

Palaeoecology Research Services

**Assessment of plant remains (with notes on
other biological remains) from excavations
at O'Connell Street, Dublin, Republic of
Ireland (site code: 03E0433)**

PRS **2004/49**

Assessment of plant remains (with notes on other biological remains) from excavations at O'Connell Street, Dublin, Republic of Ireland (site code: 03E0433)

by

Allan Hall, Deborah Jaques, Harry Kenward, John Carrott and Kathryn Johnson

Summary

Four bulk sediment samples recovered from deposits encountered during excavations at O'Connell Street, Dublin, Republic of Ireland, were submitted for an assessment of their archaeobotanical potential. Brief notes were also made of other biological remains from the processed subsamples. Four phases of activity were identified related to the rapid development of the area between 1675 and the 1790s.

Plant remains, almost all preserved by anoxic waterlogging, were rather frequent in the washovers. Woody and herbaceous debris formed the greater part of the plant material, but there were also fruits and seeds, leaf fragments (notably of box) and some other plant parts, such as the shoots and detached leaves (thorns) of gorse or furze. The former seem most likely to have originated in formal gardens, the latter in material brought as fuel. An origin for much of this material in litter such as that found in stables cannot be ruled out. Many of the other taxa are quite likely to have arrived in hay or other cut grassland vegetation. The small amounts of food remains present, including wheat/rye 'bran' and a few fruits (strawberry, fig, grape, apple) might all originate in waste from a stable, though material from human domestic occupation is also possible; the absence of eggs of intestinal parasites perhaps favouring the first of these. Clearly material arrived in these deposits from a wide range of sources, whatever the mechanisms for collecting them together. Charred remains other than wood charcoal were confined to traces of bracken frond fragments, rare barley grains and some grass/cereal (straw) stem, all of which might represent burning of litter and might have arrived with the coal/cinder component of the deposits in ash. Well preserved insect remains were recovered from the samples from the organic silt layer F6. In one case (Sample 1), a larger subsample might yield an interpretatively useful assemblage of insects, which would enhance the interpretation of site environment and human activity and, in particular, help to confirm the likely origin of the biological remains in the deposit.

Only very small quantities of shell and animal bone were recovered, neither of which was of any real interpretative value.

Further material, if available, should be processed, perhaps using samples as large as 5 kg, and the plant material recorded more thoroughly, though a semi-quantitative record will suffice. It is highly desirable that any insect remains recovered be recorded in conjunction with further study of the plant macrofossils.

KEYWORDS: O'CONNELL STREET; DUBLIN; REPUBLIC OF IRELAND; ASSESSMENT; POST-MEDIEVAL; 1600 TO 1800 AD; PLANT REMAINS; CHARRED PLANT REMAINS; PEAT; CHARRED CEREAL GRAINS; INVERTEBRATE REMAINS; INSECT REMAINS; BEETLES; GRAIN PESTS; MOLLUSC REMAINS; SHELLFISH; SNAILS; VERTEBRATE REMAINS; FISH BONE

Contact address for authors:

Palaeoecology Research Services
Unit 8
Dabble Duck Industrial Estate
Shildon
County Durham DL4 2RA

Prepared for:

Margaret Gowan and Co. Ltd
1 Killiney View
Albert Road Lower
Glengageary
County Dublin
Republic of Ireland

16 August 2004

Assessment of plant remains (with notes on other biological remains) from excavations at O'Connell Street, Dublin, Republic of Ireland (site code: 03E0433)

Introduction

An archaeological excavation was carried out by Margaret Gowan and Co. Limited, at O'Connell Street, Dublin, Republic of Ireland, between the 27th and the 11th of April 2003.

Four phases of activity were identified related to the rapid development of the area between 1675 and the 1790s; from the construction of the quay wall (Phase 1) and subsequent structures (Phases 2 and 3) to the levelling of buildings (Phase 4) for the widening of O'Connell Street.

Four bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) were submitted to Palaeoecology Research Services Limited (PRS), County Durham, UK, for an assessment of their archaeobotanical potential.

Methods

The sediment samples were inspected and their lithologies were recorded, using a standard *pro forma*, prior to processing. In each case, a subsample (or, for the smaller samples, all of the submitted material) was disaggregated in water and sieved to 300 microns. The sieved material was then subjected to a washover broadly using the techniques of Kenward *et al.* (1980).

