGS, Historic Scotland and the Receiver of Wreck
- to act as secretariat to SAFAP by producing minutes and Panel paperwork three (or more) times per year and to provide such additional support as required
- to manage and schedule the TT caseload to correspond with three (or more) Panel meetings per year
- to research and provide guideline valuations for TT objects for SAFAP
- to maintain and develop the TT website
- to maintain and develop the TT archive (digital, paper and image)

- to publish annually a list of TT allocations in the Council for Scottish Archaeology's *Discovery & Excavation in Scotland* (D&ES)
- to publish reports on TT cases in specialist publications
- to maintain links with relevant bodies in all UK countries, including the British Museum and the Portable Antiquities Scheme
- to participate at national and international level in academic and organizational aspects within the portable antiquities field



TT.32/07 A 17th century gold finger ring from Gattonside, Scottish Borders. Allocated to Scottish Borders Museum Service.

A gold finger ring with a beaded frieze known as gadrooning which was particularly popular in the 17th century. Such rings were common throughout the period and would be used as wedding rings. This example is in very fine condition and was found in a garden.

Appendix C: Standard reporting form for chance finds

Treasure Trove

DECLARATION OF FINDS FOR TREASURE TROVE ASSESSMENT

Finder's name: _____

Address: _____

Town: _____ Postcode: _____

County/Region: _____ Contact tel: _____

Description of find(s): _____
(e.g. coin/axehead/unidentified)

Date object found: _____

Findspot of object: _____ Grid Reference: _____
(give 2 letters followed by 6 digits)

Nearest town/village: _____ County/region: _____

Method of discovery

Discovered by metal-detecting Yes/no (please indicate)

Discovered by chance Yes/no (please indicate)
(e.g. whilst walking, ploughing etc)

Being declared for other reasons Yes/no (please indicate)
(e.g. house clearance)

Please give information on current and/or previous land use, or on previous finds from the findspot which you think may be relevant:

Declaration

I confirm that I am the finder of the object(s) declared above

Name: _____

Please return this form to:

Treasure Trove Unit
National Museums Scotland
Chambers Street
Edinburgh EH1 1JF
Tel: 0131-247-4082/4355
email:info@treasuretrovescotland.co.uk

Appendix D: Standard unclaim certificate issued to finders

Treasure Trove

Protecting our Archaeological Heritage for the Nation

CERTIFICATE OF UNCLAIMING CROWN TITLE

HAA.TTNC.2007/ ...

Item/s: _____

Findspot: _____

Finder/reporter: _____

This notice is issued on behalf of the Queen's and Lord Treasurer's Remembrancer and informs you that:

■ The Crown has chosen not to claim this find/these finds

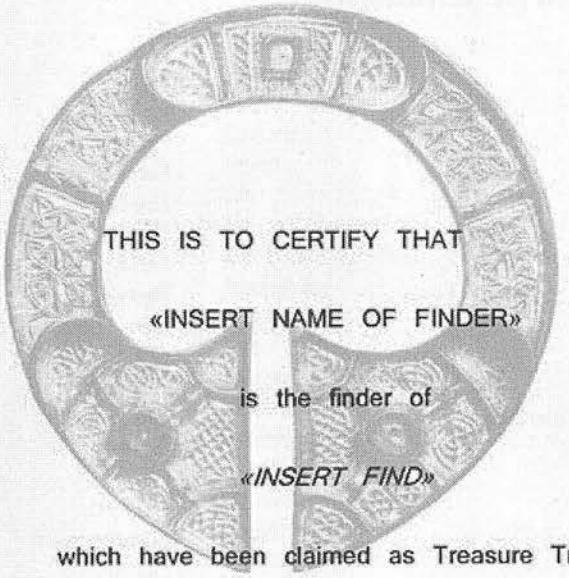
Signed: _____
(Head of the Treasure Trove Unit)

Date: _____

For further information about Scottish Treasure Trove/*bona vacantia* law and how the system works, contact the Treasure Trove Unit (**www.treasuretrovescotland.co.uk**)

Appendix E: Certificate issued to finders of chance finds of Crown-claimed objects

