



Dowd's Farm  
Hedge End, Hampshire

Supplement to Publication  
Charred Plant Remains

by Ruth Pelling

## Dowd's Farm, Hedge End, Hampshire (62354)

### Charred Plant Remains

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#### Introduction

During excavations at Dowd's Farm a total of 194 bulk samples were taken for the extraction of charred plant remains and charcoal from the full range of feature type and phase. Bulk samples were processed following Wessex Archaeology standard flotation techniques and flots collected on 0.5mm flots. Following an initial assessment (WA 2008) 17 samples were selected for further examination of the charred plant remains (seeds and chaff). The samples selected for charred plant remains were taken from pits, hearths, tree-throw holes, post-holes and ditches. A total of eleven samples were examined from the Late Bronze Age to Early Roman period, while six samples were examined from medieval contexts.

While the archaeobotany and arable history has been very well studied from the Hampshire chalkland, particularly for the Iron Age (Campbell 2000; Carruthers 1991), little is known about the early arable history of the more southerly parts of the county outside of the urban centres, particularly during the prehistoric period. The Saxon and medieval periods have been well studied within the settlement of Hamwic in Southampton (Biddle 1997; Carruthers 2005; Clapham 2005; Hunter 2005), with some work on sites from the fringes of the modern city (eg. Hinton 1995; Stevens 2006) or from sites such as Romsey to the north of Southampton (Green 1984, Green 1991; Stevens 2007). Very little has been examined from rural sites on the heathland soils in the south of the county. The study of the charred plant remains was therefore intended to provide some evidence for the nature of the site in both the Iron Age and medieval period and its arable economy. In particular the evidence for wood burning appears to be very strong, both in the prehistoric and medieval phases of the occupation (see charcoal report, Pelling), while arable activities are more poorly represented.

#### Methodology

Flots selected for the analysis of their plant remains were sorted under a x10 – x40 stereo-binocular microscope and any quantifiable seeds and chaff or other items were extracted. Identifications were made based on well established morphological criteria and by comparison with modern reference material. Nomenclature and taxonomic order for wild plants follows Stace (1997).

## Results

### Late Bronze Age to Early Roman Charred Plant Remains

#### *Areas A and E*

Seven samples were examined from later prehistoric features associated with occupation within the centre and north-west of the site (Areas A and E). Five were from Area A: four from postholes (including one from a 4-post structure) and one from a 'hearth' feature (postholes 10812, 10878, 10995, 12103 and hearth 12102). Samples were also examined from a tree-throw in Area B (feature 10182) and a hearth in Area E (feature 11641). Posthole 12103 was undated, although the similarity of the plant assemblage to other samples from this phase suggests it to be contemporary. Five of the samples produced small quantities of charred grain (<10), occasional chaff, fragments of hazelnut shell, sloe type stone fragments and weed seeds. Two samples, from posthole 12103 and hearth feature 11641, produced greater quantities of remains, each with approximately 100 items. In both cases the chaff of hulled wheats dominated, with only few grains or weed seeds. In all the prehistoric samples the cereals consist of hulled wheat with some barley. Given the inherent difficulties in the identification of wheat grain and the eroded state of the material, identification of wheats is based on the glume bases. Two species of glume wheat were identified: emmer wheat (*Triticum dicoccum*) and spelt wheat (*Triticum spelta*). Both species were present in the hearth sample. Only spelt wheat was identified from the other samples although the preservation of the material was such that it is not possible to establish if this distribution of species is representative or if it is merely a product of preservation. In addition hulled barley (*Hordeum vulgare* s/l) was identified on the basis of grain, which could be assigned to the six-row variety on the basis of well preserved rachis segments. Awn fragments of oats (*Avena* sp.) may derive from cultivated or wild types, although no grain of oats was identified.

While the majority of these samples are likely to consist of background scatters of cereal waste the two plant rich deposits from the posthole and hearth (features 12103 and 11641) can be identified as consisting of deliberately discarded deposits of processing waste. In both cases the glume bases and spikelet forks (one spikelet fork consists of two glume bases) formed the greatest component of the assemblage. Given that grain survives charring better than chaff it is reasonable to suggest that this domination by chaff has not been affected by preservation conditions, and the deposits therefore are likely to represent the by-product of de-husking hulled wheat (the removal of the glumes or hulls). Such chaff waste is frequently used as a source of fuel (Campbell 2008, 71) and its presence in the hearth deposit is presumably related to such a practice. Both samples had a negligible weed component suggesting weeds had been removed at an earlier, separate stage of processing.

