Palaeoecology Research Services

Technical report: Plant, insect and parasites (with brief notes on other biological remains) from excavations at 14-16 and 48-50 Newmarket Street, Dublin, Republic of Ireland (site code: 02E1692)

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by

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Summary

Plant, insect and parasite remains were investigated from a series of deposits of medieval and post-medieval date revealed by excavations at 14-16 and 48-50 Newmarket Street, Dublin, Republic of Ireland.

Many of the deposits examined were the fills of water containers of various kinds, but of course the sediments represent their infilling after abandonment and it is not surprising, therefore, that much of the material represents either the kinds of debris likely to be discarded on an occupation site or remains finding their way into the deposits through natural dispersal from the local environment. Some of the cistern deposits yielded several elmid beetles which are indicative of clean, running water, implying the use of such during the active life of the features, however. As with post-medieval deposits examined in other towns, fuel waste in the form of cinders and coal often made up a large proportion of the deposits. Wood charcoal represents another likely fuel residue, as may the remains of gorse. The peat present must surely also be debris from fuel used by the inhabitants and was probably the source of some, if not all, of the peatland plant and insect taxa recorded regularly through the deposits. A notable aspect of the insect assemblages was the low numbers of 'outdoor' species, suggesting that the material accumulated within the fills in a protected environment or that the deposits were exposed for relatively short periods of time before being sealed.

As might have been anticipated, features interpreted on archaeological grounds as former privies did, indeed, yield evidence of food waste from domestic food preparation or faeces. However, none of the deposits consisted in any large part of such material, so that one suspects dilution by other components (such as ashes). Where present, numbers of parasite eggs were small again indicating that the deposits contained some, but were not primarily of, faecal material. The implication here is that the use as a 'privy' was probably not the sole, or even primary, function of these features.

The deposits yielded some other remains of 'useful' plants including hempseed, hops, gooseberry, tea and cocoa (the last three also highly unusual). Several significant beetle species were also recovered, namely the 'wrack' species Cercyon depressus*, usually associated with decaying seaweed, the 'alien' bedbug and the oriental cockroach.*

Overall, the assemblages show strong similarities with others assemblages of medieval and post-medieval date from Dublin and elsewhere and give the impression of living conditions which were not entirely salubrious.

KEYWORDS: 14-16 AND 48-50 NEWMARKET STREET; DUBLIN; REPUBLIC OF IRELAND; TECHNICAL REPORT; MEDIEVAL; POST-MEDIEVAL; PLANT REMAINS; CHARRED PLANT REMAINS; PEAT; COCOA (*THEOBROMA CACAO*); TEA; GOOSEBERRY (*RIBES UVA-CRISPA*); INVERTEBRATE REMAINS; BEETLES; GRAIN PESTS; 'WRACK' FAUNA; *CERCYON DEPRESSUS*; COCKROACH (*BLATTA ORIENTALIS*); BED BUG (*CIMEX LECTULARIUS*); INTESTINAL PARASITE EGGS; VERTEBRATE REMAINS; FISH BONE; ?WOODWORKING

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Introduction

An archaeological excavation was carried out by Margaret Gowen and Co. Limited, at 14-16 and 48-50 Newmarket Street, Dublin, Republic of Ireland.

The excavations identified five main phases of archaeological activity. The first phase of activity (Phase I) dated from the medieval period (AD 1200-1500) to about AD 1670, and consisted of a large ditch and remnants of predominantly agricultural activity. The second phase (Phase II) dated to the mid-late seventeenth century, and consisted of a series of postholes (a fence line that also served as a tenter-frame) and an adjacent ditch. The remains are associated with the activities of the newly-established Newmarket in the early years of the 1670s (e.g. an activity area/stockyard for the skinners, tanyards, and slaughteryards).

The majority of the archaeological remains belonged to Phase III, dating from about 1673-1725. A series of plots fronting onto Newmarket Street (formerly Skinners Alley) were revealed, with buildings to the front and yards to the back. Excavation showed that, as the old name for the street suggests, some of the inhabitants of Skinners Alley were involved in the processing of animal products. These properties were provided with water by a complex arrangement of cisterns and pipes. The water system did not last long, however, and the fourth phase of activity, dating from early eighteenth century into the nineteenth century (Phase IV, *circa* 1725-1830) documents the period after most of the water system was abandoned. During this phase some of the structures were subdivided and converted to tenements as the area descended into slum living conditions.

The final Phase V encompasses everything from *circa* 1830 to the present. Material of this timespan was heavily truncated by late nineteenth and twentieth-century building, and was thus very incomplete.

Twenty bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al*. 1992) from medieval and post-medieval deposits—almost all the fills of water-holding structures of various kinds—were submitted for an initial assessment of their plant, insect and parasite egg remains (Hall *et al*. 2004). On the basis of the results of this, and not least because the excavations afforded a rare opportunity to study material of a date for which very little bioarchaeological evidence has so far been collected, a further series of subsamples from seven of the samples (representing five deposits/features), together with one additional sample (not seen at assessment), was examined in more detail. This report combines the results of these two exercises. With the exception of one sample from Phase I, all the material examined was from Phases III-IV.

Methods

For the assessment, 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 or paraffin flotation (or both where appropriate) broadly using the techniques of Kenward *et al*. (1980; 1986). Flots were stored in alcohol.

Subsequently, additional sediment was processed from seven of the samples, the corresponding assessment subsamples were

subject to repeat paraffin flotation (to extract further insect remains) and an additional Phase III/IV sample (Sample 12, Context 25/5, not seen during the assessment) was processed.

Plant remains

'Flots' from paraffin flotation were examined during the assessment, but this was impractical for the analysis phase, where only 'washovers' were investigated (the flots seen during the assessment phase consisted mainly of insect remains and no plant remains were observed that were not also present in the washovers or residues).

For all the subsamples, a tally of plant remains and other components of the various fractions (flots, washovers or residues) examined was recorded directly into a personal computer—using *Paradox* (latterly *Access*) software—together with notes on the general nature of the material. All plant taxa and other components were recorded using four-point semi-quantitative scale (from 1—one or a few specimens or fragments to 4—abundant, or a major component of the sample. Critical material was retained in glass vials in a suitable long-term storage fluid but otherwise plant remains and other components were returned to the relevant fraction, all of which were stored wet (in water or alcohol as appropriate).

Insect remains

Paraffin flotation was undertaken by PRS and the resultant flots sent to Queen's University Belfast to be sorted for insect remains by KR. Flots were sorted in ethanol under a Nikon SMX800 stereo microscope (x10-40 magnification) and insect sclerites extracted. Identification of remains was undertaken by NW, using the Coleoptera reference collection at the School of Archaeology and Palaeoecology, Queen's University Belfast, and the Hope Collection, University of Oxford.

Coleoptera nomenclature follows Lucht (1987). The results are displayed in taxonomic order (Table 3), with minimum number of individuals (MNI) for each taxon. Adult Hemiptera (true bugs), Blattoidea (cockroaches) and Coleoptera (beetles) were recorded fully qualitatively and minimum number of individuals estimated. Larval and pupal forms (Diptera and Coleoptera) were recorded as being present (P), or abundant (A), because of limited time, although their significance in site interpretation is acknowledged (see, for example, Panagiotakopulu 2004). Where possible, soft bodied fleas were counted, but where this was impractical, their numbers were recorded semi-quantitatively. Levels of preservation were not examined as these had been previously undertaken at the assessment stage (Hall *et al*. 2004).

No major difficulties were encountered in terms of identification, apart from the naming of a specimen of Alleculid, *Isomira murina*. Elytra, heads and thoraces of the species were found in two samples. In shape and microsculpture, the fossil material matched the modern reference material, except in one important criterion – size. Size amongst Coleoptera is highly variable and normally is a very poor criterion on which to base identification. However, in this particular case, the fossil was considerably smaller than the modern material (approximately 30% smaller), and appeared outside the usual size range. It was only possible to compare the fossil to the four modern specimens of named material in the Hope Collection as the British Collection in Oxford (where large 'runs of material' are curated) is at present inaccessible. This approach provides information concerning the variability within a taxon, allowing the identifier to assess properly whether the size difference noted is a matter for concern or simply reflects natural variation. This not being possible, NW checked the specimen against a range of other possible species and concluded that *Isomira murina* was the closest match to the fossil. Next, consideration was

given to whether the fossil could be an 'alien' species, not present on the current list of Irish or British Coleoptera. European checklists were examined, but no other species were found to be part of this genus, suggesting no other alternatives. Finally, NW contacted other palaeoentomologists to seek their views regarding the possibility of whether the fossil could be an 'alien' species and the natural size range of the taxon. Their response suggested no other avenues to investigate and given time constraints no further follow up work was undertaken, on the basis that the fossil matched all the necessary characteristics except for size. The fossil is therefore identified as "cf. *Isomira murina*" to illustrate these issues concerning its positive identification.

Parasite eggs

Although parasite eggs were detected in several of the seventeen samples examined during the assessment their poor preservation (though occasional better preserved eggs were seen during further work on the plant remains) and low numbers precluded any further analysis.

A summary of the assessment results is presented in the Appendix Section 2.

Other biological remains

Other biological remains (primarily shell and bone fragments) that were not the focus of the investigations reported here were recovered from the samples during both phases of processing. The presence of these other components is indicated in Tables 1 and 2, and notes are given in the Appendix Section A3.

Results

The results are presented by Phase in chronological order according to the latest phasing received.

A detailed account of the results for each sample is given in the Appendix (Section A1). Table 1 lists all the plant remains recorded together with other components of the samples observed during the investigations. Table 2 gives sample-by-sample lists in feature/context order. The following account summarises the results by phase and property.

Table 3 lists the Coleoptera and other insect remains recovered, by context and sample. The following account examines the insect remains by phase, context and sample. In total, a minimum number of individuals of over 1150 was identified and recorded.

Six deposits (Contexts **17/2**, **17/3**, 31/3, **40/4**, 191/- and **272/5**) which gave insect remains from the assessment subsamples were not pursued further. In part, this was because of the time and budget constraints on the analysis but often (for the samples from contexts shown in bold in the list above) the concentration of remains was such that the sediment available was insufficient to yield assemblages of a size to be of interpretative value.

Phase I (medieval-*c.* 1673/4)

A single sample, from Feature F288 (a firepit on Property 5) was investigated. It yielded only a little oak charcoal (presumably from fuel ash) and was not deemed worthy of further investigation.

Phase III (*c.* 1673/4-*c.* 1725)

Plant remains

Two fills of a barrel cistern (water System I), Feature F38, were examined from Property 1, along with the fill in the pump apparatus in a brick cistern (Feature F191, Property 5), and

an ashy organic garden dump (Feature F207, which extended across properties 6, 7 and 14). Feature F38 yielded small amounts of plant food debris perhaps originating in faeces, but there was also some peat, and the cinder and coal in the residue point to domestic rubbish rich in fire ash. The remains of gorse (furze) here may also represent a component of fuel (a major use, amongst many, cited by Lucas 1960), though no charred material was encountered (cf. the rather abundant evidence for post-medieval use of gorse, probably as a fuel, at a site in Bridge Street, Chester, England, discussed by Hall *et al*. 2002 and Jaques *et al*. 2004). Perhaps the uncharred material observed in the deposits at Newmarket Street simply represents debris lost from stored fuel prior to burning.

Another species recorded here and present in many of the other samples was weld or dyer's rocket (in the Irish vernacular, yellow-weed or *buidhe mór*). Widely used through the Middle Ages and pre-synthetic post-medieval period as a source of yellow dye for textiles (and later also for yellow pigment via an artists' 'lake'), this plant also became well established as a weed of disturbed places, not least in towns. Indeed, Wyse Jackson and Sheehy Skeffington (1984, 83) record its presence in inner Dublin in recent years, noting that it 'seems to have been a common weed as early as 1726'. The presence of its seeds in these deposits in small numbers (though regularly present) probably reflects plants growing around the site—along with several other weed taxa that are unlikely to have had any utility. The foodplant remains in the fills of Feature F38 included the exotics fig and perhaps also grape and walnut, with hazelnut, blackberry and apple all present. There was also some hempseed, perhaps food for animals rather than humans. In the context of what was presumably a suburban area of the city at this period, it seems rather unlikely to have arrived on a hemp crop grown for fibre.

Neither of the other two deposits examined (from Features F191 and F207) yielded more than a few identifiable remains and they presumably represent fills in which little organic waste was deposited, or in which such waste was strongly decomposed before the deposit was finally sealed.

Insect remains

Samples from Feature F38 (the water System 1 barrel cistern) from this period were examined (Samples: 38/3 5/T, 38/3 5/T2 and 38/4 8/T) from Property I.

Context 38/3 (Samples 5/T and 5/T2), from the main backfill of a barrel cistern, yielded a total of 127 MNI, across around 54 taxa. The samples were dominated by species associated with decaying organic matter. Thus, the deposit included species typical of drier decaying matter, such as *Tipnus unicolor* and *Ptinus fur*, and habitats from within buildings (i.e. elements of the 'house fauna' such as *Xylodromus concinnus*, a staphylinid which is common in rotten plant material such as hay waste and other plant refuse (Tottenham 1954)). Both *T. unicolor* and *P. fur* are able to exploit a range of organic conditions and feed on a variety of dry organic materials. Other taxa characteristic of drier 'house fauna' included synanthropic mould feeders such as *Lathridius minutus* group, *Enicmus histrio*, *Mycetaea hirta, Dienerella separanda*, *Cryptophagus scutellatus* and *Cryptolestes ferrugineus*. Also present were *Attagenus pellio*, a storage pest on animal and vegetable products, such as furs, skins and seeds (Peacock 1993), and *Trox scaber* which, in the wild, is associated with bird nests, but on archaeological sites is commonly found associated with carrion. The recovery of a single fragment of leather from this context (Hall *et al*. 2004), may explain the presence of both of these species, although, equally, both may have found ample habitats amongst house floors. Several other pests of stored products were included in the assemblage in tiny numbers (e.g. *Oryzaephilus surinamensis*, *Sitophilus granarius*). *S. granarius* is a major pest of stored grain (Buckland 1982) and

attacks whole grains only during early stages of decay, whilst *O. surinamensis* is principally a pest of cereals and cereal products, but can infest a wide range of commodities, including dried fruits (Halstead 1993). Small numbers of pests can enter archaeological deposits via a number of different pathways including the disposal of rotten grain (unlikely in this case, given the tiny quantities), accidental consumption and subsequent deposition of weevils in human and animal faeces (Buckland 1982), floor sweepings or via thatch (Smith *et al*. 1999). Much of the above material is likely to have become incorporated within the deposit as a result of floor sweepings, structural components and other organic house materials being dumped into the cistern. The human flea, *Pulex irritans*, was also present and likely to have been incorporated in the same manner.