Treasure Trove



THIS IS TO CERTIFY THAT

«INSERT NAME OF FINDER»

is the finder of

«INSERT FIND»

which have been claimed as Treasure Trove

Queen's and Lord Treasurer's Remembrancer

Crown Office and Procurator Fiscal Service
25 Chambers Street
Edinburgh EH1 1LA

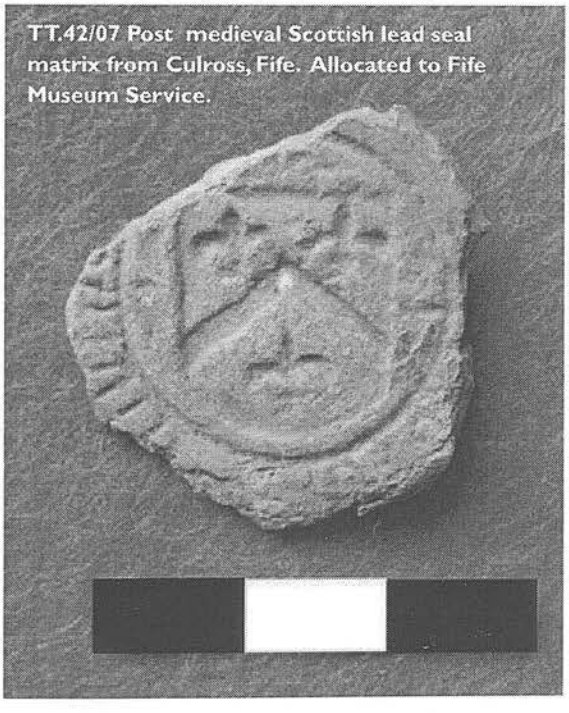
«INSERT DATE»

Appendix F: Types of portable antiquities which will ordinarily be liable to claiming for the Crown, dependent on age, condition, context, circumstances of finding, etc., as each object will be assessed by the TTU on a case-by-case basis. This listing is not intended to be exhaustive.

Adze-blade
Amulet
Anvil
Ard
Ard-blade
Armlet
Armour
Arrowhead
Awl
Axehead
Axe-hammer
Badge
Barbed point (antler/bone)
Battle-axe
Bead
Belt fitting
Book mount/clasp
Boss
Bracelet
Brooch
Bucket
Buckle
Button
Casket
Cauldron
Chape
Chariot equipment
Cheekpiece
Chesspiece
Coin
Coin hoard
(N.B. Coins reported will be identified by specialist numismatists. After recording, individual medieval and later coins will not normally be claimed unless they are rare types, are from findspots which give them an added significance, or are part of assemblages. Pre-medieval coins and coin hoards of all periods will normally be claimed.)
Comb (bone/antler)
Container
Counter
Cross-shaft
Cross-slab
Crucible
Cup-marked stone
Currency bar
Dagger
Decorated stone
Dirk
Fastener
Ferrule
Figurine
Finial
Fire-dog
Fire-steel
Fish-hook
Flesh-hook
Game-piece
Goblet
Grave-slab
Grave-stone
Grinder
Gunflint
Halberd
Hammerstone
Harpoon
Heraldic pendant
Horse gear
Ingot
Intaglio
Jar
Jewellery
Key
Knife
Knocking-stone
Ladle
Lamp
Lithic artefact
Logboat
Loomweight
Love token
Mace
Macehead
Mattock-head
Mirror
Mortar
Mould
Mount
Musical instrument
Neolithic stone ball
Needle
Net-weight
Papal bulla
Palstave
Patera
Pestle
Pictish symbol stone

Appendix F (cont'd)

Pilgrim badge
Pin
Pommel
Pottery
Purse-frame
Purse-mount
Quern
Rapier
Razor
Ring
Rubber
Saw
Scabbard
Sculpture
Seal
Seal matrix
Shield
Sickle
Socketed axehead
Socket-stone
Spatula
Spear
Spindle whorl
Spoon
Spur
Statue
Stirrup
Stone artefact
Strap-end
Strap-mount
Strike-a-light
Sword
Tankard
Terret
Tile
Token
Toiletry implements
Tombstone
Torc
Toy
Tweezers
Vase
Vehicle parts
Vessel
Weaponry
Weights
Worked organic material
Worked stone



TT.42/07 Post medieval Scottish lead seal matrix from Culross, Fife. Allocated to Fife Museum Service.

This type of personal seal in the form of a flower is unique to Scotland and dates to the 16th and 17th centuries. The shield on the obverse has been identified as belonging to one of five families but heraldic identification requires that the shield colours survive and in this case they are now lost through wear. The seal matrix has been clipped, presumably on the death of the owner – a common practice to ensure it was not misused and was the equivalent of cutting up a bank card or cheque today.