The small weed flora in the samples from this period consists of species associated with disturbance activity including arable cultivation. Seeds of *Bromus* sp. (brome grass) were the most abundant noted, a grass species which is commonly encountered in cereal assemblages, producing grain of cereal size, and therefore usually not eradicated until a later stage of processing than many weeds.

The small quantities of hazelnut shell fragments and sloe type stones suggest some utilization of wild resources in the vicinity of the site. This is unusual in later

prehistoric settlements which rarely produce such finds (in contrast to the Neolithic and early Bronze Age) and may be a reflection of the abundant local woodland.

A large number of amorphous, rounded charred fragments were recovered from the sample taken from tree-throw 10183, mostly coated in ferrous rich deposits, presumably from the natural clay deposits on the site. The fragments appear to derive from plant material, possibly grain, which may have been worked and rounded by water action.

#### Area C

Four samples were examined from the small enclosure (group 14317). All four samples were taken from ditch fills (features 5809, 14272 and 14244). As for the samples in the northern part of the site plant remains were present in low numbers consisting of occasional grain, chaff, weed seeds and fragments of hazelnut shell and sloe type (*Prunus* sp.) stones. The chaff of wheat (glume bases) and barley (rachis) were present in two samples (from features 14272 and 14244), with much greater quantities of glume bases in the former. Weed seeds were more numerous in one of the fills from feature 14244 than other samples, and included a number of *Vicia/Lathyrus* (vetch, vetchlings, tares etc) type seeds. The cereals identified included barley and the two hulled wheats (spelt and emmer wheat), while a single oat grain and floret base were tentatively identified. Oats may have been present as weed seeds only. The glume bases, particularly in the fill from ditch 14272, are presumably derived from the processing by-product of hulled wheats. It is not possible to establish the relative significance of the two hulled wheats and it is possible that they were cultivated or at least processed (and presumably stored) as a mix crop. The range of weeds is similar to those seen in the northern part of the site, with vetches being particularly common, but generally dominated by species typical of a range of disturbed habitats including arable fields.

#### Medieval (AD 1066 – 1500)

A series of six samples were examined from features from the medieval complex in Area S. Two samples were examined from pits (features 1623 and 13876), two from field boundary ditches in group 14115 (features 13824 and 13994) and two from a drainage pit in group 14114 (pit 13996).

The samples produced a limited range of species but with large numbers of grain in four of the samples. The assemblages were very different in character from the prehistoric assemblages, consisting of large numbers of oats (*Avena* sp.) and a weed flora dominated by seeds of corn marigold (*Chrysanthemum segetum*). It was not possible to establish the species of oat with certainty although the cultivated oat (*A. sativa*) is tentatively identified on the basis of a floret base. Corn marigold is a summer flowering annual which grows best on sandy soils where it can become abundant. It is clearly closely associated with the oats which will thrive in similar conditions. The evidence for other cereals was very limited with small quantities of chaff and grain of rye (*Secale cereale*), barley and a single rachis node of free-threshing wheat (*Triticum aestivum/turgidum*). One seed of possible flax (*Linum usitatissimum*) represents a further possible crop. In addition to the corn marigold the weed flora included occasional seeds of stinking mayweed (*Anthemis cotula*), a common medieval arable weed and red bartsia (*Odontites vernus*), both typical of heavier clay soils and generally associated with winter wheat. Wild radish (*Raphanus raphanistrum*) and scentless mayweed are typical of lighter soils including slightly acidic sandy soils. The buttercups (*Ranunculus* spp.) and lesser stitchwort (*Stellaria*

*graminea*) are grassland species, while a single seed of branched bur-reed (*Sparganium erectum*) is indicative of wet, boggy conditions, such as are found in the low lying areas to the east of the site. It is likely then that while the samples are dominated by oats and their associated weeds, most notably corn marigold, the deposits also contain residue signs of winter crops with their associated weeds and boggy and/or grassland species possibly not associated with cereals at all.