Plant remains in the four washovers (and the general nature of this fraction) were recorded briefly by 'scanning', identifiable taxa and other components being listed directly to a PC using *Paradox* software.

Although submitted primarily for archaeobotanical assessment, notes were made of other biological remains recovered. In

particular, a few insect remains were recovered during checking of the washovers and these have been examined briefly.

Three of the samples were examined for the eggs of intestinal parasitic nematodes using the 'squash' technique of Dainton (1992). Assessment slides were scanned at 150x magnification with 600x used where necessary. Although primarily for the detection of intestinal parasitic nematode eggs, the 'squash' technique routinely reveals other microfossil remains, and where present these have been noted.

The residues were primarily mineral in nature and were dried, weighed and their components recorded. Where possible, bone fragments in the residues were identified to species or species group, using the reference collection at PRS.

Results

The results are presented by Feature/Context. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment (of that submitted) follows (in round brackets) after the sample number.

Phase 2 – deposits associated with a house (F4) and well (F5) dating to post-1711

Feature/Context F5/C2 [secondary well fill – contained pot and other artefacts of late 17th to 19th century date (1690-1800 AD)]

Sample 2/T (1.6 kg sieved to 300 microns with washover; no unprocessed sediment remains)

Moist, mid to dark grey-brown, crumbly to unconsolidated, sandy clay silt. Small stones (2 to 6

mm) were abundant and larger stones (6 to 20 mm), pieces of ?mortar/plaster and fine herbaceous detritus were all present.

The washover consisted of about 100 ml of cinders, coal, and fragments of woody and herbaceous roots (which might or might not be ancient). Uncharred remains, probably ancient, comprised a few raspberry (*Rubus idaeus* L.) seeds, sedge (*Carex*) and cinquefoil/tormentil (*Potentilla*) achenes, a single fragment of greenish evergreen leaf (box, *Buxus sempervirens* L.) and two fragments of tubular epidermis which (especially in the light of the evidence from other samples) were probably leaf spines of gorse (*Ulex*, probably *U. europaeus* L.).

Preservation of insect remains was rather poor (substantially worse than in the samples from F6, see below) and very few fossils were present. They probably have no interpretative potential even if a large subsample were to be processed.

The fairly large residue (dry weight 0.76 kg) was mostly of sand and stones, with a little coal and cinder (16 g), mortar/plaster (26 g), slag (6 g), glass (2 g) and a single pond snail (*Lymnaea peregra* (Müller)).

Feature/Context F6/C1 [organic silt layer, ?consolidation – contained pot and other artefacts of 17th to 19th century date (1600-1800 AD)]
Sample 1/T (2.3 kg sieved to 300 microns with washover and microfossil 'squash'; no unprocessed sediment remains)

Moist, mid to dark grey-brown, crumbly (working soft), humic, slightly clay sandy silt, with some stones (2 to 6 mm) and fine herbaceous detritus present.

The small washover of about 180 ml of organic material included, amongst the coarser material some probable food remains (apple, *Malus sylvestris* Miller, endocarp ('core') and seeds), strawy debris (probably, in fact, mainly dicotyledonous stem fragments rather than conventional 'straw'), as well as various fragments of gorse (leaves, leafy shoot fragments and twig fragments). The rather rich assemblage of fruits and seeds, whose preservation was generally good, sometimes extremely good, included some taxa likely to have originated in grass/hay and straw taxa, and there was also bracken (some of it charred) and some peat, all suggesting deposition of a mixed litter, perhaps from something like a stable. Hemp and hop were again present, presumably representing some other activities. Some very small fragments of box leaves were present, too, and the trace of mineralised fig (*Ficus carica* L.) seeds is not unexpected in a context of this date; the moderately frequent fragments of wheat/rye 'bran' also

recorded may indicate a component from human faeces, if not animal feed or herbivore dung.

Artefactual material included small fragments of leather and a little well-preserved yarn.

In addition, modest numbers of well-preserved insect remains were present, and it is likely that paraffin flotation of a fairly large (say, 5 kg) subsample would have provided a useful assemblage. The fauna included synanthropes (notably the spider beetle *Tipnus unicolor* (Piller and Mitterpacher)), species associated with decaying matter including dung, and some from water and living vegetation.