Appendix G: Standard letter from QLTR to finder of chance finds when portable antiquity is claimed by the Crown

Dear Finder

TREASURE TROVE – description of find

Thank you for reporting the above find.

I write to inform you that the Crown has exercised its right to claim the item mentioned above as Treasure Trove. The Scottish Archaeological Finds Allocation Panel (SAFAP) will consider museum allocation of the item and any appropriate *ex gratia* award for the find at its next meeting. If you have any information regarding the value or otherwise of the item, which you wish the Panel to consider, please send it to TTU (Treasure Trove Unit), c/o National Museums Scotland, Chambers Street, Edinburgh. Information about what is required regarding value is attached.

When a find is allocated to a Museum, that museum finances the *ex gratia* award. A finder may choose to forego an *ex gratia* award and, should you wish to do this, please advise the TTU in writing at the address above.

You will be informed in due course of the decision taken regarding the allocation of the item and any *ex gratia* award payable.

A list of Finders' names is published in the Annual Report for the year in which the find was reported. I would be grateful if you can let me know in writing if you agree to the inclusion of your name in the list. Please let me know within four weeks of the date of this letter. If I do not hear from you by then, your name will not be included.

Yours sincerely

QLTR Administrator

Appendix G (cont'd)

EX GRATIA PAYMENT FOR TREASURE TROVE OBJECTS INFORMATION FOR FINDERS

If you have recent verifiable information in support of a valuation for an object which is identical or very similar in type and condition to the one which you have submitted for Treasure Trove, and you wish the Panel to consider this information, you must submit it to the Treasure Trove Unit (TTU) in advance of the date of the next Panel meeting. This date is given in the 'Notice to Finders of Treasure Trove' letter which has been sent to you by the TTU.

The Unit will then ensure this information is put before the Panel when it is considering the case for an *ex gratia* payment for your find.

The Treasure Trove Unit must be able to contact the person who gave you the valuation or be able to consult the appropriate catalogue etc, in order to verify the valuation for the Panel.

Verifiable information must include:

The name and business address of the person who has given the valuation along with a copy of their valuation.

If the information has come from an auction house catalogue then full details of the publication must be given including the name of auction house, the date and place of sale, the lot number, the guide price and/or the hammer price.

If the information has come from a dealer's catalogue then the name of the dealer, along with the date of publication of the catalogue and object reference number is required.

Non-verifiable information

Information which has come from an anonymous source will not be considered by the Panel. This would include website sales such as eBay and valuations from any un-named experts or dealers.

Please note that the Crown is not obliged to offer any award for claimed Treasure Trove objects. It will, however, normally do so and may use 'market value' as a guide price. The estimated *ex gratia* payment may be reduced if an object has been inappropriately handled by the finder including: cleaning which has damaged the object, and/or the application of any waxes and/or varnishes to the object

Appendix H: Application form for authority to borrow and display unallocated Treasure Trove

Treasure Trove

APPLICATION FOR AUTHORITY TO BORROW AND DISPLAY UNALLOCATED TREASURE TROVE

(for use by a borrowing accredited/registered museum only)

Object(s) description: .....

Curator: .....

Address: .....

..... email address: .....

I hereby make application for authority to borrow and display the above object (s) for a period of ..... months, from..... 200_. I understand that if such authority is granted, transfer of the material will not be made until acceptable insurance cover or indemnity has been effected.

Signed: ..... Date: .....

Recommendation: Agree ☐ Disagree ☐

Signed: ..... Date: .....

Chair of SAFAP

Authority to borrow the above material for a period of ..... months granted.

Signed: ..... Date: .....

Queen's and Lord Treasurer's Remembrancer

Please return this form to:
The Treasure Trove Administrator, NMS, Chambers Street, Edinburgh EH1 1JF

Appendix I: Application form for authority to borrow unallocated Treasure Trove for research purposes

APPLICATION FOR AUTHORITY TO BORROW UNALLOCATED TREASURE TROVE FOR RESEARCH PURPOSES

Under the laws of Treasure Trove and *bona vacantia*, all material recovered by organized archaeological fieldwork in Scotland belongs to the Crown. Material may NOT be removed from Scotland without the prior written permission of the Queen's and Lord Treasurer's Remembrancer.
Please complete the attached list on page 2 detailing the artefactual material to be covered by this loan permission.
This form is for completion by an archaeology unit/university department/accredited researcher only.

