Ancient Monuments Laboratory Report 55/88

THE POLLEN, PLANT MACROFOSSILS AND MOLLUSCS FROM CORES OF ROUGHLY ROMAN DATE FROM THE ALCESTER GATEWAY STORES SITE, WARWICKSHIRE.

J R A Greig

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Summary

During the excavation of this mainly Roman site some cores were made to investigate the peaty sediment underneath. The best one was chosen, and some results obtained from pollen, plant macrofossils and molluscs. The evidence sems to represent the Roman period. There are signs of cereals, probably brought into the town for storage and processing. Other plants more likely to represent the vegetation around the site at the time are weeds and wetland plants. The landscape was almost all open and cleared of woodland. The information obtained fits in with what has already been found out from the organic sediments under Alcester. Shortage of time limited the work done on this site to this minimal account.

Author's address :-

Department of Plant Biology University of Birmingham P.O. Box 363 Birmingham B15 2TT

021 4721301 x2666

### February 8, 1988

# James Greig

# Fieldwork

This was done in December 1985 and involved inspecting the cores from the boreholes across the site and selecting some for sampling. Core (see site plan, Fig \$\$) N appeared to be the deepest and with the peatiest sediments, and was therefore chosen.

The stratigraphy was as follows:

depth, cm.	
0-17	black topsoil merging into layer below
17-36	soil and clay
36-68	clay, red-flecked above, generally greyish below.
68-92	dark grey clay
92-110	'shelly marl'
110-135	peat with twigs
135-	blue clay: bottom of core.

The samples were taken at an interval of 5 cm from 70 - 135 cm because this seemed to be the part where organic material would be preserved.

Laboratory analysis was largely limited by lack of time, so a number of pollen samples were prepared, and some small analyses of macrofossils (seeds and snails) were made. There were plenty of insect remains, and it may be possible to get some results from these as well. ;

#### Methods

The pollen was prepared in the usual way with treatment by hydrofluoric acid and acetolysis mixture, followed by washing and mounting in glycerin jelly to make semi-permanent preparations. Samples at 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125 and 130 were prepared, but between 75 and 90 cm the pollen did not seem to be in countable quantities.

For macrofossil analysis a known amount of sediment (usually 250cc) was measured out and sieved on meshes of 4mm, 1mm and 0.3mm. These fractions were sorted for identifiable remains, and the latter were stored in alcohol.

**Results**; the quick scans of the slides prepared. 75-80: a few pollen grains in the top three samples and rather poor preparations because of the persisting mineral material from the clay; <u>Calluna</u>, Gramineae, Compositae L., <u>Trifolium repens</u>, Chenopodiaceae, <u>Ranunculus</u> type, Cyperaceae, <u>Alnus</u>, <u>Polygonum</u> <u>bistorta</u> type.



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# 80-85: <u>Quercus</u>, <u>Polygonum bistorta</u>.

85-90: <u>Corvlus</u>, Gramineae, <u>Cirsium</u> type, <u>Centaurea nigra</u> type, Compositae L., <u>Plantago lanceolata</u>, Chenopodiaceae, <u>Alnus</u>, <u>Polygonum bistorta</u> type and <u>Pteridium</u> spores.

90: organic material starts here, giving a clean preparation with organic rather than mineral matter on the slide, although even here there was little pollen; <u>Corvlus</u>, <u>Pinus</u>, <u>Calluna</u>, Gramineae, Compositae L., <u>Cirsium</u> type, <u>Centaurea nigra</u> type, Caryophyllaceae, and Cyperaceae.

95: likewise little pollen; Compositae L., <u>Alnus</u> and a spore of <u>Polypodium</u>.

100: there didn't seem to be any pollen there at all.

105: the slide was similar, but here pollen was present in quantities suitable for a proper count.

115: There was very much organic detritus, probably from the woody material in the peat with twigs recorded in the stratigraphy. There were charcoal spheres of around 10 microns which I usually suggest come from smoky fires.