Reasonably high numbers of the timber beetle (*Anobium punctatum*) which attacks domestic timbers were recovered. Again, these could have become incorporated into the deposit amongst floor sweepings, or in decayed timbers being dumped into the pit. The high numbers of wood fragments within many of the contexts are noted by Hall (this report), although he interprets at least some of these as being the remnants from woodworking rather than exclusively from the disposal of decaying structural timber.

Fouler organic matter (either introduced from disposal of house floor sweepings or other foul material, or occurring 'natutally'within the cistern itself) provided suitable habitats for several species, including *Anotylus complanatus* which is particularly common in stable manure and compost heaps (Koch 1989), both suitable habitats for the other rove beetles recovered including, *Anotylus tetracarinatus*, *Quedius mesomelinus*, *Philonthus concinnus* and *P. politus*. Another foul decomposer species present was *Cercyon haemorrhoidalis* which is found in all kinds of decaying organic matter, mainly in cow, horse and sheep dung, but also frequently in rotting plant debris (Hansen 1987). The remains of fly pupal cases which are often abundant in excrement were not abundant here, suggesting that any faecal material was not the dominant component of the fill.

A rather puzzling element of the assemblage was *Cercyon depressus*, a beetle which is part of the 'wrack' fauna, being associated with decaying seaweed (Friday 1988) and other saline habitats. The significance of the recovery of this species has already been commented upon in the assessment report of this material (Hall *et al*. 2004), and is discussed in greater detail below.

The feature fills included very few 'outdoor' species, suggesting deposition of material in a much protected situation (Hall *et al*. 2004). The detritus pool species *Hydrobius fuscipes* may have become incorporated within the deposits at a later stage, perhaps attracted by standing water within the cistern, although the lack of other aquatic species suggests this is unlikely. Alternatively, this taxon is commonly recovered from peat deposits (e.g. Whitehouse 2004) and may have been introduced into the deposit via peat which Hall (this report) suggests formed part of the deposit. Another taxon which fits into this category includes the subterranean ground beetle, *Trechus micros*, which was common in all of the samples examined from Newmarket Street. This beetle has a strong preference for peat ground and clay ground (Lindroth 1945), although Kenward and Allison (1994) regard it as being associated with damp situations, where it burrows deep into archaeological soils. It is, therefore, likely to have been exploiting the buried organic matter, either during its accumulation or subsequently. There was no appreciable difference in the state of preservation of these fossils compared with others from the assemblage to suggest they were post-depositional contaminants, but this possibility cannot be discounted.

A number of other species may have been brought onto the site with plants, including

several weevils (*Apion* sp., *Sitona* sp., *Sitona linearis* and *Ceutorhynchus constrictus*). The fact that they appear in more than one sample suggests they are not accidental contaminants, but rather brought into the deposit as a result of human activities. *Sitona linearis* is mostly associated with leguminous plants, including *Lathyrus* spp., *Pisum sativum*, *Trifolium* spp., *Vicia* spp. and *Trifolium* spp. (Bullock 1993), although Koch (1992) comments that in winter it may be found singly (as here) in leaves, hay, straw, grass tussocks, litter and rotting vegetation, all apparently common habitats at the site. The presence of furze noted by Hall (this report), which may have been used as a fuel, could explain its presence in the deposits here. *Ceutorhynchus constrictus* is normally found on disturbed ground and field margins, often associated with garlic mustard (*Alliara petiolata*, Hyman 1992) and could also have been transported onto the site from elsewhere, or may be an accidental contaminant living in the vicinity.

The last sample (8/T) examined from this phase represents the basal fill of the barrel cistern (Context 38/4). The fauna was essentially the same as above, but with substantially reduced numbers (32 MNI, across 21 species), and with one notable exception—there were none of the 'outdoor' components discussed above, other than the ubiquitous *Trechus micros*, which may have burrowed into the deeper fills of the cistern.

Phase III/IV (*c.* 1673/4-*c.* 1830)

The small (0.65 kg) additional (not assessed) Sample 12 (from Context 25/5, Property 1) was from this phase of the site. The sample was from the basal fill of a tanning pit that had been backfilled with rubbish and dated to *c*. 1725. The sample was examined for the eggs of intestinal parasites and processed by paraffin flotation but no ancient biological remains were seen or recovered.

Plant remains

The largest group of samples were dated broadly to Phases III and IV. From Property 1, two fills of a stone privy (Feature F29) were investigated, along with the basal fill of a brick cistern (Feature F40). Single samples from the basal fill from a stone cistern on Property 2 (Feature F31) and the ?basal fill of a brick cistern on Property 4 (Feature F272) were examined, whilst two samples were explored from Feature F17 (the basal fill of this barrel cistern) on Property 12. From the Meeting House Court area, three samples were examined, two from Feature F296 (the organic backfills of a stone cistern) and one from Feature F365 (the main backfill of this wood-lined storage pit thought to have been used for butter).

Traces of plant foods (strawberry, fig and blackberry) were noted from the deposits from Feature F29, one of the samples also yielding some further evidence for heather, gorse and weld. Peat was tentatively identified here and more securely so from the sample from Feature F40, which otherwise produced few plant remains (though hemp and weld were recorded). Feature F31 was notable for a tentative record of the plant purslane (discussed in more detail in the Appendix Section A1, *q.v.*), whilst the sample from Feature F272 was the only one with evidence for opium poppy—a single seed. As with weld (also present here) this may well have been a denizen of the site and may not represent the use of the plant.

Samples from Feature F17 were not very productive, though fig was recorded and weld was present in both. Material from Feature F296 was somewhat richer, with a wider range of food plants, including oat and wheat/rye 'bran' in one of the samples, together with remains of apple, blackberry and elder. Hempseed and gorse remains were again present. Some fragments of seeds of cornfield weeds may point to the presence of contaminants of flour arriving with the bran.

The last feature examined, Feature F365, yielded several of the same taxa, but with the first evidence for hop (which was to be encountered regularly in the deposits assigned securely to Phase IV). Otherwise, it gave further evidence of peat (and *Sphagnum* moss no doubt originating from it), heather twig fragments and some weld seeds.

Insect remains

Samples from Features F365 (the wood-lined butter storage pit) and F296 (the stone cistern) from this period were examined, both from the Meeting House Court area.

Feature 365 (Samples: 365/5 96/T2; 365/5 96/T) yielded a total of 446 MNI, across around 77 taxa, representing the richest, best preserved and most diverse assemblage from Newmarket Street. This is in contrast to the plant remains from this fill, which were relatively limited. The sample 365/5 96/T was dominated by several taxa, which were present in considerable numbers, including *Cryptophagus* spp. (62), *Tipnus unicolor* (36), *Lathridius minutus* group (35), *Ptinus fur* (20), *Sitophilus granarius* (20) and *Quedius mesomelinus* (16). All of these are characteristic of the drier plant debris fauna typical of 'house fauna', apart from *Q. mesomelinus* which likes decaying organic material, in somewhat moister and shadier locations. Other 'house fauna' species included the wood borer *Anobium punctatum*, *Laemostenus terricola*, *Mycetea hirta*, *Cryptoghagus scutellatus* and *Ephistemus globulus*, together with *Pulex irritans*, the human flea. Some taxa would perhaps have lived amongst floor and other house debris, whilst others probably originated elsewhere, dropping onto floors and becoming mixed with the *in situ* fauna.

There was also an important, very diverse faunal component characteristic of much fouler conditions, however. This included *Anotylus complanatus* and *Cercyon haemorrhoidalis*, which is mainly coprophilous (associated with animal dung – sheep, cow, horse and stable manure) but, as noted above, also found in decaying organic matter and carrion (Hansen 1987; Skidmore 1991)—all suitable habitats for many of the 'foul-loving' staphylinidae present (e.g. *Omalium allardi*, *O. septentrionis*, *Anotylus rugosus*, *A. nitidulus*, *Leptacinus pusillus*, *Philonthus concinnus*, *Tachinus subterraneous*)—and the dung beetles *Aphodius ater* and *A. rufus*. This group of species tends to be a strong indicator of foul organic matter within archaeological deposits.

Blatta orientalis, the dark oriental cockroach, was an abundant (MNI 10) and notable element within the assemblage. Fragments included adults, but also what appeared to be late instars, suggesting a breeding population within the deposit. The cockroach is common indoors and outdoors, living in warm, damp shady areas near the ground or any area containing natural debris. Common areas in which they occur include basements, crawl spaces, areas between the soil and foundations, under sinks and often aggregate near rubbish, where their diet consists of decaying organic matter (D. Mann, *pers. comm*. 2004). As an aside, it is interesting that although abundant in one sample, it was represented by just one individual in Sample 96/T2 (Context 365/5), indeed the overall insect assemblage from the '/T2' subsample was remarkably poor in comparison to that from the '/T' subsample, illustrating the taphonomic limitations imposed by single samples and justifing the approach of examining multiple samples from individual contexts.

The 'wrack' species *Cercyon depressus* continues to be present, along with *Omosita colon*. The latter is normally associated with carrion (and other animal remains) and compost (Horion 1960) although (Backlund 1945) indicates it may also be found in 'wrack strings' and surface layers of wrack (seaweed) beds. Pests of stored products included *Oryzaephilus surinamensis*, *Sitophilus*

granarius and *Palorus ratzeburgi*. The biology of the first two have already been discussed above, whilst *P. ratzeburgi*, the small-eyed flour beetle, is found, as the name suggests, in cereals, meal and bran supplies (Koch 1989), although it is interesting that several authors mention it may also be found in maltings (Hunter *et al*. 1973, Brendell 1975) as remains of hop were also found in this deposit (above).

There were few elements of an 'outdoor fauna', apart from a varied subterranean group, including *Trechus rubens* and, again, *T. micros*. The latter, together with *Rhizophagus parallelocollis* and *Coprophilus striatus* may have been post-depositional invaders of the organic matter (Carrott and Kenward 2001). A small assemblage of species of wet and aquatic situations was evident, whilst *Carabus granularis*, a taxon which is hygrophilous, was perhaps brought onto the site accidentally in wetland vegetation. Hall (this report) draws attention to the presence of several wetland and peatland plants within these samples, including heather, gorse and sedge. Two other species may well have been transported onto the site by similar means, namely *Sitona linearis* and *Ocypus olens*. Known in the vernacular as 'the devil's coach horse', the latter is found in a variety of habitats, including *Calluna* heath, on flowers and woodland margins, but also likes rotting vegetation including leaves, hay and wood (Richards, 1926, Koch 1989). Although all of these taxa may have been brought onto the site by accidental means, they may well have, at least temporarily, lived as predators on house floors before being dumped within the deposit (Carrott and Kenward 2001). One interesting 'outside component' included the elmid *Esolus parallelopipedus*, which likes clean running water (Friday 1988).

Several specimens of cf. *Isomira murina* were clearly part of this limited 'outdoor fauna'. This species seems to be associated with dry, sunny habitats, particularly on tree and shrub blossom as well as on flowering lower plants (Buck 1954, Koch 1989). It is likely that these remains were transported to the site amongst material collected elsewhere, although the possibility that they accidentally dropped into the deposit from nearby flowering trees cannot be discounted.

Overall, the feature probably included house sweepings and other organic debris, but also included rather fouler matter, including faecal matter.

Feature F296 (Samples: 296/5 93/T; 296/5 93/T2; 296/6 94/T; 296/6 94/T2) yielded a total of 165 MNI, representing around 40 taxa, and was considerably less rich and diverse compared with other samples from this phase. The insect assemblages from all the samples from this feature were very similar, with a mixture of species typical of occupation sites and 'house fauna' (e.g. *Tipnus unicolor*, *Xylodromus concinnus*, *Pulex irritans*), together with several species associated with rather fouler material, including *Anotylus complanatus*, *Oxytelus sculptus*, *Cercyon atricapillus* and *Philonthus concinnus*. The 'wrack' fauna remained important, being represented by both *Cercyon depressus* and *Ptenidium punctatum*. Several pests of stored products were present in small numbers, including *Oryzaephilus surinmensis* and *Palorus ratzeburgi*. The subterranean fauna was represented by several different species including *Trechus micros*, which was particularly abundant, *T. rubens* and *Coprophilus striatus*.

Perhaps the most interesting element of this deposit's assemblages were the elmid water beetles, *Esolus parallelopipedus*, which were present in some numbers, *Oulimnius tuberculatus* and *Limnius vockmari*, all associated with clean running water. Their presence is likely to indicate clean water running through the cistern, presumably during its period of use or at some subsequent stage afterwards.

A slightly surprising record was *Trichonyx sulcicollis*, a RDB (Red Data Book) 2 species. In its natural habitat it seems to be associated

with decaying trees and wood and is often found in ancient broad-leaved woodland and pasture woodland (Hyman 1994). In this context, however, it seems highly likely to have been living in compost and other dry plant litter associated with human habitations.

Phase IV (*c.* 1830-present)

Plant remains

Three features were investigated: a plant hole from an area of formal garden (Feature F24) on Property 12, and two basal fills of a wood-lined privy (Feature F161) and two basal fills of a barrel cistern functioning as a privy (Feature F250), all from Property 4.

Not surprisingly, perhaps, the sample from a planting hole (Sample 1, Context 24/2) contained no more than some decay-resistant charred remains, probably from ash.

Samples from the privy, Feature F161, by contrast, were the most productive for this group, and have provided what may be the first archaeological evidence for tea leaves. These were rather abundant in one of the samples from Context 161/3 and sparse in one from Context 161/1. The identification of cocoa shell in the deposits from Feature F161 is also of some importance as an archaeobotanical advance, though it must be noted that a single whole cocoa bean of post-medieval date—from the foundation of an 18th century house—was described (and figured) by Geraghty in her account of material from the Viking excavations at Fishamble St., Dublin (Geraghty 1996 pp. 53-4 and pl. xi). It is very likely that both tea leaves and cocoa shell will have been overlooked in the past, the latter being especially difficult to distinguish from small flakes of bark on initial inspection.

