

The Botanical Remains in Environment Samples from Parys Mountain Mines, Anglesey, North Wales (PM03)

ENV/BOT/ASS/13/03

John Giorgi

November 2003

Museum of London Specialists Service

N.B. The information contained within this report is preliminary assessment data, and may be modified in the light of detailed analytical work

The Plant remains from Parys Mountain Mines, Anglesey, North Wales (PM03)

Introduction

During excavations within the Parys Mountain mines, three small soil samples were collected for the potential recovery of biological evidence, including plant remains. It was hoped that the identification of any botanical material from the samples would provide evidence of the nature of the local environment during the late Bronze Age.

Sampling, recovery and identification methods

All three samples were from layers representing the infilling of bell pits in the late Bronze Age when these features were abandoned. The samples were from two areas; from Area A, one from a peat and another from a clay deposit [004] (section 4) within a prehistoric chamber, while the third sample was from the 'Grand Stope' location in Area B.

The size of the individual samples was small; the peat sample weighed 200g, the clay sample 300g, and the 'Grand Stope' sample 450g. The samples were processed for biological remains by mixing the soil with water and continuous wash-over of the samples onto a 0.25mm mesh sieve. The washed material (flots) was then stored in water to prevent further deterioration of any biological remains.

The wet flots were divided into fractions using a stack of sieves and scanned wet. A binocular microscope, together with modern reference material and manuals, was used for the identification of any botanical remains. All identifiable charred plant items (with the exception of charcoal) were quantified. Plant remains preserved by 'waterlogging' were not quantified although the frequency of these items were estimated using the following codes: + = 1-10; ++ = 11-100; +++ = 101-250; ++++ = 251+ items.

Results

All three samples produced variable quantities of biological remains consisting mainly of plant material but with a small number of insect fragments in two of the samples. The quantity and quality of botanical remains in the samples was not particularly great. There was a moderate item frequency and species diversity of 'waterlogged' plant remains in the samples from the 'Grand Stope' and the peat, while the clay sample [4] produced mainly charcoal. The results are tabulated in Figure 1 and will be discussed by area. Habitat information was taken from Clapham *et al* (1987) and Stace (1995).

Area A

Clay sample [4] (section 4)(flot vol: 10ml): the botanical remains in the small flot from this sample consisted mainly of very fragmented charcoal. A very small quantity of fragmented wood was also noted. The only other plant item in this sample consisted of a single small charred grass (Poaceae) seed.

Peat sample (section 4)(unstratified) (flot vol: 50ml): the organic preservation in this sample was fairly good although there was only a moderate species diversity of fruits and seeds, which consisted mainly of various grasses (many large seeded) and sedges (*Carex* pp.).

There was a small range of other seeds and fruits from plants that are found in several habitats. Shrub/hedgerow/woodland plants included a moderate number of fruits of downy birch (*Betula pubescens*), tolerant of wet and cold conditions especially on light soils, and a single shell fragment of hazel nut (*Corylus avellana*), a species found in woods, scrub and hedges on damp or dry basic and damp neutral or moderately acidic soils.

Other identifiable plants included a few seeds of stinging nettle (*Urtica dioica*), a plant that is found in hedgerows, woods, grassy places and fens, and is often associated with human habitation. *Potentilla* seeds in the sample included possibly tormentil (*Potentilla* cf. *erecta*), a plant that grows in grassland, heaths, bogs, fens, on mountains and sometimes in open woods, being very common on light acid soils. Other plant material in the sample consisted of very fragmented wood (including charcoal) and a few moss, stem and root fragments. A moderate number of beetle fragments were also present in this flot.

Area B

Sample from Grand Stope location (flot vol: 60ml): this sample produced a moderately sized flot with the botanical component dominated by a large quantity of moss fragments and seeds of rushes (*Juncus* spp.). Other identifiable fruits and seeds included a good representation of grasses together with a small range of other potential grassland/wetland plants (albeit represented by only small numbers of seeds); rushes, buttercup (*Ranunculus acris/repens/bulbosus*), and *Potentilla* species including tormentil. The only shrub/hedgerow species were occasional seeds of blackberry/raspberry (*Rubus fruticosus/idaeus*) while again there were a few seeds of stinging nettle.

Other botanical remains from this sample comprised a fairly large amount of very fragmented wood (including charcoal), a moderate amount of stem and root fragments and a few very small fragments of leaf. A moderate quantity of beetle fragments was also present in the sample.

Discussion

It was hoped that the plant remains from the samples would provide information on the character of the local environment during the late Bronze Age. The amount of botanical material in the samples, however, was not particularly great with only limited species diversity. Nevertheless, some general comments may be made on the basis of the plant remains, particularly those from the sampled peat.