Main results, pollen diagram, table of extra pollen not drawn there, table of macrofossils. The pollen diagram has been drawn up in the same way as that from Coulter's Garage to make comparison easy, and groups pollen records according the main vegetational divisions which can be perceived.

These results can be set against the background of the pollen analyses already done on material from Alcester, excavated from the adjoining Coulter's Garage site, in Bull's Head Yard not far away, and at Ragley Mill Lane at the north of the town (Woodwards & Greig 1980). Some of these cores have radiocarbon dates.

There is always the question whether the pollen in these sediments came by natural dispersal from vegetation growing near and further away, of whether some also came from pollencontaining plant material dumped there.

FOREST Tree pollen is usually well dispersed, and represents the natural pollen rain rather than material brought in to Alcester. The main forest trees, <u>Quercus</u> (oak), <u>Tilia</u> (lime) and <u>Ulmus</u> (elm) are present at between 5-8% of the land pollen. This does not represent full forest, or anything like it. The amount of tree pollen suggests that there was still some forest or woodland, or even hedgerow, but not immediately around the site, which must have been an essentially open landscape. There would have to be at least 30% tree pollen present before one would start to consider the surroundings wooded.

The deepest deposits from Coulter's Garage site had somewhat more

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tree pollen, around 10%, with more <u>Tilia</u> than <u>Quercus</u>, and were dated to the Iron Age, (2410 +/- 110 bp, 460 +/- 110 bc, HAR 4905) when one would rather expect there to have been more woodland around than in the Roman period. The Alcester Gateway spectra have nearly continuous records of <u>Quercus</u>, <u>Tilia</u> and <u>Ulmus</u>, while the level dated at ad 190 +/- 90 from Alcester Bull's Head Yard do not, suggesting that the Gateway material is earlier.

OTHER WOODLAND AND SCRUB The rest of the trees and shrubs have been listed as secondary woodland, and hedgerows and scrub would also come under this heading, as their most typical habitats, although of course many of the taxa would also be found in full forest as well. The presence of <u>Sambucus nigra</u> (elder) starts in the Coulter's diagram some distance above the bottom, at 225 cm and continues above, so further evidence that this represents a post-Iron Age time. Elder seeds that were present show that this vegetation was growing right on the site, as indeed it still did in the abandoned back gardens as was seen at the time of excavation. The <u>Crataegus</u> pollen record is probably more important than it appears, suggesting much hawthorn on site.

**GRASSLAND** The next vegetation, grassland, is a little difficult to detect surely in a pollen diagram, for the Gramineae (grasses) themselves grow in almost all habitats from rivers to full forest, Compositae Liguliflorae includes many weeds as well as grassland taxa, <u>Plantago lanceolata</u> (ribwort plantain) is traditionally thought of as a grassland plant, and <u>Trifolium</u> repens (white clover) as well, although they both grow in weedy vegetation too. Potentilla, (Cinquefoil) was also present and <u>Sanguisorba minor</u> (lesser burnet). There is little in the macrofossil flora to add to this information, but then grassland plants do nct usually show up well from their seeds. Such material could equally well have grown on site or been dumped as grassy material or with cattle dung.

**CROPS** Cereal pollen is present. It is unlikely that cereals were themselves growing in the town, and unclear whether several 3 total pollen could have been blown in from the cornfields since most cereals disperse pollen rather poorly. More likely sources, though, would be granaries such as the one at Coulter's Garage and associated grain processing activities. Large amounts of charred chaff were found there (Colledge 1981) and threshing and other processes would liberate plenty of cereal pollen with the dust. If chaff and straw were fed to animals or used for a number of purposes, there would be a further spreading about of cereal pollen in the town, where it becomes a sign of human activity. These sources seem the likeliest for this pollen.