Although the use of tea here at this time is incontrovertible (and not at all unexpected!), the cocoa shell seems unlikely at first sight to represent food waste since it comprises the outer coat of the cocoa bean, which is removed after roasting but prior to processing of the cocoa 'nibs' to make cocoa and chocolate (and which is in recent times 'recycled' as a garden mulch). However, prior to the widespread factory-scale processing of cocoa beans—which started in the British Isles as early as 1756 (not 1728 as stated by Coe and Coe, 2003, 230) at Joseph Fry's factory at Bristol—and probably continuing for a long time thereafter, beans were processed to make chocolate drink using some kind of domestic or otherwise small-scale hand-grinding process (cf. Coe and Coe 2003, fig. on p. 166). This would have resulted in the discard of shell fragments if, as seems likely, the beans were transported—as today—with their papery shells largely intact. Before the middle of the 19th century, when import duties were significantly reduced (1853) and bulk transport became easier, most chocolate was consumed as a drink made with the ground 'nibs'; this was a rather different drink to modern cocoa or chocolate as the ground seed consisted of about 50% fat and it was difficult to emulsify into a smooth and digestible drink (a chemical treatment involving defatting and alkalisation being invented in 1828—see Coe and Coe 2003, 242). It is worth remarking that two fragments (to 5 mm) of what may be the cocoa nib were also noted from the second subsample from Context 161/3.

A wide variety of other foodstuffs were represented in the deposits from this privy—although the fills were clearly not in large part composed of faecal material (the presence of a whipworm, *Trichuris*, egg attached to a tea leaf fragment, and those seen during the assessment, certainly points in the direction of a small component of such material, however). Along with remains of apple, fig, blackberry, and raspberry there were certainly fragments of gooseberry (the fruit 'skin' and perhaps also seeds). Wheat/rye bran was present (from flour-based foods) and the linseed present may well represent food.

As in earlier deposits, imported peat was clearly a component of these sediments, and both gorse and heather continued to be in use. Such peatland resources were also evident in the fills of Feature F250, one of the samples also yielding a little more tea leaf and cocoa shell material.

Insect remains

A total of six samples from Features F250 (barrel cistern) and F161 (wood-lined privy pit) were examined from this period.

Feature F250 (Samples: 250/5 66/T and 250/5 66/T2) yielded a total of 89 MNI, across around 40 taxa. The most abundant species were *Pulex irritans*, the human flea, the rather foul habitat staphylinid *Anotylus complanatus* (together with other 'foul' indicators such as *Cercyon unipunctatus*, *Oxytelus sculptus* and *Platystethus arenarius*) and the wood-borers *Anobium punctatum* and *Caulotrupodes aeneopiceus* (a species which in the wild attacks the dead wood of deciduous trees, Reitter 1916). *C. aeneopiceus* is also recorded as attacking damp rotten timber in coastal woods and situations, in driftwood, but also casks, but noted as rare in buildings (Alexander 1994). The 'wrack' species *Cercyon depressus* continued to be present in this sample.

There was also a 'house fauna' present consisting of the dry fungal feeders, small numbers of grain pests and carrion feeders such as *Attagenus pellio*. Both samples contained the remains of the bedbug, *Cimex lectularius*. This insect is associated with humans, largely in their bedding, sucking human blood by night; additionally, they will also feed on mice and poultry (Southwood and Leston 1959). Although not directly linked to disease, bed bugs are known to harbour the causative organisms of plague and Hepatitis B, although there is not satisfactory evidence that it is a vector of disease in normal circumstances (Panagiotakopulu and Buckland 1999). Control is achieved by cleaning bedding, mattresses and pillows regularly and their recovery in these deposits suggests poor hygiene. In heated rooms, where the temperature does not fall below 13-15 degrees Celsius during winter, bed bugs breed throughout the year, but at lower temperatures there is a break in development when eggs and instars die and females lose power of oviposition (Southwood and Leston 1959). In this context, the numbers were too small to be sure whether they represent continual breeding populations (which would have implications concerning the levels of warmth of inhabitants' houses) or just sporadic records from particular times of the year.

It was noticeable, however, that this context contained virtually no 'outdoor' taxa, except for the water beetle *Hydroporus* ?*melanarius*, a typical peatland and acid wetland species. Presumably it became incorporated into the deposit with peat. There was a very limited subterranean fauna, in this instance most likely of post-depositional invaders, given the limited evidence for any other components of an 'outdoor' fauna.

Much of the material suggests floor and house sweepings (including a dry 'house fauna' as well as a much fouler component), possible faecal material and spent fuel from hearths (the material included evident remains of charcoal and cinders). Moreover, the remains from this deposit were indicative of a very sheltered environment, either during its usage or after its main phase of use. The limited evidence for faecal matter suggests that most of the deposit represents later usage of the feature, possibly as a convenient disposal point for household rubbish and other waste.

Feature 161 (Samples: 161/1 40/T, 161/1 40/T2, 161/3 41/T2, 161/3 41/T) yielded a total of 298 MNI, across approximately 62 taxa, providing a reasonably large assemblage. By far the largest member of this assemblage was *Anommatus duodecimstriatus*, a subterranean species which here is presumably

intrusive—its excellent state of preservation, often with elytra still attached to the abdomen and occasional complete specimens strongly suggests this to be the most likely explanation for its presence. *Trechus micros* and several other species are likely to have entered the context in a similar fashion. There was a diverse 'house fauna', including *Tipnus unicolor* and *Ptinus fur*, dry fungal feeders, small numbers of storage and grain pests, carrion feeders, predators and wood borers (e.g. *Anobium punctatum*, *Caulotrupodes aeneopiceus*), all typical of dry, mouldy materials from houses. Human fleas were present in some numbers, as were further specimens of the bedbug, *Cimex lectularius*. Fouler habitats were indicated by a small range of staphylinids, including *Anotylus complanatus*, *A. scultpuratus*, *Philonthus concinnus* and *P.* ?*addendus*, together with the hydrophilid *Cercyon unipunctatus*, suggesting the presence of faeces and/or manure. Several dung beetles were also present, including *Aphodius lapponum*, which is found particularly in sheep dung, but also from horse and cattle dung (Koch 1989), although in this context may have been attracted by human faeces. The 'wrack' species, *Cercyon depressus* was again present.

The inclusion of *Creophilus maxillosus* within this assemblage is interesting. This beetle is often associated with meat, carrion, old bones, where it is predaceous on dipterous and Coleopterous larvae and pupae (Hinton 1945). The abundant Diptera and Coleoptera pupal and larval material found particularly within Sample 161/1 40/T2, from the basal fill of the privy pit, suggests a breeding population and may explain the presence of *C. maxillosus*.

Finally, there was a small 'outdoor' component, including several aquatic beetles (*Ochthebius minimus* group, *Helophorus* sp.) and the reed beetle *Plateumaris discolor*/*sericea*. Both *Plateumaris* species are common in raised bogs, although *P. sericea* has a preference for more eutrophic conditions compared with *P. discolor*, which is an excellent indicator of ombrotrophic raised bogs. The presence of this individual in the material is almost certainly via transport onto the site in peat. Other outdoor components include the weevils *Apion* sp. and *Ceutorhynchus contractus* (a species which was almost certainly brought onto the site in vegetation). This species lives on varieties of Brassicaceae, but also Cruciferae, although in winter may be found occasionally in grass tussocks, hay, straw, leaves, twigs and moss (Koch 1992), some of which may have formed part of the deposit.

The insect assemblages from the fills of this feature suggest that household waste and other debris was dumped into the privy. Although there are clear indications that faecal material was also present, the evidence from the insects (and indeed the plants and parasites) implies that this was not a major component of the deposits.

Discussion

Many of the deposits examined were the fills of water containers of various kinds, but of course the sediments represent their infilling after abandonment and it is not surprising, therefore, that much of the plant and other material represents either the kinds of debris likely to be discarded on an occupation site or remains finding their way into the deposits through natural dispersal from the local environment. As with post-medieval deposits examined in other towns (most particularly, in the author's (AH) recent experience, from a site in Bridge St., Chester), fuel waste in the form of cinders and coal often makes up a large proportion by bulk of the deposits, though wood fragments were also rather frequent here and—given the presence of small well-preserved flakes of softwood in several samples—we may be dealing more with debris from woodworking than exclusively the decay of structural timber or wooden furniture. There may even have been some sawdust present.

Wood charcoal represents another likely fuel residue, as may the remains of gorse (though see above for some arguments concerning the taphonomy of the uncharred leaf and twig fragments). The peat—present in uncharred lumps up to 30 mm in size (and, more rarely, as charred fragments to 20 mm)—must surely also be debris from fuel used by the inhabitants of the properties at the Newmarket Street site. The peat was probably the source of some, if not all, of the peatland plant taxa recorded regularly through the deposits, especially the rather fragmented and humified (but still highly distinctive, anatomically) remains of the moss *Sphagnum imbricatum*. This species was an important constituent of raised-bogs forming during the post-glacial period throughout the British Isles but has a much more restricted distribution today. According to Smith (1978, 35) it is a hummock-forming species that is 'widespread in Ireland', though 'local and seldom abundant'. The various remains of heather recorded in many of the samples may in part have arrived with peat, but the range of parts and their often excellent state of preservation perhaps speaks for a different origin, as a resource collected in its own right (like gorse) as fuel; the use of heather besoms would be an ideal source of small fragments of shoot and twig for the archaeological record at a site such as this.

As might have been anticipated, features interpreted on archaeological grounds as former privies did, indeed, yield evidence of food waste from domestic food preparation or faeces. However, none of the deposits consisted in any large part of such material, so that one suspects dilution of waste by other components (such as ashes) either deliberately or as a function of the formation of the fills following the abandonment of pits that had previously been emptied on a regular basis. By comparison with some other post-medieval deposits (e.g. those at Chester, referred to previously) the content of foodplants was rather small—none of the Newmarket St. samples yielded the kinds of high concentrations of small woody seeds like fig, grape, blackberry, raspberry and strawberry that are interpreted as residues from very decayed faeces, nor are cereal remains at all frequent (wheat/rye bran fragments in quantity is usually a safe indicator of the presence of faeces, for example; it was rather sparse at this site) .

On the other hand, the deposits have yielded some highly unusual remains—gooseberry, tea and cocoa. In their content of hempseed and hops, these samples agree with the evidence from post-medieval (specifically 18th century) Chester. The way in which these plants were used remains a little unclear. As argued elsewhere in this report, the hempseed seems most likely to have arrived as birdseed (it may even have originated from plants growing in the vicinity, themselves grown from casually discarded seed). Most of the remains were fragments, but generally half-achenes perhaps more likely to have resulted from natural germination than any use in human or animal food or in the production of oil. The hop achenes may well have arrived in the deposits from brewing waste, though as with most of the remains, their concentration was rather lower than might be expected from the dumping of a mass of such material. They seem much less likely to be growing in the yards behind the properties, though this is not impossible. Uses of hop 'cones' other than brewing which have emerged from the literature include: a hair rinse for brunettes and a yellow dye (Edwardson 1952), and as a brown dye and for various medicinal purposes (Grieve 1977, via http://botanical.com/).

Much of the insect material associated with the deposits examined consists largely of taxa indicative of house sweepings and other debris dumped into the features, alongside those of fouler conditions. One of the greatest difficulties of interpreting such assemblages is determining the extent to which the insect fauna represents site conditions during use of the feature, conditions at the end of the feature's life and subsequently. When in use,

many of the water features would have been regularly cleaned out, as Hall suggests (above) and so the insect material from those features is likely to represent the fauna associated with the terminal phases of the use of the features and subsequently. Much of the material dumped was clearly from buildings and in addition to fuel waste, included house sweepings and other structural debris, including possibly pest-infested structural timbers. The use of peat and other plant fuels has introduced several species into the assemblages which are clearly 'outdoor' and must have originated far away from the site. Some of the cistern deposits yielded several elmid beetles which are indicative of clean, running water, implying the use of such during the active life of the features.

In terms of the privy fills, the insect evidence concurs with the archaeological interpretation for the feature and supports the findings from plant remains that although faecal material appears to have been present, other materials had been introduced into the fills, including dry house waste such as floor sweepings and straw. Other insects were also incorporated within the deposits via transport with other resources, such as peat. A notable aspect of the assemblages was the low numbers of species which belong to the 'outdoor' category, suggesting that the material accumulated within the fills in a protected (possibly enclosed) environment or that the deposits were exposed for relatively short periods of time before being sealed. Overall, much of the fauna suggests living conditions which were not entirely salubrious and shows strong similarities with other assemblages of medieval date from Dublin and post-medieval material from elsewhere (e.g. Jaques *et al*. 2004).

Several significant beetle species were recovered, including the 'wrack' species *Cercyon depressus,* which is considered to be highly stenotopic to decaying seaweed (e.g. Denton 1999). However, its constant presence throughout the different deposits and contexts, ranging in date from AD 1673/4 to after AD 1850, with no concurrent plant evidence for seaweed, suggests that its use as an indicator of the exploitation of this resource may not be entirely straight-forward. The Newmarket Street examples are not the only fossil records for this species from Dublin. Reilly (2003) draws attention to *C. depressus*'s frequent presence in deposits from an early 13th century pit at Essex Street West and from 12th and 13th century deposits at Back Lane, both from Dublin. On the basis of research into early Irish agricultural practice, including the use of seaweed as animal fodder, human food and soil fertiliser, Reilly (1993) argues that the 'wrack' beetle is not 'out of place' in these contexts. The use of seaweed appears to be attested in the historic record (Reilly 2003) and, at least in these examples, well-supported by the different lines of environmental evidence.

The 'wrack' beetle has been found in deposits of similar date elsewhere; for instance, Jaques *et al*. (2004) recovered large numbers from 14th and 15th century deposits at 25 Bridge Street, Chester (Hall *et al*. 2002; Jaques *et al*. 2004). Both Dublin and Chester are located close to the sea and tidal areas, where seaweed would be a readily available resource, so the presence of *C. depressus* may indeed relate to its use despite the lack of supporting archaeobotanical evidence. In addition to the uses outlined above, seaweed may also have been used to seal, and mask the odour from, privy and cess deposits (McCormick, *pers. comm*.). Alternatively, it could be that some of these urban deposits either mimic those of wrack or that salt or brine waste was remarkably common on these sites. Salt and brine may have been used extensively for a range of purposes, including culinary meat curing, pickling and as a mordant. Unfortunately, with no corroborating evidence from the plant remains, the presence of seaweed in these contexts cannot be substantiated. One possible solution to this problem would be to investigate the samples for the presence of Prozobracks, calcified

worms, which live on seaweed. The possibility that *C. depressus* may be characteristic of some urban deposits of this period cannot be discounted, but additional study of insect assemblages from urban sites which are well removed from the coast would be needed to explore this further.

Two other species recovered warrant further mention, the 'alien' bedbug and cockroach. The following comments relate to their status in Ireland, but it should be borne in mind that only published sources have been reviewed and takes no account of what may already exist within the 'grey literature'.