COMPLETE ALL SECTIONS IN FULL

Name of site & NGR: .....

Location: ..... Local Authority: .....

Unit/Field Director: .....

Address: .....

..... email address: .....

Address where finds will be kept if different from the above: .....

.....

I hereby make application for authority to borrow material from the above fieldwork for a period of ..... months, from ..... 200_. (Maximum period is 48 months)
I understand that if such authority is granted, transfer of the material will not be made until acceptable insurance cover or indemnity has been arranged.

Signed: ..... Date: .....

Recommendation: Agree Disagree

Signed: ..... Date: .....

Chair of SAFAP

Authority to borrow the above material for a period of ..... months granted.

Signed: ..... Date: .....

Queen's and Lord Treasurer's Remembrancer

Appendix I (cont'd)

LIST OF ARTEFACTUAL MATERIAL TO BE COVERED BY LOAN

SITE NAME: _____ Site code: _____

Total no boxes: _____

Assemblage includes:

Stone:	Yes/No
Organic: (specify)	Yes/No
Metal: (specify)	Yes/No
Precious metal: (specify)	Yes/No
Other: (specify)	Yes/No

Purpose of removal (please tick):

Research	Yes/No
Analysis (specify type)	Yes/No
E.g. destructive/non-destructive	
Conservation (specify type)	Yes/No
Other (specify)	Yes/No

At the end of the excavation period please complete and return this form to:

THE TREASURE TROVE ADMINISTRATOR, NATIONAL MUSEUMS SCOTLAND,
CHAMBERS STREET, EDINBURGH EH1 1JF

Treasure
Trove

Appendix J: Standard organized fieldwork reporting form

Treasure Trove

Protecting our Archaeological Heritage for the Nation

DECLARATION OF AN ARCHAEOLOGICAL ASSEMBLAGE FROM ORGANIZED ARCHAEOLOGICAL FIELDWORK

Please submit a full report with this form, as two hard copies or on a CD-ROM.

Site name: _____ NGR: _____

Location: _____ LA: _____
(Local Authority)

Director of fieldwork: _____

Unit name: _____

Address: _____

Postcode: _____

Contact person: _____ tel: _____ email: _____

Approximate age of the assemblage: _____
(e.g.: Neolithic, medieval, post-medieval, etc.)

Please state the <u>total</u> number of boxes in the assemblage:

Current location of assemblage: _____
(e.g.: in the care of ABC Archaeology)

This fieldwork was sponsored (wholly or in part) by Historic Scotland: Yes/No (Please indicate as museum is eligible for HS box storage grant)

This fieldwork was sponsored by:

Submission of this declaration assumes that the assemblage is now ready for museum uplift (Please do NOT declare an assemblage until it is ready for museum uplift)

Return to:
The Assistant Administrator, Treasure Trove Unit, NMS, Chambers Street,
Edinburgh EH1 1JF Tel: 0131-247 4355 Email: info@treasuretrovescotland.co.uk

Appendix K: Standard application form for museums and other relevant institutions

Treasure Trove

Protecting our Archaeological Heritage for the Nation

Application by an Accredited/Registered Scottish Museum for Treasure Trove

Please refer to the Scottish Government document 'The Treasure Trove System in Scotland: Code of Practice', before completing this application

Application for case no. TT _____

Museum: _____

Address: _____

Email contact: _____

Please complete all relevant sections, continuing where necessary, on separate sheets

Eligibility: (e.g. accreditation/registration status)

Collecting Policy: (e.g. refer to the relevant sections in your policy document which relate to acquisition of the type of material applied for here)

Payment of *ex gratia* award: (e.g. refer to expected source(s) of funding)

Enhancement of local heritage interpretation:

Appendix K (cont'd)

National importance:

Integrity of assemblages:

Public accessibility to Crown-claimed material:

Research potential:

Other:

Application submitted by: _____

PLEASE RETURN YOUR APPLICATION(S) BY EMAIL WHERE POSSIBLE TO:
info@treasuretrovescotland.co.uk

Treasure Trove Administrator, National Museums Scotland, Chambers Street, EDINBURGH EH1 1JF Tel: 0131-247-4082 Fax: 0131-247-4060