WEEDS AND WASTE GROUND The pollen records relating to various types of vegetation probably mainly relate to various kinds of weeds, so marsh or field thistle seeds and the corresponding <u>Cirsium</u> pollen record, <u>Urtica</u> (nettle) pollen, <u>Rumex</u> (dock), Umbelliferae, Chenopodiaceae (<u>Chenopodium</u> seeds too) and Caryophyllaceae and families with many common weeds taxa. Umbelliferae and <u>Ranunculus</u> could also represent wetland vegetation, especially as a <u>R. sceleratus</u> seed was present, representing a plant of muddy watersides.

**MARSHLAND PLANTS** The wetland vegetation would be expected to be well represented in a peaty sediment such as this. Cyperaceae pollen corresponds to <u>Carex</u> (sedge) and <u>Eleocharis</u> (spike-rush) macrofossils, and a number of other wetland or aquatic taxa are present, <u>Alisma</u> (water plantain) pollen and macrofossils, <u>Juncus</u> (rush) seeds and <u>Polygonum bistorta</u> type pollen (amphibious bistort). The very large <u>Alnus</u> (alder) pollen record is found here, but there were no macrofossils. There are not many records of true aquatic plants which float in standing water, such as <u>Potamogeton</u> (pondweed) or <u>Myriophyllum</u> (water millfoil). The pond snails would need a certain amount of water, perhaps seasonally. Almost all of them are representative of slow flowing weeded waters. They could have been deposited with flood debris away from their habitat in the river channel or oxbow.

One of the main points of difference is that Coulter's Garage has a record of Ericales (heathers etc.) pollen, hardly found at all in the Gateway core, and very slightly so at Bull's Head Yard. Heathland does not seem likely to have grown in the damp river valley where Alcester lies, and the nearest places by Alcester where heather grows now are about 4km away (Cadbury et al. 1971), so these signs, like those of cereals, appear to mainly represent plant material that was brought in to the town from a distance away.

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TABLE 1 SEED LIST FROM ALCESTER GATEWAY (AL 18) In taxonomic order (Clapham et al. 1962)

sample	·		130	common	name
Ranunculus	subg.	Ranunculus	1	butterd	ups

Ranunculus sceleratus L. 1 cel.-lvd crowfoot Chenopodium cf. album L. 1 fat hen etc. Rubus cf. fruticosus agg. 5 bramble Polygonum aviculare agg. 3 knotgrass Alnus glutinosa (L.) Gaertner 25 alder Solanum dulcamara L. woody nightshade 1 Sambucus nigra L. 3 elder Cirsium cf. vulgare (Savi) Ten. 1 spear thistle Cirsium palustre/arvense 3 marsh/field thistle Lapsana communis L/ 1 nipplewort Alismataceae 4 water plantains Juncus sp. (seed head) 1 rush Eleocharis uniglumis/palustris spike-rush 1 Carex cf. otrubae Podp. 4 sedge TOTALS 55 seeds.

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molluscs; tentative identifications hurriedly done

name	numbe	er habitat (Janus 1965)
Bithynia leachi	1	slow thickly weeded waters
Bithynia tentaculata	2	quiet rivers
Lymnaea peregra	ц	ubiquitous; slow waters
Pisidium sp.	1	various
Planorbis albus	4	among weeds
Planorbis crista	2	on plants

TABLE 2 POLLEN AND S	SPORES	NOT	ON	DIAGRAM	ALC	ESTER	GATEWAY (AL18)
			105	110	120	130	
Pteridium			-		23	1%	bracken
Filipendula			-	15	-	<b>→</b>	meadowsweet
Potentilla type			-	15	17	1%	cinquefoil
Sanguisorba minor			-		-	1%	lesser burnet
Crataegus			<b>→</b>	1%	-	-	hawthorn
Fraxinus			-	-	÷	-	ash
Hedera			13	13	+	+-	ivy
Mentha				-	÷	-	mint etc.
Rhinanthus type				<b>→</b>	+-	-	yellow rattle
Cirsium/Carduus type	e		1	-	1	-	thistle
Alisma			-	-	-	1	water plantain
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