The remains of *Cimex lectularius* found at Newmarket Street represent the first fossil records for the bedbug in Ireland. Southwood and Leston (1959) suggest it was first recorded in the British Isles, in England, in 1503, but the fossil record indicates that it has been present at least from *c.* AD 930-1060, where it was found in deposits from 16-22 Coppergate, York (Kenward and Hall 1995) as well as more recent deposits in York and London (Girling 1984; Hall *et al*. 1993). The earliest record of its recovery in fossil contexts is from Egypt, where Panagiotakopulu and Buckland (1999) found it in deposits from the workmen's village from el-Amarna, dated to *c.* 1350 BC. A detailed review of its biology and significance is provided by Panagiotakopulu and Buckland (1999). The record of *Blatta orientalis* also represents the first fossil record of this taxon in Ireland. The earliest record of its recovery in archaeological deposits dates from late 4th century AD Roman deposits in Lincoln (Dobney *et al*. 1998). This is despite the fact that modern entomologists have regarded its introduction as being recent – within the last few centuries – although Jaques *et al*. (2004) suggest it probably died out before being re-introduced. Two other records attest to its presence in recent centuries, with one possible specimen from mid 17th century York (Hall *et al*. 1993) and confirmed identification of at least two individuals from late 18th to late 19th century deposits from Chester (Jaques *et al*. 2004). The late 17th/early 18th century records from Newmarket Street falls within a similar period. Beyond the biogeographic importance of these early records, the presence of both species in post-medieval Dublin highlights the effect of foreign trade on the development and movement of the synanthropic insect fauna.

Fossil insect research has highlighted the scale of environmental changes, particularly over the last 5,000 years of the Holocene (Buckland and Coope 1991) and how insects have adapted to live alongside humans in their habitats. Much of this record has been obtained through the increasing use of palaeoentomology in archaeological investigations. The analysis of urban archaeological contexts has been especially important in this respect, yielding copious insect material (e.g. Hall and Kenward 1980; Kenward and Hall 1995). In contrast, comparatively few insect assemblages from Ireland have been examined, with several notable exceptions (Coope 1981; Kenward and Allison 1994; Reilly, 1997, 2003 and unpublished data; Allison *et al*. 1999; Caseldine *et al*. 2001; Whitehouse, in press a and b), largely due to under-funding, the low number of specialists and, regrettably, a lack of awareness of the potential of sub-fossil insect data. In this context, it is particularly progressive that the excavators recognised the value of investigating the fossil insect record from Newmarket Street. Moreover, ecologically and historically speaking, the site covers a significant period, from which very few comparable insect assemblages are available for study (cf. Kenward 2004). The record from Newmarket Street is therefore especially important within this context.

This account has summarised the plant, insect and parasite egg results from the examination of this group of samples from Newmarket Street. It is hoped that further interpretative information will be obtained when the various lines of biological evidence are combined and

when an opportunity arises to integrate these data more fully with the excavation narrative.

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.

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References

Alexander, K. N. A. (1994). *An Annotated Checklist of British Lignicolous & Saproxylic Invertebrates. National Trust Estates Advisors' Office, Cirencester* (Draft).

Allison, E., Hall, A. and Kenward, H. (1999). Technical Report. Living conditions and resource exploitation at the Early Christian rath at Deer Park farms, Co. Antrim, N. Ireland: evidence from plants and invertebrates. Part 1: Text. *Reports from the Environmental Archaeology Unit*, York **99/8**.

Backlund, H. O. (1945). Wrack fauna of Sweden and Finland: ecology and chorology. *Opuscula Entomologica* (Supplementum) **5**, 1-236.

Brendell, M. J. D. (1975). Coleoptera: Tenebrionidae. *Handbooks for the identification of British Insects* **10**. London: Royal Entomological Society of London.

Buck, F. D. (1954). Coleoptera: Lagriidae, Alleculidae, Tetratomidae, Melandryidae, Salpingidae, Pythidae, Mycteridae, Oedemeridae, Mordellidae, Scraptiidae, Pyrochroidae, Rhipiphoridae, Anthicidae, Aderidae and Meloidae. *Handbooks for the Identification of British Insects* **9**. London: Royal Entomological Society of London.

Buckland, P. C. (1982). The Malton burnt grain: a cautionary tale. *Yorkshire Archaeological Journal* **54**, 53-61.

Buckland, P. C. and Coope, G. R. (1991). *A Bibliography and Literature of Quaternary Entomology*. Sheffield: J. R. Collis Publications.

Bullock, J. A. (1993). Host Plants of British Beetles: A List of Recorded Associations. *Amateur Entomologist* **11a**, 1-24.

Carrott, J. and Kenward, H. (2001). Species associations among insect remains from urban archaeological deposits and their significance in reconstructing the past human environment. *Journal of Archaeological Science* **28**, 887-905.

Caseldine, C., Gearey, B., Hatton J., Reilly, E., Stuijts, I. and Casparie, W. (2001). *From the wet to the dry: palaeoecological studies at Derryville, Co. Tipperary, Ireland* pp. 99-115 in Raftery, B. and Hickey, J. (eds) Recent Developments in Wetland Research. *Dublin: Department of Archaeology, UCD Monograph Series Vol. 2* and *WARP Occasional Paper* **14**.

Clement, E. C. and Foster, M. C. (1994). *Alien Plants of the British Isles*. London: Botanical Society of the British Isles.

Coe, S. D. and Coe, M. D. (2003). *The True History of Chocolate*. London: Thames and Hudson.

Coope, G. R. (1981). *Report on the Coleoptera from an eleventh-century house at Christ Church Place, Dublin* pp. 51-56 in Bekker-Nielsen, H., Foote, P. and Olsen, O. (eds) *Proceedings of the Eighth Viking Congress*. Odense.

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.

Denton, J. S. (1999). Rare and notable Coleoptera recorded in England, 1995-1997. *The Coleopterist* **8(1)**, 20-22.

Dickson, J. H. (1973). *Bryophytes of the Pleistocene*. Cambridge: University Press.

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.

Dobney, K., Kenward, H. K., Ottaway, P. and Donel, L. (1998). Down, but not out: biological evidence for complex economic organization in Lincoln in the late 4th century. *Antiquity* **72**, 417-424.

Edwardson, J. R. (1952). Hops - their botany, history, production and utilization. *Economic Botany* **6**, 160-75.

Friday, L.E. (1988). A Key to the Adults of British Water Beetles. *Field Studies* **7**, 1-151.

Geraghty, S. (1996). Viking Dublin: botanical evidence from Fishamble Street. *Medieval Dublin Excavations Ser. C, Vol. 2*. Dublin: Royal Irish Academy.

Girling, M. A. (1984). Eighteenth century records of human lice (Pthiraptera, Anoplura) and fleas (Siphonaptera, Pulicidae) in the City of London. *Entomologist's Monthly Magazine* **120**, 207-210.

Grieve, Mrs M. (1977). *A Modern Herbal*. London: Penguin (and on-line at http://botanical.com/).

Hall, A. and Kenward, H. (1980). An interpretation of biological remains from Highgate, Beverley. *Journal of Archaeological Science* **7**, 33-51.

Hall, A. R., Kenward, H. K. and Robertson, A. (1993). Investigation of medieval and post-medieval plant and invertebrate remains from Area II of the excavations in The Bedern (north-east), York (YAT/Yorkshire Museum sitecode 1973-81.14 II). *Ancient Monuments Laboratory Report* **58/93**.

Hall A., Jaques D., Carrott J. and Kenward H. (2002). Assessment of biological remains from excavations at Bridge Street, Chester (site code: CHE/25BS'01). *PRS* **2002/16**.

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

Halstead, D. G. H. (1993). Keys for the identification of beetles associated with stored products - II. Laemophloeidae, Passandridae and Silvanidae. *Journal of Stored Product Research* **29**, 99-197.

Hansen, M. (1987). The Hydrophiloidea (Coleoptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica* **18**. Leiden: Scandinavian Science Press.

Hinton, H. E. (1945). *A Monograph of the Beetles associated with stored products, Vol. I*. London: British Museum (N.H.).

Hyman, P. S. (1992). *A review of the scarce and threatened Coleoptera of Great Britain: Part 1*. (Revised and updated by M. S. Parsons). Peterborough : U.K. Joint Nature Conservation Committee.

Hyman, P. S. (1994). *A review of the scarce and threatened Coleoptera of Great Britain: Part 2*. (Revised and updated by M.S. Parsons). Peterborough: U.K. Joint Nature Conservation Committee.

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. (2004). Do insect remains from historic-period archaeological occupation sites track climate change in Northern England. *Environmental Archaeology* **9(1)**, 47-59.

Kenward, H. K. and Allison, E. P. (1994). *A preliminary view of the insect assemblages from the early Christian rath site at Deer Park Farms, Northern Ireland* pp. 89-107 in Rackham, D. J. (ed.) Environment and economy in Anglo-Saxon England. *CBA Research Report* **89**. York: Council for British Archaeology.

Kenward, H. K. and Hall, A. R. (1995). Biological evidence from Anglo-Scandinavian deposits at 16-22 Coppergate. *The Archaeology of York* **14 (7)**, 435-797 + xxii + loose figures. York: Council for British Archaeology.

Kenward, H. K., Engleman, C., Robertson, A. and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3**, 163–172.

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.

Koch, K. (1989). *Die Käfer Mitteleuropas, Ökologie* **2**. Krefeld: Goecke & Evers.

Koch, K. (1992). *Die Käfer Mitteleuropas, Ökologie* **3**. Krefeld: Goecke & Evers.

Lindroth, C. H. (1945). *Die Fennoskandischen Carabidae I-III.* Göteborgs Kungliga Vetenskaps och Vitterhets-Samh. Handlingar Ser. **B4(6)**. Goteborg.

Lucas, A. T. (1960). *Furze. A Survey and History of its Uses in Ireland*. The Stationery Office for National Museum of Ireland.

Lucht, W. H. (1987). *Die Käfer Mitteleuropas*, *Katalog.* Krefeld: Goeke & Evers.

Panagiotakopulu, E. (2004). Dipterous remains and archaeological interpretation. *Journal of Archaeological Science* **31**, 1675-1684.

Panagiotakopulu, E. and Buckland, P. C. (1999). *Cimex lectularius* L., the common bed bug from Pharaonic Egypt. *Antiquity* **73**, 908-911.

Peacock, E. R. (1993). Adults and Larvae of hide, larder and carpet beetles and their relatives (Coleoptera: Dermestidae) and of Derondontid beetles (Coleoptera: Derontondidae). *Handbooks for the Identification of British Insects* **5**. London: Royal Entomological Society of London.

Preston, C. D., Pearman, D. A. and Dines, T. A. (eds) (2002). *New Atlas of the British Flora*. Oxford: University Press.

Reilly, E. (1997). *The insect fauna (Coleoptera) from the Neolithic trackways Corlea 9 and 10: the environmental implications* pp. 403-410 in Raftery, B. (ed.) Trackway excavations in the Mountdillon Bogs, Co. Longford, 1985-1991. *Transactions of the Irish Archaeological Wetland Unit* **3**. Dublin: University College Dublin.

Reilly, E. (2003). The contribution of insect remains to an understanding of the environment of Viking-age and medieval Dublin pp. 40-62 in Duffy, S. (ed) *Medieval Dublin IV*: p*roceedings of the Friends of Medieval Dublin Symposium 2002*. Dublin: Four Courts Press.

Reitter, E. (1916). *Fauna Germanica: Die Käfer des Deutchen Reiches*. Stuttgart.

Richards, O. W. (1926). Studies on the ecology of English heaths. III. Animal communities of the felling and burn successions at Oxshott Heath, Surrey. *Journal of Ecology* **14**, 244-281.

Skidmore, P. (1991). *Insects of the British Cow-Dung Community.* Field Studies Council.

Smith, A. J. E. (1978). *The Moss Flora of Britain and Ireland*. Cambridge: University Press.

Smith, D., Letts, J. and Cox, A. (1999). Coleoptera from Late Medieval smoke-blackened thatch (SBT): their archaeological implications. *Environmental Archaeology* **4**, 9-17.

Southwood, T. R. E. and Leston, D. (1959). *Land and Water Bugs of the British Isles*. London: Warne.

Tottenham, C. E. (1954). Coleoptera: Staphylinidae, section (a). Piestinae to Euaesthetinae. *Handbooks for the Identification of British Insects* **4(8a)**. London: Royal Entomological Society of London.

Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M. and Webb, D. A. (eds.) 1964-80. *Flora Europaea* 1-5. Cambridge: Cambridge University Press.

Wallis, T. E. (1955). *Textbook of Pharmacognosy* (3rd ed.). London: J. & A. Churchill.

Whitehouse N. J. (2004). Mire ontogeny, environmental and climate change inferred from fossil beetle successions from Hatfield Moors, eastern England. *The Holocene* **14**, 79-93.

Whitehouse, N. J. (in press a). *The study of fossil insect remains in environmental and archaeological investigations: an Irish perspective* in Murphy, E. and Whitehouse, N. J. (eds.) *Environmental Archaeology in Ireland*. Oxford: Oxbow.

Whitehouse, N. J. (in press b). The Holocene British and Irish ancient woodland fossil beetle fauna: implications for woodland history, biodiversity and faunal colonisation. *Quaternary Science Reviews.*

Winton, A. L. [and Moeller, J.] (1906). *The Microscopy of Vegetable Foods [with Special Reference to the Detection of Adulteration and Diagnosis of Mixtures]*. New York, etc.: Wiley.

Wyse Jackson, P. and Sheehy Skeffington, M. (1984). *Flora of Inner Dublin*. Dublin: Royal Dublin Society.

Table 1. Complete list of plant taxa (and other components noted during investigation of plant remains) recorded from post-medieval deposits at 14-16 and 48-50 Newmarket St., Dublin. Figures in phase columns are sums of abundance scores across all subsamples.