## Discussion

The Iron Age occupation at the site clearly involved some processing of cereal grains, notably of hulled wheats. Of interest is the cultivation of two hulled wheats at this period: emmer (*Triticum dicoccum*) and spelt (*Triticum spelta*). Across much of southern, lowland Britain spelt wheat had replaced emmer as the principal wheat species cultivated during the earlier part of the first millennium BC. The reasons for this are not fully understood but are likely to include both climatic and socio-political factors (Evans, 1975; Fowler, 1983; Jones 1984; van der Veen 1992; van der Veen and Palmer 1997). The growing number of archaeobotanical studies in parts of southern Britain over the past 10 years has produced increasing evidence for the continued cultivation of emmer wheat over a diverse area of the country however (eg. Carruthers 2008; Stevens 2009; 2008; Pelling 2011), despite the adoption of spelt wheat, indicating that the reasons and the extent of the change from emmer to spelt is more complex than previously thought and indeed may not have been as extensive. That emmer only occurs as an occasional contaminant of the spelt crop on the Hampshire chalk from the end of the Bronze Age (Campbell 2000; Jones and Nye 1991), or the Thames Valley (Robinson and Wilson 1987; Jones 1978) may in fact be the exception rather than the norm for this period. Interestingly at Maiden Castle, Dorset, while spelt wheat dominated the charred assemblage, emmer wheat formed the bulk of the wheat identified amongst the Iron Age pottery impressions recovered during Wheelers excavations at the site (Palmer and Jones 1991). This raises the possibility that the absence of emmer wheat at many sites is related to different treatment of the two wheat species rather than a true absence.

The limited number of weed seeds is in part a reflection of the general paucity of crop processing debris at the site. Interestingly the two samples with higher numbers of weed seeds (from features 12102 and 14244) are not those which produced greater quantities of chaff indicating that the weeds and chaff derive from separate activities. It should be noted however that even in these two samples the numbers of weeds are small and the slightly greater quantity may be related to the presence of a single seed head or pod. In general the samples include some evidence of crop processing debris (threshing, sieving and winnowing). While there is no evidence for crop processing or storage on any sort of significant scale, some level of cereal utilization and processing was clearly taking place presumably largely associated with domestic use within the settlement.

The medieval period deposits are strongly characterised by oats and seeds of corn marigold. The two samples which do not share this pattern produced only small flots with a restricted range and number of seeds. It is not possible to speculate on the relative importance of oats to other cereals at the site as a whole given the limited number of samples which produced cereal remains from this period, although it would appear that Area S involved activity utilizing oats. It is also possible that the four samples contain material generated by a single burning episode in which case they cannot be taken as representative as the site as a whole but are likely to represent one burnt cereal deposit.

Oats form a hardy crop which is less susceptible to wet weather and better suited to acid sandy soils such as those locally present than wheat or barley. It is possible that they were a significant crop at the site. Oats form an important source of animal feed, particularly for horses, but are also an important human food. Markham (1681), writing in the 17<sup>th</sup> century, writes 'of the excellency of oats and the many singular virtues and uses of them in a family' (Markham 1668, 175-180) which include malt for ale, and as oatmeal used in place of salt, for a variety of foods including bread, oaten biscuits, haggis and greets, as well as animal feed. They are frequently recovered from Saxon and medieval sites, often forming the bulk of deposits or present as large deposits in association with barley, for example at late Saxon sites in Oxford (Robinson 2000; Pelling 2006), and similarly at sites in Ipswich (Murphy 1987; 1991). The preservation of oats in large quantities frequently appears to be a product of chance. An 11<sup>th</sup> century AD deposit of charred oats from Foundation Street in Ipswich (Murphy 1991) was found with a horse-shoe and spur suggesting that the deposit represented horse fodder which had been burnt by chance. As a crop oats were undoubtedly important in the late Saxon and medieval period, as supported by the historical evidence but their under-representation in relation to wheat and barley particularly and also rye is likely to be related to their common usage as a fodder crop and therefore the reduced likelihood of them coming into contact with fire as a result of roasting prior to milling, or use in ovens.

It is difficult to compare the results with those from other sites in southern Hampshire given the unusual composition of the Dowd's Farm samples. Saxon and medieval deposits from a site at the Montefiore New Halls of Residence in the northern suburbs of Southampton suggest a rural environment beyond the extent of the medieval town of Southampton. The cereal economy here (Hinton 1995) appears to be characterised by wheat and rye with oats possibly present only as a weed. The weed flora indicates both free-drained and damper nutrient rich soils. Within Southampton and Hamwic the cereal economy is similarly dominated by wheat with smaller quantities of rye, barley and oats (eg. Biddle 1997; Carruthers 2005; Clapham 2005). The major difference in these urban centres is the diversity of material represented, but also preservation with large quantities of waterlogged and mineral replaced material. It is this difference in presentation types which in part has led to the more extensive species list, with items such as the fruit seeds and stones, and beans for example being better represented in sewage-type deposits than amongst charred remains. It is not possible to directly compare the results with these urban centres given the limited samples from the medieval period but it is of interest to note the importance of oats and the absence of mineralised material.