Appendix L: Criteria for allocation in the event of multiple applications

Criteria for the allocation of Treasure Trove in the event of multiple applications from accredited/registered museums

The overarching priority for SAFAP when allocating Treasure Trove is:

Enhancement of local heritage interpretations

There is a presumption that Crown-claimed material will be allocated locally unless a convincing argument for allocating it elsewhere is presented

The other criteria (unranked) for allocation that must be considered in these circumstances are:

National importance[4]

Material may be defined as being of national importance if any or all of these criteria are fulfilled:

- it is a rare or unique type in a Scottish context or part of an assemblage containing such material; or
- it is of particularly high quality within its type; or
- it provides information of major significance (e.g. concerning the methods used in its manufacture or the nature of its subsequent use) not normally found on objects of its type; or
- the contextual information concerning the object or assemblage is of an exceptional nature.

Integrity of assemblages

Assemblages from archaeological fieldwork, all non-coin hoards, and many coin hoards, will normally be allocated in their entirety to a single applicant. Coin hoards will normally be allocated *en bloc*, unless in the opinion of SAFAP compelling reason to split them has been presented. Containers for coin hoards, and any other non-coin material directly associated with coin hoards, will normally be included in the allocation.

In the case of objects or assemblages where material from the same findspot already exists in one or more public collection, the principle of not splitting finds further should normally apply. Assuming an appropriate application has been lodged, allocation will normally be made to the institution which already possesses the previous finds – or, in instances where material is already in more than one museum – to the institution which holds the main relevant collection. SAFAP may require cartographic information in support of assertions that scattered finds from a locality can reasonably be construed as parts of the assemblage from a single site.

[4] The role of National Museums Scotland (NMS) will be taken into account in considering allocations of nationally important material for which NMS has made an application. NMS will be required to demonstrate fully that there are clear advantages, in serving the national interest, in allocating a find to the NMS rather than to another institution.

Conservation

Some Crown-claimed material may need special conservation monitoring or intervention. In such cases any applicants will already have been notified of any special requirement. An applicant will need to demonstrate to SAFAP the ability to provide the requisite additional conservation cover if such is specified

Potential to maximize public accessibility to, and understanding of, Crown claimed material

This will include consideration of the applicant's ability and proposals to contextualize the material in a public display. SAFAP will also take into consideration the ways in which the item is otherwise to be made accessible (e.g. through print publication, electronic media, loans to other museums, accessible storage facilities, etc.). These factors will be assessed on the basis of the information provided in the application and on SAFAP's general knowledge of the institution concerned.

Research potential

This will include consideration of the applicant's ability and proposals to enhance the research potential of its collection (e.g. if an institution aimed to build a representative set of objects types from a particular area, and needed a particular object or assemblage to fill an identifiable gap). This will be taken into consideration along with the ability of an applicant to undertake or facilitate research on the item either by its own staff or by third parties.

Exceptional circumstances

In exceptional circumstances there may be other factors to be taken into account by SAFAP in reaching its recommendation. When these circumstances arise, the applicants will be informed in advance of any additional issues which SAFAP considers relevant, and the justification for so doing.

Appendix M: Scottish portable antiquities acquired by museums since 31 December 1999 (extract from the notice issued jointly by the QLTR and the Chair of SAFAP, Edinburgh, 7 December 2005)

In 1999 formal guidance on the Treasure Trove system was issued by the Scottish Executive. Museums which acquired any Scottish portable antiquity or archaeological assemblage after 31 December 1999, without either any such item having been claimed by the Crown and allocated or, it having been reported, without the Crown having intimated that it is not to be claimed ('unclaim'), must report that item through the Treasure Trove system before 31 December 2007. Where the portable antiquity is a chance find, reporting must include details of the finder (and museums must inform the finder they are doing this), since an *ex gratia* reward payment to the finder may fall to be paid.

The current position may therefore be summarized as follows:-

- Scottish portable antiquities or archaeological assemblages which have been both acquired and formally registered/accessioned by museums on or before 31 December 1999 without having been reported through the Treasure Trove system will be deemed to have been acquired lawfully by those institutions and will not require to be notified to the Crown.
- Scottish portable antiquities or archaeological assemblages acquired by museums after 31 December 1999 other than by Treasure Trove allocation or following unclaim or disclaim by the Crown are the property of the Crown and must be reported through the Treasure Trove system. This requirement also applies to items acquired by museums prior to this date but which have not been formally registered/accessioned by 31 December 1999. Museums cannot lawfully acquire such items unless and until the Crown has been given the opportunity to exercise its right to claim them or not through the Treasure Trove system.