All remains were preserved by anoxic 'waterlogging' unless otherwise indicated. Taxonomic order and nomenclature follow Tutin et al. *(1964-80) for vascular plants (except for* Camellia *and* Theobroma*) and Smith (1978) for mosses. Taxa marked '*' are likely to have been imported with peat and should not necessarily be considered contemporaneous with the deposits (less unambiguous cases are marked '**').*

			Phases		
			III	**III/ IV**	**IV**
No. contexts/samples			4	11	5
No. subsamples			5	14	8
Taxon	**Vernacular name**	**Parts recorded**			
Pteridium aquilinum (L.) Kuhn	bracken	pinnule fragment(s)	-	-	1
Coniferae	conifer	charcoal fragment(s)	-	-	2
		part-charred wood fragment(s)	-	1	-
		wood fragment(s)	5	11	8
Salix sp(p).	willow	bud(s)	1	-	-
cf. *Juglans regia* L.	?walnut	nutshell fragment(s)	1	-	-
Alnus sp(p).	alder	wood fragment(s)	1	-	-
Corylus avellana L.	hazel	nutshell fragment(s)	2	2	1
Quercus sp(p).	oak	cupule fragment(s)	-	-	1
		wood chip(s)	1	-	-
cf. *Quercus* sp(p).	?oak(s)	acorn fragment(s)	-	-	1
Ficus carica L.	fig	seed(s)	3	3	1
Humulus lupulus L.	hop	achene(s)	-	1	7
Cannabis sativa L.	hemp	achene(s)	4	7	2
Urtica dioica L.	stinging nettle	achene(s)	2	1	-
U. urens L.	annual nettle	achene(s)	-	1	-
Polygonum aviculare agg.	knotgrass	fruit(s)	1	2	2
P. persicaria L.	persicaria/ red shank	fruit(s)	-	2	2
P. lapathifolium L.	pale persicaria	fruit(s)	-	1	-
Bilderdykia convolvulus (L.) Dumort.	black bindweed	fruit(s)	-	1	1
Rumex acetosella agg.	sheep's sorrel	fruit(s)	-	-	1
Rumex sp(p).	docks	fruit(s)	-	2	1
Chenopodium Section *Pseudoblitum*	red goosefoot, etc.	seed(s)	-	1	-
C. murale L.	nettle-leaved goosefoot	seed(s)	1	-	-
Atriplex sp(p).	oraches	seed(s)	2	5	5
cf. *Portulaca oleracea* L.	?purslane	seed(s)	-	1	-
Caryophyllaceae	pink/campion family	seed(s)	-	1	-
Stellaria media (L.) Vill.	chickweed	seed(s)	1	6	3
Cera*s*tium sp(p).	mouse-ear chickweeds	seed(s)	-	1	-
Agrostemma githago L.	corncockle	seed fragment(s)	-	3	-
Silene vulgaris (Moench) Garcke	bladder campion	seed(s)	-	-	1
Ranunculus Section *Ranunculus*	meadow/creeping/ bulbous buttercup	achene(s)	3	5	3
R. flammula L.	lesser spearwort	achene(s)	-	1	-

Papaver somniferum L.	opium poppy	seed(s)	-	1	-
Fumaria sp(p).	fumitories	seed(s)	3	8+?1	1
Cruciferae	cabbage family	pedicel(s)	-	-	2
Capsella bursa-pastoris (L.) Medicus	shepherd's purse	seed(s)	1	1	-
Brassica rapa L.	'turnip'	seed(s)	-	2	-
Brassica sp(p).	cabbages, etc.	seed fragment(s)	3	1	2
Brassica sp./*Sinapis arvensis* L.	brassica/charlock	seed(s)	1	4	4
Raphanus raphanistrum L.	wild radish	pod segments and/or fragment(s)	-	1	4
cf. *Raphanus raphanistrum*		seeds/seed fragment(s)	-	2	1
cf. *Raphanus* sp(p).	?radishes	seed(s)	1	-	-
Reseda luteola L.	weld/dyer's rocket	seed(s)	4	11	3
Ribes uva-crispa L.	gooseberry	fruit epidermis fragment(s)	-	-	2
Ribes sp(p).	currant/gooseberry	seed(s)	-	-	1
Rubus idaeus L.	raspberry	seed(s)	-	3	3
R. fruticosus agg.	blackberry/bramble	seed(s)	2	6	7
Rubus/Rosa sp(p).	blackberry, etc./rose	prickle(s)	-	1	-
Rosa sp(p).	roses	achene(s)	-	-	1
		prickle(s)	-	1	-
Fragaria cf. *vesca* L.	?wild strawberry	achene(s)	-	1+?1	-
Malus sylvestris Miller	crab apple	endocarp	1	1	5
		seed(s)	-	-	4
Crataegus monogyna Jacq.	hawthorn	pyrene(s)	1	-	2
Crataegus sp(p).		pyrene(s)	-	1	-
Prunus domestica sensu lato	plums, etc.	fruitstone fragment(s)	-	1	-
P. Section *Cerasus*	cherries	fruitstone(s)	-	-	1
Leguminosae	pea family	flower(s) and/or petal(s)	1	1	3
Ulex sp(p).	gorses	charred leaf/leaves (spines)	-	-	1
		leaf epidermis fragment(s)	1	2	-
		leaf/leaves (spines)	3	3	2
		twig epidermis fragment(s)	1	1	-
		twig fragment(s)	1	-	-
Medicago lupulina L.	black medick	pod(s) and/or pod fragment(s)	-	-	1
Linum usitatissimum L.	cultivated flax	seed(s)	-	-	3
L. catharticum L.	purging flax	seed(s)	1	-	-
Euphorbia helioscopia L.	sun spurge	seed(s)	2	5	-
E. peplus L.	petty spurge	seed(s)	-	3	-
cf. *Vitis vinifera* L.	?grape	seed fragment(s)	1	-	-
Umbelliferae	carrot family	mericarp(s)	-	-	1
		mineralised mericarp(s)	-	-	1
Scandix pecten-veneris L.	shepherd's needle	mericarp(s)	1	2	1
cf. *Aegopodium podagraria* L.	?ground elder	mericarp(s)	1	-	-
Aegopodium podagraria L./ *Conium maculatum* L.	ground elder/hemlock	mericarp(s)	-	3	-
Aethusa cynapium L.	fool's parsley	mericarp(s)	3	1	1
Foeniculum vulgare Miller	fennel	mineralised mericarp(s)	-	-	1
Conium maculatum L.	hemlock	mericarp(s)	-	1	-
***Erica cinerea* L.**	bell heather	leaf/leaves	1	-	1
***Calluna vulgaris* (L.) Hull**	heather, ling	bud(s)	-	-	2
		capsule(s)	-	-	4
		flower(s)	-	-	4
		leaf/leaves	-	-	1
		root and/or basal twig fragment(s)	-	1	-
		shoot fragment(s)	-	-	5
		twig fragment(s)	-	3	4
*cf. *C. vulgaris*	?heather, ling	charred root and/ or basal twig fragment(s)	-	-	5
		root and/or basal twig fragment(s)	-	-	5

**Menyanthes trifoliata* L.	bogbean	seed(s)	-	-	2
Galium aparine L.	goosegrass, cleavers	epicarp (fruit skin)	-	-	1
Galeopsis Subgenus *Galeopsis*	hemp-nettles	nutlet(s)	1	1	1
Galeopsis sp(p).	hemp-nettles	nutlet(s)	-	1	-
Lamium Section *Lamiopsis*	annual dead-nettles	nutlet(s)	2	-	1
Prunella vulgaris L.	selfheal	nutlet(s)	1	2	-
Rhinanthus sp(p).	yellow rattles	seed(s)	1	-	-
Plantago major L.	greater plantain	seed(s)	-	-	1
Sambucus nigra L.	elder	seed(s)	1	2	-
Valerianella dentate (L.) Pollich	narrow-fruited cornsalad	fruit(s)	-	1	-
Knautia arvensis (L.) Coulter	field scabious	fruit fragment(s)	1	1	1
Bellis perennis L.	daisy	achene(s)	-	1	-
Anthemis cotula L.	stinking mayweed	achene(s)	1	-	-
Senecio sp(p).	groundsels/ragworts	achene(s)	-	-	1
Carduus/Cirsium sp(p).	thistles	achene(s)	-	2	1
Hypochoeris sp(p).	cat's ears	achene(s)	-	-	1
Leontodon sp(p).	hawkbits	achene(s)	-	1	-
Sonchus asper (L.) Hill	prickly sow-thistle	achene(s)	-	-	1
S. oleraceus L.	sow-thistle	achene(s)	-	1	1
Lapsana communis L.	nipplewort	achene(s)	1	2	1
Camellia sinensis (L.) Kuntze	tea	leaf epidermis fragments	-	-	6
Theobroma cacao L.	cocoa	testa fragments	-	-	3
Alisma sp(p).	water-plantains	carpel(s) and/or seed(s)	1	-	-
Juncus bufonius L.	toad rush	seed(s)	-	1	-
Juncus sp(p).	rushes	seed(s)	-	1	-
Gramineae	grasses	waterlogged caryopsis/es	2	6	-
Gramineae/Cerealia	grasses/cereals	charred culm fragment(s)	-	-	1
		charred culm node(s)	-	1	1
		waterlogged culm fragment(s)	-	-	2
Cerealia indet.	cereals	charred caryopsis/es	-	-	1
		charred chaff fragment(s)	-	-	1
		waterlogged chaff	-	1	2
Triticum 'aestivo-compactum'	bread/club wheat	charred caryopsis/es	-	-	1
Triticum/Secale	wheat/rye	waterlogged periderm fragment(s)	1	1	3
Hordeum sp(p).	barley	waterlogged caryopsis/es	-	-	1
Avena sp(p).	oats	charred caryopsis/es	-	-	1
		mineralised caryopsis/es	-	-	1
		waterlogged chaff	-	-	2
		waterlogged periderm fragment(s)	-	1	1
Agrostis sp(p).	bent grasses, etc.	waterlogged caryopsis/es	1	-	-
**Eriophorum vaginatum* L.	cotton-grass	rhizome and/or stem fragment(s)	-	-	1
		sclerenchyma spindles (from leaf sheaths)	-	-	1
*cf. *E. vaginatum* L.	?cotton-grass	rhizome and/or stem epidermis fragment(s)	-	-	1
Eleocharis sp(p).	spike-rushes	nutlet(s)	-	-	1
**Cladium mariscus* (L.) Pohl	great sedge/saw-sedge	nutlet(s)	-	-	1
***Carex* sp(p).	sedges	nutlet(s)	1	9	-
Mosses (all leaf/leaves and/or shoot fragment(s) unless otherwise indicated)					
**Sphagnum imbricatum* Hornsch. ex Russ.		leaf/leaves	-	2	10
			-	-	2
		shoot fragment(s)	-	-	4
**Sphagnum* Section *Acutifolia*			-	-	1
**Sphagnum* sp(p).		stem fragment(s)	-	-	1

***Polytrichum/Pogonatum* sp(p).	leaf-bases(s)	-	-	1
Dicranum sp(p).		-	-	1
cf. *Tortula* sp(p).		-	-	1
cf. *Bryum argenteum* Hedw.		-	-	1
cf. *Bryum* sp(p).		-	-	1
**Meesia triquetra* (Hook. & Tayl.) Ångstr.		-	-	1
Thuidium tamariscinum (Hedw.) Br. Eur.		1	-	?1
Thuidium sp(p).		-	1	-
cf. *Cratoneuron commutatum* (Hedw.) Roth		-	-	1
**Scorpidium scorpioides* (Hedw.) Limpr.		-	-	3
Eurhynchium sp(p).		-	1	-
Hypnum cf. *cupressiforme* Hedw.		-	-	6
Rhytidiadelphus sp(p).		-	-	1
Pleurozium schreberi (Brid.) Mitt.		-	-	1
Hylocomium splendens (Hedw.) Br. Eur.)		-	-	2
Hylocomium sp(p).		-	-	1

Other components

plant materials:			
bark fragments	4	9	11
bark fragments (charred)	-	-	2
bark fragments (part-charred)	1	-	1
bast fragments	1	-	1
charcoal	3	4	4
charred herbaceous detritus	-	-	1
charred moss	-	-	1
?charred seaweed	-	-	2
dicot lf skeletons	1	-	-
dicot stem fragments	-	-	1
fruit epidermis	-	-	1
fruit mesocarp	-	-	1
herbaceous detritus	-	1	1
herbaceous detritus (charred)	-	-	1
moss	1	1	3
part-burnt wood	-	-	1
root/rhizome fragments (charred)	-	-	1
root/rootlet fragments (modern)	1	-	-
sclereids (from bark)	1	-	4
twig fragments (charred)	1	-	1
wood chips	1	?1	-
wood fragments	6	17	8
worked wood fragments	-	-	3
animal remains/materials:			
animal hairs	4	2	2
beetles	4	11	5
bivalve periostracum	-	1	-
bone	7	9	7
burnt bone fragments	-	4	3
burnt fish bone	-	-	2
caddis larva cases	-	1	-
Cerastoderma edule (L.) (valve fgts)	1	5	6
Daphnia (ephippia)	-	1	-
Donax vittatus (da Costa) (valve)	-	-	1
earthworm egg caps	5	14	7
eggshell fragments	3	1	3

eggshell membrane fragments	-	-	4
fish bone	1	2	6
fish scale	-	2	4
fly puparia	4	12	9
fly puparia (mineralised)	-	-	1
insect cuticle	-	1	-
insects	-	1	-
leather fragments	3	2	2
marine mollusc shell fragments	2	3	5
mites	2	4	1
mollusc opercula	-	-	1
Mytilus edulis L. (valve fgts)	-	1	1
ostracods	1	4	-
Pisidium sp(p). (valves)	-	-	2
Sitophilus	-	1	1
small vertebrate bones	2	1	-
snails	1	7	1
Trichuris (eggs) – see also Appendix Section A2	-	-	1
woodlouse fragments	1	1	2
other organic materials:			
amorphous organic matter	-	1	-
concretions	-	1	1
fungal hyphae	-	-	1
peat fragments	1	3+?3	10
peat fragments (charred)	?1	-	2
textile fragments	-	2	2
textile fragments (charred)	-	-	1
yarn fragments	1	-	-
yarn fragments (charred)	-	1	1
mineral materials:			
bead (wooden)	-	1	-
brick/tile	6	6	13
cinders	10	10	16
clay pipe	1	3	-
coal	8	10	13
coal ‘char’	2	6	5
coal shale	1	-	-
Pre-Quaternary megaspores (from coal)	-	1	-
coin	-	1	-
glass	4	4	7
gravel	1	2	4
grit	2	2	5
metal	1	2	6
mortar or mortar/plaster	4	6	10
part-burnt coal	-	1	1
pot	3	3	7
sand	13	21	14
slag	3	5	3
slate	1	-	5

Table 2. Lists of plant remains and other components (other than undifferentiated stones) of the samples recorded from deposits at 14-16 and 48-50 Newmarket Street, Dublin, by context and sample. Subsamples examined during the assessment are designated '/T' and those from the analysis phase '/T2'.

Key to abbreviations: b—bud/s; caps—capsule/s; ch—charred; endo—endocarp; fef—fruit epidermis fragment/s; ff—fruit fragment/s; fgt/s—fragment/s; fls—flower/s; inc—including; lef—leaf epidermis fragment/s; lf/lvs—leaf/leaves; max—maximum dimension; min—mineral-replaced; pet—petal/s; rh-st epid—rhizome/stem epidermis; rt-tw—root/basal twig; s—seed; scl sp—'sclerenchyma spindles' (from leaf sheaths); segs—segment/s; sf—seed fragment/s; shts—shoot/s; single spec—a single specimen; tw—twig; v dec—very decayed; w/l—'waterlogged' (i.e. not charred or mineral-replaced).