## References

- Markham, G (with William Lawson) 1668 *A Way to Get Wealth*, George Sawbridge: London
- Hinton, P. 1995 Excavations at Montefiore New Halls of Residence, Swaythling, Southampton, 1992 pages 34-49 in Crocket, A. Excavations at Montefiore New Halls of Residence, Swaythling, Southampton, 1992, *Proc Hampsh Field Club Archaeol Soc*, vol 51, 5 -57
- Biddle, B. 1997 The seed remains in P. Andrews, *Excavations at Hamwic: Vol 2: Excavations at Six Dials*, York, Council of British Archaeological Research Report 109, p. 245-6
- Campbell, G. 2000 'Plant utilisation: the evidence from charred plant remains', in Cunliffe, B *The Danebury Environs Programme The prehistory of a Wessex Landscape Volume 1; Introduction* (English Heritage and Oxford University Committee for Archaeology Monograph 48). Oxford: Institute of Archaeology, 45-49
- Campbell, G. 2008 Plant utilization in the countryside around Danebury: a Roman perspective in B. Cunliffe, *The Danebury Environs Roman Programme: A Wessex Landscape during the Roman Era*, English Heritage and Oxford University School of Archaeology, Monograph no. 70, 53-100
- Caruthers, W. 1991 In Fasham, P. J. and Whinney, R. J. B. (eds) archaeology and the M3. Hampshire Field Club Monograph 7, Salisbury, Trust for Wessex Archaeology
- Carruthers, W. 2005 Mineralised Plant Remains, in V. Birbeck, R.J.C. Smith, P. Andrews and N. Stoodley, *The Origins of Mid-Saxon Southampton: Excavations at the Friends Provident St. Mary's Stadium 1998-2000*, p. 157-163
- Carruthers, W. 2008 Charred, mineralied and waterlogged plant remains, in Framework Archaeology, *From Hunter-Gatherers to Huntsmen: A History of the Stansted Landscape*, Wessex Archaeology, chapter 34
- Clapham, A. J. 2005 Waterlogged Plant Remains, in V. Birbeck, R.J.C. Smith, P. Andrews and N. Stoodley, *The Origins of Mid-Saxon Southampton: Excavations at the Friends Provident St. Mary's Stadium 1998-2000*, p.173-181
- Evans, J. G. 1975 *The Environment of Early Man in the British Isles*. London: Paul Elek
- Fowler, P. J. 1983 *The Farming of Prehistoric Britain*, Cambridge: Cambridge University Press
- Greig J., 1991 The British Isles, in W. van Zeist, K. Wasylkova, K-E. Behre (eds) *Progress in Old World Palaeoethnobotany*, Rotterdam, 229-334