Appendix N: The Treasure Trove process: summary information sheet for finders of chance finds

Treasure Trove

WHAT HAPPENS WHEN A CHANCE FIND IS MADE THAT IS POTENTIALLY TREASURE TROVE

1 Finds are deposited with the Treasure Trove Unit (TTU) at National Museums Scotland in Edinburgh by the finder or via a regional/local museums curator or by another third party.

2 Finds are then assessed for Treasure Trove purposes.

3 When a find is deemed suitable for claiming under the laws of *bona vacantia*/Treasure Trove, the finder will be informed by the TTU.

4 Finders will receive a report on the find and a digital photograph for their own records. They will also be informed of the date of the meeting at which the Scottish Archaeological Finds Allocation Panel (SAFAP) will consider the find.

5 The case information is then passed to the QLTR unit at the Crown Office. There will normally be no further correspondence with the finder by the TTU.

6 The QLTR unit will write to the finder to advise that the QLTR accepts the recommendation to claim the find. All further correspondence with the finder will come directly from the QLTR unit. Finders can waive a reward thereby saving a museum the purchase price of the find.

7 At its next meeting SAFAP will recommend to the QLTR:
i) an *ex gratia* payment for the find (n.b. this does not apply to finds from organized archaeological fieldwork)
ii) the appropriate museum to be allocated the find.

8 If the QLTR accepts the Panel's recommendation the finder will receive a letter informing her/him of the amount of any reward being paid and the name of the museum which will house find.

9 The QLTR unit will then write to the museum which has been allocated the find and request the sum for the finder's *ex gratia* payment.

10 In some cases, the QLTR or the Panel may need to postpone arriving at a recommendation on a case until further information has been obtained. This can occur when more than one museum has applied for the same find or when extra specialist advice or analyses are required.

11 The majority of cases will proceed without delays and the finder will be sent a cheque for the *ex gratia* payment after the recipient museum has paid this sum to the Crown Office.

12 The entire process is normally completed within 12 months from the date of claiming the object.

Treasure Trove Unit, National Museums Scotland, Chambers Street, Edinburgh EH1 1JF.

Appendix O: Contact details

Culture Division, Scottish Government, Victoria Quay, Edinburgh EH6 6QQ (telephone: 0131-556 8400; fax: 0131 244 0353; email: ceu@scotland.gsi.gov.uk: website: www.scotland.gov.uk)

Historic Scotland, Collections Unit, Longmore House, Salisbury Place, Edinburgh EH9 1SH (telephone: 0131-668 8946; email: hs.collections@scotland.gsi.gov.uk; website: www.historic-scotland.gov.uk/collections)

Historic Scotland, Inspectorate, Longmore House, Salisbury Place, Edinburgh EH9 1SH (telephone: 0131-668 8770; email: hs.inspectorate@scotland.gsi.gov.uk; website: www.historic-scotland.gov.uk/inspectoratecontacts)

National Fund for Acquisitions, c/o National Museums Scotland (telephone: 0131-247 4106; fax: 0131 247 4308; email: h.williamson@nms.ac.uk)

National Museums Scotland, Chambers Street, Edinburgh EH1 1JF (telephone: 0131-247 4422; fax: 0131 220 4819; email: info@nms.ac.uk; website: www.nms.ac.uk/nms/home)