Context 17/2, Sample 6/T (Phase III)

beetles	1	
brick/tile	1	max 5 mm
Calluna vulgaris (tw fgts)	1	
cinders	1	max 20 mm
coal	1	max 15 mm
coal 'char'	1	max 5 mm
earthworm egg caps	2	
Galeopsis sp(p).	1	fgt/s only
gravel	2	max 45 mm
grit	2	
Prunella vulgaris	1	v dec
Reseda luteola	1	
sand	1	
wood fgts	3	v dec, max 30 mm

Context 17/3, Sample 7/T (Phase III)

Agrostemma githago (sf)	1	
bark fgts	1	max 10 mm
beetles	1	
Bellis perennis	1	
bone	1	2 g
Carex sp(p).	1	
charcoal	1	max 5 mm
cinders	1	max 5 mm
coal	1	max 5 mm
Coniferae (wood)	1	max 3 mm
earthworm egg caps	1	
Ficus carica	1	
fly puparia	1	
glass	1	<1 g
Gramineae	1	
Juncus sp(p).	1	
Leontodon sp(p).	1	
moss	1	
Pre-Quaternary megaspores	1	
Reseda luteola	2	
Rosa sp(p). (prickles)	1	
sand	3	
Scandix pecten-veneris	1	
slag	1	<1 g
wood fgts	2	max 10 mm

Context 24/2, Sample 1/T (Phase IV)

brick/tile	1	1 g
bone	1	26 g
burnt bone fgts	1	max 5 mm
Cerastoderma edule (valve fgt)	1	<1 g
charcoal	1	max 10 mm
cinders	3	max 30 mm
coal	2	max 10 mm
coal 'char'	2	max 5 mm
glass	1	<1 g
herbaceous detritus (ch)	1	
metal (copper wire)	1	<1 g
sand	1	
twig fgts (ch)	1	max 10 mm
Ulex sp(p). (ch lf/lvs)	1	

Context 25/5, Sample 12/T2 (Phase III/IV)

bone (inc some burnt)	1	2 g
cinders	1	max 30 mm
coal	1	max 25 mm
fish bone	1	1 g
glass	1	max 30 mm
metal (copper)	1	<1 g
mortar/plaster	1	to 20 mm
sand	2	
slag	1	to 20 mm

Context 29/7, Sample 3/T (Phase III/IV)

Aegopodium podagraria/ Conium maculatum	1	fgt/s only
Atriplex sp(p).	1	
beetles	1	
bone	1	2 g
Carex sp(p).	1	
Cerastoderma edule (valve fgt)	1	<1 g
charcoal	1	max 5 mm
cinders	1	max 5 mm
coal	1	max 5 mm
concretions	1	max 5 mm
Coniferae (wood)	1	
earthworm egg caps	1	
Ficus carica	1	
fly puparia	1	
Fragaria cf. vesca	1	
Fumaria sp(p).	1	fgt/s only
glass	1	

mites	1	
Polygonum aviculare agg.	1	
Ranunculus Section Ranunculus	1	v dec
Reseda luteola	1	
Rubus fruticosus agg.	1	
sand	3	
Stellaria media	1	
textile fgts	1	max 10 mm
wood fgts	1	max 5 mm

Context 29/8, Sample 4/T (Phase III/IV)

Aegopodium podagraria/ Conium maculatum	1	fgt/s only
Atriplex sp(p).	1	
bark fgts	1	max 10 mm
beetles	1	
bone	1	2 g
brick/tile	1	6 g
Calluna vulgaris (rt-tw fgts)	1	max 10 mm
Capsella bursa-pastoris	1	
Carex sp(p).	1	
charcoal	1	max 5 mm
Chenopodium Sect. Pseudoblitum	1	
cinders	1	max 2 mm
coal	1	max 5 mm
Conium maculatum	1	
earthworm egg caps	1	
Euphorbia helioscopia	1	
fly puparia	1	
Fumaria sp(p).	2	inc fgts
Gramineae	2	
marine mollusc shell fgts	1	max 5 mm
?peat fgts	1	max 5 mm
Polygonum persicaria	1	fgt/s only
Reseda luteola	1	
sand	2	
Sonchus oleraceus	1	
Stellaria media	1	
Ulex sp(p). (lef)	1	
Urtica urens	1	
wood fgts	1	max 5 mm

Context 31/3, Sample 28/T (Phase III/IV)

Atriplex sp(p).	1	
bark fgts	1	max 20 mm
beetles	1	
bone	1	2 g
brick/tile	1	1 g
Carex sp(p).	1	
cinders	1	max 10 mm
coal	1	max 5 mm
coal 'char'	1	max 3 mm
Coniferae (part-ch wood)	1	max 5 mm
Coniferae (wood)	1	max 5 mm
earthworm egg caps	1	
Euphorbia helioscopia	1	
fly puparia	1	fgt/s only
Galeopsis Subgenus Galeopsis	1	
Gramineae	1	
mortar/plaster	1	
cf. Portulaca oleracea	1	single spec
Ranunculus Section Ranunculus	1	
Reseda luteola	1	
Rubus idaeus	1	
Rumex sp(p).	1	
slag	1	8 g
Stellaria media	1	
textile fgts	1	max 10 mm
?wood chips	1	max 10 mm
wood fgts	1	max 25 mm

Context 38/3, Sample 5/T (Phase III)

Aethusa cynapium	1	
animal hairs	2	
Atriplex sp(p).	1	
bark fgts	1	max 10 mm
beetles	1	
bone fgts	1	max 35 mm
Brassica sp./Sinapis arvensis	1	
brick/tile	1	max 50 mm
Cannabis sativa	1	
cinders	2	max 35 mm
coal	1	max 15 mm
coal shale	1	max 75 mm
Coniferae (wood)	1	max 3 mm
earthworm egg caps	1	
eggshell fgts	1	max 10 mm
Euphorbia helioscopia	1	
Ficus carica	1	well preserved
fly puparia	1	
Fumaria sp(p).	1	fgt/s only
gravel	1	max 35 mm
grit	2	
Knautia arvensis (ff)	1	
Lapsana communis	1	
leather	1	to 50 mm
Malus sylvestris (endo)	1	
mites	1	
mortar	1	max 25 mm
?peat fgts (ch)	1	max 5 mm
Ranunculus Section Ranunculus	1	
cf. Raphanus sp(p).	1	
Reseda luteola	1	
Rhinanthus sp(p).	1	
Rubus fruticosus agg.	1	
sand	2	
slate	1	max 25 mm
snails	1	
'spongy flakes'	1	
Ulex sp(p). (lf/lvs)	1	
Urtica dioica	1	
wood chips	1	max 10 mm
wood fgts	2	max 40 mm

Context 38/3, Sample 5/T2 (Phase III)

Aethusa cynapium	1	fgt/s only
Agrostis sp(p).	1	
Alnus (wood)	1	max 20 mm
animal hairs	2	
Anthemis cotula	1	
Atriplex sp(p).	1	
bark fgts	1	max 30 mm
bast fgts	1	max 15 mm
beetles	1	
bone	1	<1 g
Brassica sp(p).	2	fgt/s only
brick/tile	1	max 2 mm
Cannabis sativa	1	
Carex sp(p).	1	
charcoal	1	max 3 mm
cinders	1	max 5 mm
coal	1	max 10 mm
Coniferae (wood)	2	max 30 mm
Corylus avellana	1	
earthworm egg caps	2	
eggshell fgts	1	max 6 mm
Erica cinerea (lvs)	1	
Euphorbia helioscopia	1	fgt/s only
Ficus carica	1	
fish bone fgts	1	<1 g
fly puparia	1	
Fumaria sp(p).	1	inc fgts
Galeopsis Subgenus Galeopsis	1	fgt/s only
Gramineae	1	
cf. Juglans regia	1	single fgt
Lamium Section Lamiopsis	1	
leather fgts	1	max 15 mm
Leguminosae (fls/pet)	1	
Linum catharticum	1	
mites	1	
moss	1	
peat fgts	1	max 5 mm
Polygonum aviculare agg.	1	
Prunella vulgaris	1	v dec
Quercus (wood chips)	1	max 10 mm
Ranunculus Section Ranunculus	1	
Reseda luteola	2	
Rubus fruticosus agg.	1	
Salix sp(p). (b)	1	
sand	2	
sclereids (from bark)	1	
small vertebrate bones	1	
Stellaria media	1	
Triticum/Secale (‘bran’ fgts)	1	max 1 mm
twig fgts (ch)	1	max 5 mm
Ulex sp(p). (lf/lvs)	2	
Ulex sp(p). (tef)	1	
Ulex sp(p). (tw fgts)	1	max 5 mm
cf. Vitis vinifera (sf)	1	single fgt
wood fgts	1	max 30 mm
woodlouse fgts	1	
yarn fgts	1	max 3 mm

Context 38/4, Sample 8/T (Phase III)

cf. Aegopodium podagraria	1	fgt/s only
Aethusa cynapium	1	
bark fgts	1	max 15 mm
beetles	1	
bone	1	4 g
Brassica sp(p).	1	
brick/tile	3	max 60 mm
Cannabis sativa	1	fgt/s only
Capsella bursa-pastoris	1	
Chenopodium murale	1	single spec
cinders	1	max 5 mm
coal	1	max 5 mm
coal ‘char’	1	max 5 mm
Coniferae (wood)	1	max 2 mm
Corylus avellana (nut shell)	1	max 4 mm
Crataegus monogyna	1	single spec
earthworm egg caps	1	
eggshell fgts	1	<1 g
Ficus carica	1	
fly puparia	1	
Fumaria sp(p).	1	fgt/s only
glass/slag	1	1 g
Gramineae	1	
Lamium Section Lamiopsis	1	
leather	1	<1 g
marine mollusc shell fgts	1	max 5 mm
mortar/plaster	2	to 33 mm
pot	1	1 g
Ranunculus Section Ranunculus	1	
Reseda luteola	1	
Scandix pecten-veneris	1	single fgt
slag	1	2 g
small vertebrate bones	1	max 3 mm
‘spongy flakes’	1	
Thuidium tamariscinum	1	
Ulex sp(p). (lef)	1	
Urtica dioica	1	
wood fgts	1	max 5 mm

Context 40/4, Sample 30/T (Phase IV)

beetles	1	
brick/tile	1	2 g
Cannabis sativa	1	fgt/s only
Carex sp(p).	1	
Cerastoderma edule (valve fgts)	1	1 g
cinders	1	max 10 mm
coal	1	max 5 mm
coal ‘char’	1	max 5 mm
Coniferae (wood)	1	max 2 mm
earthworm egg caps	1	
?eggshell fgts	1	<1 g
Fumaria sp(p).	1	fgt/s only
glass	1	2 g
mites	1	
ostracods	1	
peat fgts	1	max 5 mm

pot	1	6 g
Reseda luteola	1	
sand	3	
?sawdust	1	
snails (freshwater)	1	
Stellaria media	1	
wood fgts	1	v dec, max 10 mm

Context 161/1, Sample 40/T (Phase IV)

Atriplex sp(p).	1	
beetles	1	
brick/tile	1	max 60 mm
Calluna vulgaris (sht fgts)	1	leafless
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 5 mm
Cerealia indet. (chaff)	1	
cinders	1	max 10 mm
coal	1	max 35 mm
Coniferae (charcoal)	1	max 20 mm
Coniferae (wood)	1	max 5 mm
Crataegus monogyna	1	
eggshell membrane fgts	1	max 5 mm
fish bone	1	max 20 mm
fly puparia	1	
fruit epidermis	1	
gravel	1	max 55 mm
grit	2	
Humulus lupulus	1	inc fgts
marine mollusc shell fgts	1	max 10 mm
mites	1	
mortar	3	max 40 mm
peat fgts	1	max 20 mm
pot	1	max 25 mm
Ranunculus Section Ranunculus	1	
Rosa sp(p).	1	
Rubus fruticosus agg.	1	
Rubus idaeus	1	
sand	2	
slate	3	max 110 mm
Sphagnum imbricatum (lvs)	1	
'spongy flakes'	1	
wood fgts	1	v dec, max 15 mm
worked wood fgts	1	max 15 mm

Context 161/1, Sample 40/T2 (Phase IV)

animal hairs	1	
Atriplex sp(p).	1	
bark fgts	2	max 20 mm
bark fgts (ch)	1	max 10 mm
beetles	1	
Brassica sp./Sinapis arvensis	1	
brick/tile	2	max 5 mm
burnt fish bone	1	max 2 mm
Calluna vulgaris (caps)	1	
Calluna vulgaris (fls)	1	
Calluna vulgaris (sht fgts)	1	
Calluna vulgaris (tw fgts)	1	max 10 mm
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 10 mm
cf. Calluna vulgaris (rt-tw fgts)	1	max 10 mm
Camellia sinensis (lef)	1	
Cerealia indet.	1	
charred herbaceous detritus	1	
charred moss	1	
?charred seaweed	1	max 5 mm
cinders	1	
Cladium mariscus	1	
coal	1	max 10 mm
Coniferae (wood)	2	max 250 mm
earthworm egg caps	1	
eggshell membrane fgts	1	max 10 mm
Eriophorum vaginatum (scl sp)	1	
fish bone	1	max 15 mm
fish scale	1	max 2 mm
fly puparia	2	
fly puparia (min)	1	
Foeniculum vulgare (min)	1	
glass	1	1 g
grit	1	
Humulus lupulus	1	
Hypnum cf. cupressiforme	1	
Lapsana communis	1	
Malus sylvestris (endo)	1	
Menyanthes trifoliata	1	
metal	1	11 g
mollusc opercula	1	
mortar	2	max 120 mm
moss	1	
part-burnt bark	1	
part-burnt coal	1	max 35 mm
peat fgts	1	max 30 mm
peat fgts (ch)	1	max 20 mm
Polygonum persicaria	1	
pot	1	1 g
Raphanus raphanistrum (pod segs/fgts)	1	
Rubus fruticosus agg.	1	
Rubus idaeus	1	
sand	1	
sclereids (from bark)	2	max 3 mm
Scorpidium scorpioides	1	
slag	1	18 g
slate	1	max 15 mm
Sonchus oleraceus	1	
Sphagnum imbricatum (lvs)	2	
Sphagnum imbricatum (shts)	1	max 5 mm
Stellaria media	1	
textile fgts	1	max 2 mm
Trichuris (eggs)	1	
woodlouse fgts	1	

Context 161/3, Sample 41/T (Phase IV)