The woodland component was represented by very fragmented wood (including charcoal) and fruits of birch and hazel. From the Neolithic period onwards, birch was a coloniser of areas associated with the felling of trees and abandonment of farmland and is found as part of prehistoric trackways, for example in the Somerset Levels (Rackham 2003, 312). Hazel would have been a potential source for coppicing, evidence of which has already been found from wood samples recovered from the Powys Mountain site. Its fruits would have provided a useful food resource with large quantities of hazel nutshell fragments from other sites showing that it was important as such from the early prehistoric period particularly during the Neolithic (Moffet *et al* 1989). The finds of blackberry/raspberry seeds also show the presence of another potential gathered food resource.

The other main environmental component in the samples was represented by plants characteristic of grassland/wetland habitats, particularly grasses, sedges and rushes. The latter two, however, are also high seed producing plants and were collected as flooring materials in the historic period although it is not possible to establish whether they were gathered as such in this instance. Other plants in the samples, eg, buttercup, tormentil, nettles, are found in grassland habitats but could have been growing in other environments including in (open) woods.

Conclusions

On the basis of the limited plant remains from the three samples, only tentative conclusions may be drawn. Moreover, taphonomic factors may have influenced the deposition of the different plant materials in the cave deposits and given a bias to their representation; part of the botanical remains may have been transported by humans (either deliberately or accidentally) or by animals while other remains could have been wind-blown; for instance, the fruits of birch are easily dispersed fairly large distances. Therefore, it is difficult to examine the relative importance of the small number of different plants represented in the samples and this is compounded by the differential seed production of species. For example, sedges, rushes and nettles are high seed producers, while grasses generally produce low numbers of seeds. Nevertheless, the plant material does tentatively suggest a wet, fairly open environment with some woodland cover, with several species (eg, hazel, tormentil) typical of acidic soils. It is recommended that future excavations at the site should include the collection of much larger soil samples although it is accepted that conditions may restrict sampling opportunities.

Bibliography

- Clapham A., Tutin T., and Moore D. 1987, *Flora of the British Isles. 3rd edition*. Cambridge University Press.
- Moffet L., Robinson, M. and Straker V. 1989, Cereals, Fruit and Nuts: Charred Plant Remains from Neolithic Sites in England and Wales and the Neolithic Economy, in A. Miles, D. Williams, N. Gardner (eds) *The Beginnings of Agriculture* (BAR International Series 496), 243-261.
- Rackham, O, 2003, *Ancient Woodland. Its history, vegetation and uses in England*.
- Stace C. 1995, *New Flora of the British Isles*. Cambridge University Press.

Figure 1: The plant remains from the Parys Mountain Caves (PM03)

			Area	A	A	B
			Feature	clay	peat	Grand stope
			context	4	-	-
			wt of soil (g)	300	200	450
LATIN_NAME	ENGLISH	Preservation	HAB_USE			
<i>Ranunculus acris/repens/bulbosus</i>	buttercups	W	ABCDEG			+
<i>Rubus fruticosus/idaeus</i>	blackberry/raspberry	W	CFGH			+
<i>Potentilla cf erecta</i>	?tormentil	W	CDE		+	+
<i>Potentilla</i> spp.	cinquefoil/tormentil	W	BCDEFGH		+	++
<i>Urtica dioica</i> L.	stinging nettle	W	BCDEFGH		+	+
<i>Betula pubescens</i> Ehrh.	downy birch	W	CE		++	
<i>Corylus avellana</i> L.	hazel nut shell	W	CF		+	
<i>Juncus</i> spp.	rush	W	ADEH		++++	++
<i>Carex</i> spp.	sedge	W	CDEH			++++
Poaceae indet.	grasses	W	ABCDEFHI		+++	+++
Poaceae indet.	grasses	C	ABCDEFHI	1		
Indeterminate	wood fragments	W	-	++	++++	+++
Indeterminate	stems fragments	W			+	++
Indeterminate	leaf fragments	W				+
Indeterminate	-	W	-		+	
Bryophyta indet.	moss fragments	W	-		++	++++
Indeterminate	wood charcoal	C	-	++++	++++	+++

Key:

Preservation: W = waterlogged; C = charred plant items (seeds and fruits unless otherwise stated)

Habitat/use codes: A = segetals, weeds of cultivated ground; B = ruderals, weeds of disturbed ground and waste places; C = plants of woods, scrub, hedgerows; D = plants of grassy places; E = aquatic and damp ground plants; F = edible plants; G = medicinal and poisonous plants; H = otheruses, eg fibre, dyeing; I = cultivated plants

Item frequency: + = 1-10 items; ++ = 11-50 items; +++ = 51-250 items; ++++ = 250+ items

John A Giorgi 28.11.2003