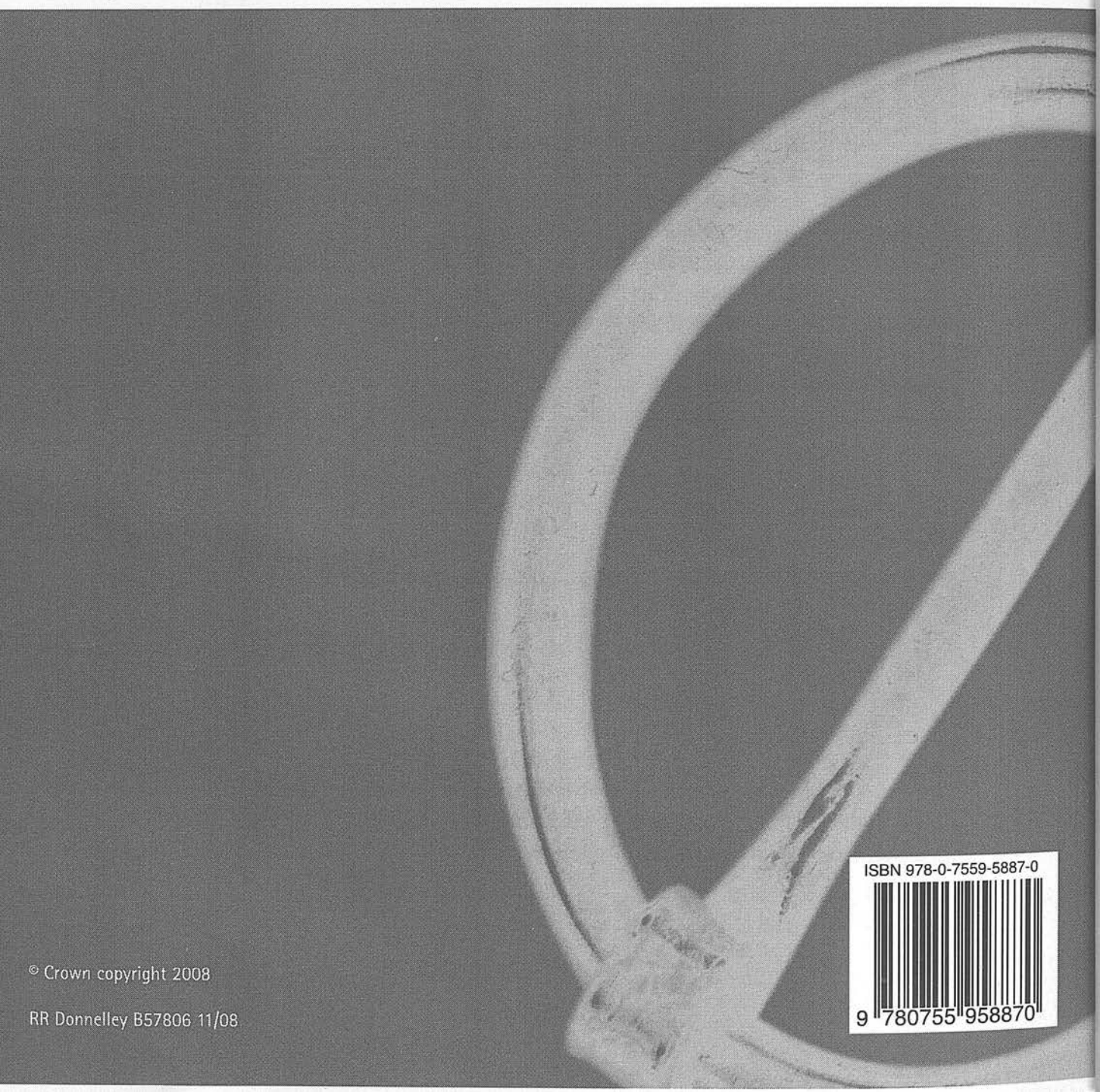
Queen's & Lord Treasurer's Remembrancer, Crown Office, 25 Chambers Street, Edinburgh EH1 1LA (telephone: 0844 561 3802/3804/3805/3806; fax: 0844 561 4276; email: COQLTR@copfs.gsi.gov.uk; website: www.crownoffice.gov.uk/About/roles/qltr/qltr-overview)

Scottish Archaeological Finds Allocation Panel, c/o Treasure Trove Unit

Museums Galleries Scotland, The Stack, Papermill Wynd, McDonald Road, Edinburgh EH7 4QL (telephone: 0131-550 4100; email: inform@museumsgalleriesscotland.org.uk; website: www.museumsgalleriesscotland.org.uk)

Treasure Trove Unit, c/o National Museums Scotland, Chambers Street, Edinburgh EH1 1JF (telephone: 0131-247 4082/4355/4054; fax: 0131 247 4060; email: info@treasuretrovescotland.co.uk; website: www.treasuretrovescotland.co.uk)

23.06.2008 Compiled on behalf of Scottish Ministers and the Crown Office by Professor Ian Ralston, Chair of SAFAP (ian.ralston@ed.ac.uk) and Alan Saville, former Head of the TTU (a.saville@nms.ac.uk) with the advice of SAFAP members.



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