- Green, F.J. 1991. Landscape archaeology in Hampshire; the Saxon plant remains, in Renfrew, J.M. (ed.), *New Light on Early Farming; recent developments in palaeoethnobotany*. Edinburgh University Press.
- Green, F. J. 1984 The archaeological and documentary evidence for plants from the Medieval period in England. 99-144. In: van Zeist, W. and Casparie W. A. (eds) *Plants and ancient man: studies in palaeoethnobotany*. Proceedings of the 6th Symposium of the IWGP. Rotterdam: Balkema.
- Hillman, G. C. 1981 Reconstructing crop husbandry practices from charred remains of crops in R. J. Mercer (ed) *Farming Practice in British Prehistory*, Edinburgh 123-62
- Hillman, G.C. 1984 Interpretation of Archaeological Plant Remains: The Application of Ethnographic models from Turkey. In van Zeist, W. & Casparie, W.A. (eds) *Plants and Ancient Man*, p.1-41 Rotterdam: A.A. Balkema.
- Hinton, M. P. 2005 Plant Remains, pages 47-49 in A. Crockett, *Excavations at Montefieore New Halls of Residence, Swaythling, Southampton, 1992, Proceedings of the Hampshire Field Club Archaeological Society*, vol 51, 1995. 5-57
- Hunter, K. L. 2005 Charred Plant Remains in V. Birbeck, R.J.C. Smith, P. Andrews and N. Stoodley, *The Origins of Mid-Saxon Southampton: Excavations at the Friends Provident St. Mary's Stadium 1998-2000*, p.163-173
- Jones, M.K. 1978 The plant remains in M. Parrington (ed) *The Excavation of an Iron Age Settlement, Bronze Age Ring-ditches and Roman Features at Ashville Trading Estate, Abingdon (Oxfordshire), 1974-76* (CBA Report 28). London: Council for British Archaeology, pp. 93-110
- Jones, M.K. 1984 Regional patterns in crop production in B. Cunliffe and D. Miles (eds) *Aspects of the Iron Age in Central Southern Britain*. Oxford: Committee for Archaeology Monograph 22, pp 120-125
- Muphy, P. 1991 Ipswich, Suffolk: plant macrofossils from sites IAS 3104 (Buttermarket), IAS 3201 (ABC Cinema) and IAS 5203 (Greyfriars Road), *Ancient Monuments Laboratory Report 33/91*, English Heritage, London
- Murphy, P. 1987 Ipswich, Suffolk: plant macrofossils from Middle Saxon to early Medieval contexts at sites IAS 4201, 4601, 4801 and 5701, *Ancient Monuments Laboratory Report 225/87* English Heritage, London
- Palmer, C. and Jones, M. K. 1991 Plant resources, in N.M. Sharples (ed) *Maiden Castle, Excavations and Field Survey 1985-6*, English Heritage Archaeological Report 19, London: HMSO
- Pelling, R. 2006 The charred and waterlogged plant remains, in D. Poore, D. Score and A. Dodd No. 4A Merton St., Merton College, Oxford: the Evolution of a Medieval Stone House and Tenement and an Early College Property. *Oxoniensia* Volume LXXI, 211-339



- Robinson, M. 2000 Macroscopic plant and insect remains in G. Walker and R. King Early Medieval and Later Tenements at 113-119 High Street, Oxford: Excavations in 1993-5, *Oxoniensia* 65, 381-440
- Robinson, M.A. and Wilson, R. 1987 A survey of environmental archaeology in the South Midlands, in H.C.M. Keeley (ed) *Environmental Archaeology: a Regional Review 2* (HBMCO Occasional paper 1). London: Historic Buildings and Monuments Commission Office.
- Stevens, C. 2006 Charred, mineralised and waterlogged plant remains, p. 104-114 in C. Ellis and P. Andrews, A Mid-Saxon site at Anderson's Road, Southampton, *Proceedings of the Hampshire Field Club archaeological Society*, 61, 2006, 81-133
- Stevens, C. J. for 2007 Appendix 2: Plant Remains, 62-66, in Mephram, L. and Brown, L. The Broughton to Timsbury Pipeline, Part 1: A Late Saxon Pottery Kiln and the production centre at Michelmersh, Hampshire, *Proceedings of the Hampshire Field Club and Archaeological Society (Hampshire Studies)*, 62, 35-68
- Stevens, C. J. 2008, Environment and agricultural Economy, in Booth, P, Crockett, A. D., and Fitzpatrick, A. P., *The Archaeology of the M6 Toll 2000-2003*. Oxford, Salisbury: Oxford-Wessex Archaeology Monograph 2, 457-460
- Stevens, C. J. 2009, The Iron Age agricultural economy, in Wright, J, Leivers, M., Seager-Smith, R., Stevens, C. J., *Cambourne New Settlement, Iron Age and Romano-British settlement on the clay uplands of west Cambridgeshire*, Salisbury: Wessex Archaeology Report 23, 78-83
- van der Veen, M. 1992 *Crop Husbandry Regimes. An Archaeobotanical Study of Farming in Northern England: 1000BC – AD5000*. Sheffield: J.R. Collis Publications, Sheffield Archaeological Monographs 3.
- van der Veen, M. and Palmer C. 1997 Environmental Factor and the Yield Potential of Ancient Wheat Crops. *Journal of Archaeological Science* 24, 163-182
- Wessex Archaeology 2008 Dowd's Farm, Hedge End, Hampshire: Archaeological Post-excavation Assessment Report, unpublished Client Report Ref. 62352.01, July 2008



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