Atriplex sp(p).	1	
bark fgts	2	max 20 mm
bark fgts (ch)	1	max 20 mm

beetles	1	
bone fgts	1	max 50 mm
Brassica sp./Sinapis arvensis	1	inc fgts
brick/tile	1	max 10 mm
burnt bone fgts	1	max 5 mm
Calluna vulgaris (b)	1	
Calluna vulgaris (fls)	1	
Calluna vulgaris (lvs)	1	
Cannabis sativa	1	fgt/s only
Cerealia indet. (w/l chaff)	1	
cinders	2	max 30 mm
coal	2	max 30 mm
coal 'char'	1	max 5 mm
Coniferae (charcoal)	1	max 30 mm
Coniferae (wood)	1	max 4 mm
earthworm egg caps	1	
eggshell membrane fgts	1	max 30 mm
fish bone	1	max 30 mm
fish scale	1	max 4 mm
fly puparia	1	
fruit mesocarp	1	
gravel	3	max 50 mm
grit	2	
Hordeum sp(p). (w/l)	1	
Humulus lupulus	1	
Hylocomium splendens	1	
Hypnum cf. cupressiforme	1	
Leguminosae (fls/pet)	1	
Linum usitatissimum	1	
Malus sylvestris	1	
Malus sylvestris (endo)	1	
marine mollusc shell fgts	1	max 10 mm
moss	1	
peat fgts	2	max 20 mm
Pisidium sp(p). (valves)	1	
Polygonum aviculare agg.	1	
Ranunculus Section Ranunculus	1	
Reseda luteola	1	
cf. Ribes uva-crispa (fef)	1	
Rubus fruticosus agg.	1	
sand	2	
Scorpidium scorpioides	1	
slate	1	max 35 mm
snails	1	
Sphagnum imbricatum (lvs)	2	
'spongy flakes'	2	
textile fgts (ch)	1	max 5 mm
cf. Tortula sp(p).	1	
Ulex sp(p). (lf/lvs)	1	
wood fgts	2	max 30 mm
worked wood fgts	1	max 30 mm

Context 161/3, Sample 41/T2 (Phase IV)

animal hairs	1	
Avena sp(p).	1	single spec
Avena sp(p). ('bran' fgts)	1	
Avena sp(p). (min)	1	
Avena sp(p). (w/l chaff)	2	
bark fgts	3	max 25 mm
bast fgts	1	max 5 mm
Bilderdykia convolvulus	1	inc fgts
bone (inc some burnt)	1	26 g
Brassica sp(p).	1	
Brassica sp./Sinapis arvensis	1	
brick/tile	2	max 125 mm
cf. Bryum argenteum	1	
cf. Bryum sp(p).	1	
Calluna vulgaris (caps)	1	
Calluna vulgaris (fls)	1	
Calluna vulgaris (sht fgts)	1	
Calluna vulgaris (tw fgts)	2	max 80 mm
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 20 mm
cf. Calluna vulgaris (rt-tw fgts)	1	max 30 mm
Camellia sinensis (lef)	3	max 5 mm
Cannabis sativa	1	
Cerastoderma edule (valve fgts)	1	
?charred seaweed	1	max 10 mm
cinders	2	max 20 mm
clay pipe (2 fgts)	1	
coal	2	max 15 mm
concretions	1	max 10 mm
conifer wood fgts	2	max 120 mm
Corylus avellana	1	
Crataegus monogyna	1	single spec
Cruciferae (pedicels)	1	
Dicranum sp(p).	1	
earthworm egg caps	1	
eggshell fgts	1	max 5 mm
eggshell membrane fgts	1	max 40 mm
Erica cinerea (lvs)	1	
Eriophorum vaginatum (rh-st fgts)	1	
Ficus carica	1	single spec
fish bone	1	max 20 mm
fly puparia	2	
Fumaria sp(p).	1	
Galeopsis Subgenus Galeopsis	1	fgt/s only
Galium aparine (epicarp)	1	
glass	1	<1 g
Gramineae/Cerealia (culm fgts)	1	
Humulus lupulus	1	inc fgts
Hylocomium sp(p).	1	
Hylocomium splendens	1	
Hypnum cf. cupressiforme	1	
Knautia arvensis (ff)	1	
leather fgts	1	max 5 mm
Leguminosae (fls/pet)	1	
Linum usitatissimum	2	
Malus sylvestris	1	fgt/s only
Malus sylvestris (endo)	2	
marine mollusc shell fgts	1	max 10 mm
Medicago lupulina (pods/fgts)	1	v dec
metal (nail and pins)	1	9 g
mortar/plaster	2	to 95 mm
moss	1	
peat fgts	2	max 20 mm
peat fgts (ch)	1	max 10 mm
Pisidium sp(p). (valves)	1	

Pleurozium schreberi	1	
Polygonum aviculare agg.	1	
Polygonum persicaria	1	
pot	1	55 g
Prunus Section Cerasus	1	
Pteridium aquilinum (pinn fgts)	1	
cf. Quercus sp(p). (fgts)	1	
Quercus sp(p). (cup fgts)	1	single spec
Raphanus raphanistrum (pod segs/fgts)	1	
Ribes sp(p).	1	
Ribes uva-crispa (fef)	1	
root/rhizome fgts (ch)	1	max 5 mm
Rubus fruticosus agg.	2	
Rumex sp(p).	1	
sand	1	
Scandix pecten-veneris	1	fgt/s only
sclereids (from bark)	1	max 4 mm
Scorpidium scorpioides	1	
Silene vulgaris	1	
Sphagnum imbricatum (lvs)	2	
Sphagnum imbricatum (shts)	2	
Sphagnum Section Acutifolia	1	
Theobroma cacao	2	
Triticum/Secale (‘bran’ fgts)	2	max 1 mm
Ulex sp(p). (lf/lvs)	1	
Umbelliferae	1	fgt/s only
Umbelliferae (min)	1	
wood fgts	2	max 10 mm
woodlouse fgts	1	
yarn fgts (ch)	1	

Context 191/-, Sample 89/T (Phase III)

Alisma sp(p).	1	‘embryos’ only
bark fgts	1	max 5 mm
bark fgts (part-ch)	1	max 10 mm
beetles	1	
bone	1	4 g
brick/tile	2	130 g
Cannabis sativa	1	
Cerastoderma edule (valve fgts)	1	<1 g
cinders	1	max 10 mm
coal	1	max 10 mm
Coniferae (wood)	1	max 60 mm
earthworm egg caps	1	
fly puparia	1	
glass	1	<1 g
marine mollusc shell fgts	1	max 5 mm
mortar	1	12 g
ostracods	1	
pot	1	4 g
sand	3	
slag	1	2 g
wood fgts	2	v dec, max 15 mm

Context 207/-, Sample 59/T (Phase III)

bone	2	76 g
brick/tile	1	26 g
charcoal	1	max 10 mm
cinders	3	max 25 mm
clay pipe (stem)	1	6 g
coal	2	max 5 mm
coal ‘char’	1	max 5 mm
dicot lf skeletons	1	?modern
glass	1	4 g
metal (copper)	1	<1 g
pot	1	max 50 mm
root/rootlet fgts (modern)	1	
Sambucus nigra	1	?modern
sand	2	

Context 250/4, Sample 67/T (Phase IV)

Aethusa cynapium	1	fgt/s only
Atriplex sp(p).	1	
bark fgts	1	max 15 mm
beetles	1	
bone	2	62 g
Brassica sp(p).	1	fgt/s only
brick/tile	1	40 g
Calluna vulgaris (caps)	1	
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 5 mm
Carduus/Cirsium sp(p).	1	
cinders	2	max 10 mm
coal	1	max 5 mm
coal ‘char’	1	max 5 mm
Coniferae (wood)	1	max 2 mm
earthworm egg caps	1	
fish bone	1	max 5 mm
fly puparia	1	
glass	1	<1 g
Hypnum cf. cupressiforme	1	
marine mollusc shell fgts	1	max 5 mm
Menyanthes trifoliata	1	
metal	1	2 g
mortar/plaster	1	30 g
peat fgts	1	max 15 mm
Plantago major	1	
pot	1	2 g
Raphanus raphanistrum (pod segs/fgts)	1	
Rubus fruticosus agg.	1	
Rumex acetosella agg.	1	
Sphagnum imbricatum (lvs)	1	
‘spongy flakes’	1	
wood fgts	1	v dec, max 20 mm

Context 250/5, Sample 66/T (Phase IV)

bark fgts	1	max 10 mm
beetles	1	
bone	1	20 g
brick/tile	2	88 g
Calluna vulgaris (b)	1	

Calluna vulgaris (fls)	1	
Calluna vulgaris (sht fgts)	1	
cf. Calluna vulgaris (rt-tw fgts)	1	max 20 mm
Cerastoderma edule (valve fgt)	1	
cf. Cratoneuron commutatum	1	
charcoal	1	max 10 mm
cinders	1	max 5 mm
coal	1	max 5 mm
coal 'char'	1	max 5 mm
earthworm egg caps	1	
fish scale	1	max 2 mm
fly puparia	1	
fungal hyphae	1	
glass	1	4 g
Gramineae/Cerealia (ch c/n)	1	
herbaceous detritus	1	
Humulus lupulus	1	inc fgts
Hypnum cf. cupressiforme	1	
Hypochoeris sp(p).	1	
Lamium Section Lamiopsis	1	
leather fgts (v dec)	1	max 5 mm
Malus sylvestris	1	large type(s)
marine mollusc shell fgts	1	max 5 mm
metal	1	6 g
peat fgts	1	max 10 mm
pot	1	4 g
cf. Raphanus raphanistrum (s)	1	
Reseda luteola	1	
Rhytidiadelphus sp(p).	1	
Rubus idaeus	1	
Senecio sp(p).	1	
Sitophilus	1	
Sonchus asper	1	
Sphagnum imbricatum (lvs/shts)	2	
'spongy flakes'	2	max 5 mm
Stellaria media	1	
wood fgts	1	max 10 mm
worked wood fgts	1	max 90 mm

Context 250/5, Sample 66/T2 (Phase IV)

Atriplex sp(p).	1	
bark fgts	2	max 25 mm
Brassica sp./Sinapis arvensis	1	fgt/s only
brick/tile	1	max 30 mm
burnt fish bone	1	max 3 mm
Calluna vulgaris (caps)	1	
Calluna vulgaris (sht fgts)	1	max 20 mm
Calluna vulgaris (tw fgts)	1	max 10 mm
cf. Calluna vulgaris (ch rt-tw fgts)	1	max 5 mm
cf. Calluna vulgaris (rt-tw fgts)	2	max 25 mm
Camellia sinensis (lef)	2	
Cerastoderrma edule (valve fgts)	1	
Cerealia indet. (w/l chaff)	1	
charcoal	1	max 5 mm
cinders	1	max 15 mm
coal	1	max 10 mm
Coniferae (wood)	1	max 45 mm
Cruciferae (pedicels)	1	
dicot stem fgts	1	max 15 mm
earthworm egg caps	2	
eggshell fgts	1	max 8 mm
Eleocharis sp(p).	1	
cf. Eriophorum vaginatum (rh-st epid)	1	max 10 mm
fish bone	1	max 10 mm
fish scale	1	max 3 mm
fly puparia	1	fgt/s only
Gramineae/Cerealia (ch culm fgts)	1	
Gramineae/Cerealia (culm fgts)	1	
Humulus lupulus	2	mostly fgts
Hypnum cf. cupressiforme	1	
Leguminosae (fls/pet)	1	
Malus sylvestris	1	
Malus sylvestris (endo)	1	
Meesia triquetra	1	
metal (inc pin and ?nail)	1	1 g
mortar/plaster	2	37 g
Mytilus edulis (1 valve)	1	
part-burnt wood	1	max 25 mm
peat fgts	2	max 20 mm
Polytrichum/Pogonatum sp(p). (lf bases)	1	
pot	1	11 g
Ranunculus Section Ranunculus	1	
Raphanus raphanistrum (pod segs/fgts)	1	
Reseda luteola	1	
Rubus fruticosus agg.	1	inc fgts
sand	2	
sclereids (from bark)	1	max 4 mm
slag	2	51 g
Sphagnum imbricatum (lvs)	2	
Sphagnum imbricatum (shts)	1	
Stellaria media	1	
textile fgts	1	max 5 mm
Theobroma cacao	1	max 5 mm
Thuidium cf. tamariscinum	1	
Triticum aestivo-compactum	1	
Triticum/Secale ('bran' fgts)	1	max 1 mm
wood fgts	1	max 45 mm

Context 272/5, Sample 77/T (Phase IV)

Aethusa cynapium	1	
Atriplex sp(p).	1	
bark fgts	1	max 10 mm
beetles	1	
bone	1	1 g
Brassica sp./Sinapis arvensis	1	
brick/tile	1	14 g
Calluna vulgaris (tw fgts)	1	leafless
Cannabis sativa	1	
Carex sp(p).	1	
Caryophyllaceae	1	
Cerastium sp(p).	1	
Cerastoderma edule (valve fgt)	1	<1 g
charcoal	1	max 5 mm

cinders	2	max 10 mm
coal	1	max 5 mm
Coniferae (wood)	1	max 2 mm
Donax vittatus (valve)	1	
earthworm egg caps	1	
Euphorbia helioscopia	1	
Euphorbia peplus	1	
fly puparia	1	
cf. Fragaria vesca	1	single spec
cf. Fumaria sp(p).	1	fgt/s only
glass	1	<1 g
Lapsana communis	1	
Papaver somniferum	1	
?peat fgts	1	max 5 mm
Prunella vulgaris	1	
Ranunculus Section Ranunculus	1	
cf. Raphanus raphanistrum (s)	1	
Reseda luteola	2	inc fgts
sand	2	
Stellaria media	1	
wood fgts (v dec)	1	max 10 mm

Context 288/-, Sample 87/T (Phase I)

bone	1	<1 g
charcoal	2	max 15 mm
grit	1	
mortar	1	max 5 mm
pot	1	1 g
Quercus sp(p). (charcoal)	2	max 15 mm
sand	2	

Context 296/5, Sample 93/T (Phase III/IV)

bark fgts	1	max 10 mm
beetles	1	
bone	1	2 g
Cannabis sativa	1	fgt/s only
coal 'char'	1	max 10 mm
Coniferae (wood)	1	max 2 mm
Daphnia (ephippia)	1	
earthworm egg caps	1	
fly puparia	1	
mites	1	
ostracods	1	
Rubus fruticosus agg.	1	
sand	2	
slag	1	10 g
snails (freshwater)	1	
'spongy flakes'	1	
Stellaria media	1	
wood fgts	1	v dec, max 10 mm

Context 296/5, Sample 93/T2 (Phase III/IV)