The medium-sized residue (dry weight 0.53 kg) was mostly sand, with coal and cinders (8 g) and charcoal (to 50 mm), and traces of pot (6 g), glass (2 g), metal/slag (12 g, including a metal pin), clay pipe stem (2 g), leather (2 g), wood (6 g), hazel nutshell (<1 g) and marine shell (~20 fragments to 20 mm including mussel, *Mytilus edulis* L., and ?oyster, cf. *Ostrea edulis* L.). Bone from this sample was well-preserved. Seven of the fragments were fish bone, of which one was a herring (*Clupea harengus* L.) vertebra and one a flatfish (Pleuronectidae sp., probably plaice or flounder) vertebra. Other fragments included several bird phalanges and a distal radius fragment of a ?large chicken.

The 'squash' subsample was approximately equal parts organic detritus and inorganic material. A few pollen grains/spores, some ?phytolith fragments and some diatoms (at least 2 different forms) were noted. No eggs of intestinal parasitic worms were recorded.

Sample 4/T (2.0 kg sieved to 300 microns with washover and microfossil 'squash'; approximately 1.5 litres of unprocessed sediment remain)

Moist, dark grey-brown (to black internally – sulphide staining), crumbly and layered in places (working soft), humic, slightly sandy silt. Fine herbaceous detritus and ?ash were present.

The small washover of about 175 ml consisted of woody debris, coal, cinder, and some well-preserved plant macrofossils including leaf fragments of box. Overall, the material seemed very similar to that from the other sample from this feature (Sample 1) though much less rich. Interpretatively significant taxa recorded here but not in Sample 1 included grape (*Vitis vinifera* L.) and flax (*Linum usitatissimum* L.).

Preservation of the small number of insect remains was good; there were some fly puparia, an aquatic bug, a *Sitona* clover weevil, and an *Aphodius* dung beetle. It seems unlikely that the concentration of remains in this

layer was high enough for an interpretatively useful analysis, however.

The medium-sized residue (dry weight 0.47 kg) was mostly sand, with some coal and cinder (6 g) and traces of pot (1 g), glass (<1 g), unidentified marine shell fragments (~8, to 12 mm) and leather (removed during processing and stored wet in a fridge). Seven bone fragments were also recovered from this sample. Of these, six could not be identified to species. A single eel (*Anguilla anguilla* (L.)) vertebra was recorded.

The 'squash' subsample was almost identical to that from Sample 1 (above), i.e. approximately equal parts organic detritus and inorganic material, with a few pollen grains/spores, some ?phytolith fragments and some diatoms (at least 2 different forms). In addition, a single live soil nematode was seen. No eggs of intestinal parasitic worms were recorded.

Feature/Context F7/C3 [fill of cut for F5 (and F4) – contained pot and other artefacts of 17th to 19th century date (1690-1800 AD; including a glass seal inscribed with the date 1711)]

Sample 3/T (2.75 kg sieved to 300 microns with washover and microfossil 'squash'; approximately 2 litres of unprocessed sediment remain)

Moist to wet, dark grey-brown, soft and sticky (working soft), ?humic, sandy clay silt. Stones (2 to 6 mm), ?twigs or roots and marine shell fragments were present in the sample.

The small washover (of about 120 ml of organics) comprised wood fragment, with cinders, coal, leather, and herbaceous detritus, as before. Much the same kinds of remains were present as in samples from F6, with gorse, box, hemp, hop, and bracken all represented, and with the addition of hazel (*Corylus avellana* L.) nutshell, and carrot (*Daucus carota* L.), this last perhaps part of a cut grassland vegetation component. Other food remains were lacking, however, and in particular no wheat/rye bran was noted.

The medium-sized residue (dry weight 0.7 kg) was mostly sand, with some coal and cinder (8 g), and traces of brick/tile (22 g), slag (20 g), pot (2 g), glass (1 g), further hazel nutshell (<1 g) and marine shell (~40 fragments to 35 mm, mostly of oyster with a little mussel). In addition, there were three fragments of rather poorly preserved bone. Two could not be identified, the third was a herring vertebra.

The 'squash' subsample was approximately equal parts organic detritus and inorganic material. A few pollen and fungal grains/spores were noted, but no parasite eggs were seen.

Discussion and statement of potential

Plant remains, almost all preserved by anoxic waterlogging, were rather frequent in the washovers; apart from cinder and coal fragments, they made up the bulk of this fraction. Woody and herbaceous debris formed the greater part of the plant material, but there were also fruits and seeds, leaf fragments (notably of box, *Buxus sempervirens* L.), and some other plant parts, such as the shoots and detached leaves (thorns) of gorse or furze, *Ulex* (probably *U. europaeus* L.). The former seem most likely to have originated in formal gardens, the latter in material brought as fuel. An origin for much of this material in litter such as that found in stables cannot be ruled out—the presence of stalk and pinnule (frond) fragment of bracken (*Pteridium aquilinum* (L.) Kuhn), small scraps of leather, and even a little peat is consistent with this. Many of the other taxa are quite likely to have arrived in hay or other cut grassland vegetation, notably the fruits or seeds of yellow-rattle (*Rhinanthus*), buttercups (*Ranunculus* Section *Ranunculus*), self-heal (*Prunella vulgaris* L.) and small legume flowers, probably clovers (*Trifolium*, with red clover, *T. pratense*, pods present in one sample), as well as taxa such as *Hypochoeris* (cat's ears) and *Leontodon* (hawkbits). The small amounts of food remains present, including wheat/rye (*Triticum/Secale*) 'bran' and a few fruits (strawberry, fig, grape, apple) might all originate in waste from a stable, though material from human domestic occupation is also a possibility; the absence of eggs of intestinal parasites perhaps favouring the first of these.

Clearly material arrived in these deposits from a wide range of sources, whatever the mechanisms for collecting them together: hemp (*Cannabis sativa* L.) and hop (*Humulus lupulus* L.) fruits were present in small numbers, for example.

Charred remains other than wood charcoal were confined to traces of bracken frond

fragments, rare barley grains and some grass/cereal (straw) culm (stem), all of which might represent burning of litter and might have arrived with the coal/cinder component of the deposits in ash.

The plant remains show some similarities with post-medieval material from Newmarket Street, Dublin (Hall *et al.* 2004), where remains of hemp, hop, gorse were all present, though where there was rather more evidence for imported peatland material. Rather similar assemblages, with abundant remains of gorse, but also in some contexts fruits of hop, have also been recorded recently from post-medieval deposits at a site in Bridge Street, Chester (Jaques *et al.* 2004), England.

Well preserved insect remains were recovered from the samples from the organic silt layer F6. In one case (Sample 1), a larger subsample might yield an interpretatively useful assemblage of insects, which would enhance the interpretation of site environment and human activity and, in particular, help to confirm the likely origin of the biological remains in the deposit.

The recovered shell was, in the main, of highly fragmented marine shellfish and of no real interpretative value. A single freshwater snail was recovered from the well fill F5—its presence in such a context being unsurprising!

The bone recovered from the subsamples from the organic layer F6 was rather well preserved, whereas that from F7 was poorly preserved. In each case, the remains were too few to be of any interpretative value. No bone was recovered from the fill of the well F5.

Recommendations

With the exception of some recent analyses of post-medieval material from a site in Newmarket Street (Hall *et al.* 2004) little work appears to have been carried out on plant remains from this period in Dublin and the

opportunity to add to the growing corpus of records should be taken. Further material, if available, should be processed, perhaps using samples as large as 5 kg, and the plant material recorded more thoroughly, though a semi-quantitative record will suffice. It is highly desirable that any insect remains recovered be recorded in conjunction with further study of the plant macrofossils.

Retention and disposal

All of the remaining sediment, together with the remains extracted from the processed subsamples, should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

Acknowledgements

The authors are grateful to Christine Baker and Lorna O'Donnell, of Margaret Gowan and Co. Limited, for providing the material and the archaeological information.

References

- Dainton, M. (1992). A quick, semi-quantitative method for recording nematode gut parasite eggs from archaeological deposits. *Circaea, the Journal of the Association for Environmental Archaeology* **9**, 58-63.
- Dobney, K., Hall, A. R., Kenward, H. K. and Milles, A. (1992). A working classification of sample types for environmental archaeology. *Circaea, the Journal of the Association for Environmental Archaeology* **9** (for 1991), 24-6.

Hall, A., Jaques, D., Kenward, H., Carrott, J. and Johnson, K. (2004). Assessment of biological remains from excavations at 14-16 and 48-50 Newmarket Street, Dublin, Republic of Ireland (site code: 02E1692). PRS 2004/23.

Jaques, D., Hall, A., Kenward, H. and Carrott, J. (2004). Technical Report: Plant, invertebrate and fish remains from deposits at 25 Bridge Street, Chester (site code: CHE/25BS01). PRS 2004/46.

Kenward, H. K., Hall, A. R. and Jones, A. K. G. (1980). A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. *Science and Archaeology* **22**, 3-15.