Agrostemma githago (sf)	1	single fgt
amorphous organic matter	1	max 5 mm
Avena sp(p). ('bran' fgts)	1	max 1 mm
Bilderdykia convolvulus	1	fgt/s only
Brassica sp./Sinapis arvensis	1	fgt/s only
brick/tile	1	max 32 mm
burnt bone fgts	1	<1 g
Cannabis sativa	1	single fgt
Carex sp(p).	1	
Cerealia indet. (w/l chaff)	1	
cinders	1	max 5 mm
clay pipe (1 stem fgt)	1	
coal	1	max 15 mm
Coniferae (wood)	1	max 5 mm
Euphorbia peplus	1	
fly puparia	2	
Fumaria sp(p).	1	fgt/s only
Gramineae	1	
insect cuticle	1	
Knautia arvensis (ff)	1	
Leguminosae (fls/pet)	1	
Malus sylvestris (endo)	1	
marine mollusc shell fgts	1	max 10 mm
ostracods	1	
Polygonum lapathifolium	1	
Polygonum persicaria	1	single fgt
Reseda luteola	1	inc fgts
Rubus fruticosus agg.	1	
Sambucus nigra	1	
sand	2	
slag	1	<1 g
snails	2	
Sphagnum imbricatum (lvs)	1	
Triticum/Secale ('bran' fgts)	1	max 2 mm
Ulex sp(p). (lf/lvs)	1	
wood fgts	1	max 30 mm

Context 296/6, Sample 94/T (Phase III/IV)

bark fgts	1	max 10 mm
beetles	1	
bivalve periostracum	1	max 10 mm
bone	1	2 g
brick/tile	1	4 g
Cannabis sativa	1	fgt/s only
Cerastoderma edule (valve fgts)	1	
charcoal	1	max 10 mm
cinders	1	max 10 mm
coal	1	max 10 mm
coal 'char'	1	max 5 mm
Coniferae (wood)	1	max 2 mm
earthworm egg caps	1	
fish scale	1	max 3 mm
fly puparia	1	
Fumaria sp(p).	1	fgt/s only
Gramineae	1	
mites	1	
Mytilus edulis (valve fgts)	1	
ostracods	1	
pot	1	6 g
Rubus idaeus	1	
sand	3	

snails	1	
wood fgts	1	max 25 mm

Context 296/6, Sample 94/T2 (Phase III/IV)

animal hairs	1	
Atriplex sp(p).	1	
bark fgts	1	max 10 mm
beetles	1	
bone (inc some burnt)	1	14 g
Brassica sp./Sinapis arvensis	1	fgt/s only
brick/tile	1	max 30 mm
Carex sp(p).	1	fgt/s only
Cerastoderma edule (1 valve)	1	
cinders	2	max 15 mm
coal	1	max 20 mm
Coniferae (wood)	1	max 10 mm
Crataegus sp(p).	1	single fgt
earthworm egg caps	1	
Euphorbia helioscopia	1	inc fgts
Euphorbia peplus	1	
Ficus carica	1	
fish bone	1	max 10 mm
fish scale	1	max 2 mm
fly puparia	1	
Fumaria sp(p).	1	inc fgts
marine mollusc shell fgts	1	max 10 mm
mortar/plaster	1	max 25 mm
part-burnt coal	1	max 5 mm
peat fgts	1	max 5 mm
pot	1	3 g
Ranunculus Section Ranunculus	1	
Rubus fruticosus agg.	1	inc fgts
sand	2	
slag	1	5 g
snails	2	
wood fgts	1	
yarn fgts (ch)	1	

Context 365/5, Sample 96/T (Phase III/IV)

Agrostemma githago (sf)	1	
animal hairs	1	
bark fgts	1	max 25 mm
bead (wooden)	1	
beetles	1	
bone	1	6 g
Brassica rapa	1	
Brassica sp(p). (sf)	1	
brick/tile	1	4 g
caddis larva cases	1	
Calluna vulgaris (tw fgts)	1	leafless
Cannabis sativa	1	fgt/s only
Carduus/Cirsium sp(p).	1	
Carex sp(p).	1	
Cerastoderma edule (valve fgt)	1	<1 g
charcoal	1	max 10 mm
cinders	1	max 5 mm
clay pipe (stem)	1	2 g
coal	2	max 10 mm
coal 'char'	1	max 5 mm
Coniferae (wood)	1	max 5 mm
Corylus avellana	1	
earthworm egg caps	1	
eggshell fgts	1	<1 g
Euphorbia helioscopia	1	
Eurhynchium sp(p).	1	
fly puparia	1	
glass	1	<1 g
Gramineae/Cerealia (ch c/n)	1	
herbaceous detritus	1	
Humulus lupulus	1	
Lapsana communis	1	
leather fgts (v dec)	1	max 5 mm
metal (inc coin)	1	5 g
mortar/plaster	1	30 g
?peat fgts	1	max 5 mm
Polygonum aviculare agg.	1	
Prunus domestica sl (fgts)	1	
Ranunculus Section Ranunculus	1	
Raphanus raphanistrum (pod segs/fgts)	1	
cf. Raphanus raphanistrum (sf)	1	
Reseda luteola	1	
Rubus fruticosus agg.	1	v dec
Rubus idaeus	1	
Rubus/Rosa sp(p). (prickles)	1	
Rumex sp(p). (inc per)	1	
sand	3	
Scandix pecten-veneris	1	fgt/s only
Sitophilus	1	
small vertebrate bones	1	
Sphagnum imbricatum (lvs)	1	
Ulex sp(p). (lf/lvs)	1	
Ulex sp(p). (tef)	1	
Urtica dioica	1	
wood fgts	2	max 30 mm

Context 365/5, Sample 96/T2 (Phase III/IV)

Aegopodium podagraria/ Conium maculatum	1	fgt/s only
bark fgts	1	max 5 mm
bone (inc some burnt)	1	3 g
Brassica rapa	1	fgt/s only
Brassica sp./Sinapis arvensis	1	fgt/s only
brick/tile	1	12 g
Cannabis sativa	1	fgt/s only
Carduus/Cirsium sp(p).	1	fgt/s only
Cerastoderma edule (valve fgt)	1	
cinders	1	max 10 mm
clay pipe (stem fgt)	1	
coal	1	max 20 mm
Coniferae (wood)	1	max 5 mm
Corylus avellana	1	v dec
earthworm egg caps	1	
fly puparia	1	fgt/s only
Fumaria sp(p).	1	

glass	1	1 g
insects	1	
Juncus bufonius	1	
leather fgts (v dec)	1	max 5 mm
marine mollusc shell fgts	1	max 10 mm
mortar/plaster	2	max 50 mm
peat fgts	1	max 10 mm
pot	1	<1 g
Ranunculus flammula	1	
Rubus fruticosus agg.	1	
Sambucus nigra (sf)	1	
sand	2	
Sphagnum sp(p). (st fgts)	1	
Thuidium sp(p).	1	
Ulex sp(p). (lef)	1	
Ulex sp(p). (lf/lvs)	1	
Valerianella dentata	1	
wood fgts	1	max 20 mm
woodlouse fgts	1	

Table 3. Insect remains from the analysed samples from Newmarket Street, Dublin, by sample. Species are listed in taxonomic order – Coleoptera nomenclature follows Lucht (1987). Subsamples initially examined during the assessment are designated '/T' and those from the analysis phase '/T2'.

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Diptera															
Diptera (pupa)		P								P			A	A	
Diptera (larvae)	P														
Anoplura															
Pulex irritans L.	1			2		2				P	P			P	P
Pulex sp.								1							
Blattoidea															
Blatta orientalis L.				10	1										
Hemiptera															
Cimex lectularius L.										1	1			1	
Coleoptera															
Carabidae															
Carabus granulatus L.				1											
Notiophilus biguttatus (F.)														1	
Trechus rubens (F.)				1		2	1		4					1	5
T. quadristriatus (Schr.)				1											
T. obtusus Er.				1				2			1			2	1
T. micros (Hbst.)	2	1	2	9	2	20	7	2	8	1		2	4	1	4
Trechus sp.										1					
Bembidion sp.									1						

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Pterostichus sp.										1					
Laemostenus terricola (Hbst.)				3		1	1			1	1				4
Agonum muelleri (Hbst.)														1	
Amara sp.	1														
Carabidae gen. et sp. Indet.					1										
Dytiscidae															
Hydroporus ?melanarius Strm.										1					
Hydraenidae															
Ochthebius minimus (F.) type						1	1								1
Helophorus sp.					1										1
Hydrophilidae															
Cercyon depressus Steph.	6	5	3		1	4	6			1	1		3	6	5
C. haemorrhoidalis (F.)			1	2											1
C. unipunctatus (L.)										2		3	3	3	3
C. ?atricapillus (Marsh.)						1	1								
Cercyon spp.			1							1		1	3		
Megasternum boletophagum Marsh.				2											
Hydrobius fuscipes (L.)		1		1											
Ptliidae															
Ptenidium punctatum (Gyll.)						3									
Staphylinidae															
Micropeplus staphylinoides Marsh.				1											
Omalium septentrionis Thom.				1											

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
O. allardi Fairm.& Bris				5	1										
Omalium sp.										1				1	
Xylodromus concinnus (Marsh.)	2	1	1	5	3	1	2	1			1		2	6	7
Lesteva sp.		1									1				
Coprophilus striatus (F.)		1		3				5	10						
Carpelimus spp.	4			1	1	2	2	1	1				1	1	
Oxytelus sculptus Grav.						2	1			1		1	1	6	1
Anotylus rugosus (F.)			1	3		1								1	
A. sculpturatus (Grav.)	1											1	2		
A. nitidulus (Grav.)				2											1
A. complanatus (Er.)	5	1	2	5	4			1		9	6	1		9	2
A. clypeonitens (Pand.)	1														
A. tetracarinatus Block	1			1							2				
Anotylus spp.		1			2										
Platystethus arenarius (Fourc.)											1				
Bledius sp.	2		1	1								1			
Lathrobium sp.				1											
Leptacinus pusillus (Steph.)				1											
Phacophallus parumpunctatus Gyll.				2											
Gyrohypnus fracticornis (Müll.)					1										
Gyrohypnus sp.			1						1						
Xantholinus glabratus (Grav.)		1		1											
Philonthus concinnus (Grav.)		2		5	1		3								11
P. ?politus (L.)		2													
P. succicola Thom.															
P. ?addendus Sharp.														5	
Philonthus spp.	1		3	1					1						
Gabrius sp.							1								2

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Creophilus maxillosus (L.)														1	2
Ocypus olens Müll.				3											
Quedius microps Grav.				1											
Quedius mesomelinus (Marsh.)	3	2	2	16	2	5	5	2	1					5	
Quedius spp.	1			1									1		
Philonthus /*Quedius* spp.		1				1					2		1	3	
Sepedophilus sp.				1											
Tachyporus sp.	1			3										1	1
Tachinus subterraneus (L.)				5	1										
Aleocharinae gen. et sp. indet.	3	13	5	12	2	3	2	1	3	1	1		2	8	2
Staphylinidae gen. et sp. indet.				1						1			1		
Pselaphidae															
Trichonyx sulcicollis (Reich.)							2								
Bryaxis sp.													1		
Pselaphidae gen et sp. indet.			1	1											
Dryopidae															
Esolus parallelepipedus Müll.				1		3	1	2	8						
Oulimnius tuberculatus (Müll.)						1		1							
Limnius volckmari (Panz.)									1						
Dermesidae															
Dermestes sp.										1					
Attagenus pellio (L.)	1	3								2			1	1	
Dermestidae gen et sp. indet.	1										1				
Nitidulidae															

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Meligethes sp.	1														
Omosita colon (L.)				2											
Rhizophagidae															
Rhizophagus parallelocollis Gyll.				3			1		1						1
Rhizophagus sp.														1	
Cucujidae															
Monotoma quadrifoveolata Aubé										1					
Nausibius clavicornis (Kugel.)													1	1	1
Oryzaephilus surinamensis (L.)	1			4	1			1	1	2	1		1		1
Cryptophagidae															
Cryptolestes ferrugineus (Steph.)		1		2					1						
Cryptophagus scutellatus Newm.		1		6	4										
Cryptophagus spp.	2	1	1	62	4	1		1		1			2	1	5
Atomaria sp.		1	2	3	1				1						1
Ephistemus globulus (Payk.)				2											
Lathridiidae															
Lathridius minutus (L.) gp	1	3		35	7					1	2		1	3	3
Enicmus histrio Joy & Tomlin	1	3		21											
Enicmus sp.										1					
Dienerella filiformis (Gyll.)		1	1	1	3										
Corticaria spp.	1		1	12		2			1	3				1	1
Corticaria/Corticarina spp.					1										
Mycetophagidae															

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Typhaea stercorea (L.)															1
Colydiidae															
Aglenus brunneus (Gyll.)											1				
Anommatus duodecimstriatus Mull.				1								18	24	2	1
Endomychidae															
Mycetaea hirta (Marsh.)		1		15	1		1				3			1	1
Coccinellidae															
Scymnus (s.l.) sp.															1
Anobiidae															
Stegobium paniceum (L.)														2	
Anobium punctatum (Deg.)	7	7	2	5	1		1			3	2	1	1	4	4
Ptinidae															
Tipnus unicolor (Pill.)	2			36	7		1		1	1	3	3	3	5	4
Ptinus fur (L.)	2	3	1	20	5								2		3
P. ?fur (L.)	1							1		1	4			1	
Ptinus sp.					1					1					
Tipnus/*Ptinus* spp.		1													
Alleculidae															
cf. *Isomira murina* (L.)				10	1										
Tenebrionidae															
Palorus ratzeburgi (Wiss.)				1					1						

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Tenebrio obscurus F.										1				2	
Scarabaeidae															
Trox scaber (L.)		1		3										1	
Aphodius lapponum Gyll.														1	1
A. ater (Deg.)				1											
A. rufus (Moll)				1											
A. niger (Panz.)				1											
Aphodius sp.		1													
Scarabaeidae sp. indet.														1	
Chrysomelidae															
Plateumaris discolor (Panz.)/*sericea* (L.)													1		
Cryptocephalus sp.	1														
Chaetocnema sp.		1													
Chrysomelidae gen. et sp. indet.										1					
Curculionidae															
Apion sp.	1	1													1
Sitona lineatus (L.)	1			1											
Sitona sp.		1													
Caulotrupodes aeneopiceus (Bohe.)							1			7	4			1	
Sitophilus granarius (L.)	1	1	2	20						1				1	3
Ceutorhynchus contractus Marsh.														1	
C. constrictus (Marsh.)	2														
Curculionidae gen. et sp. indet.													2		
Coleoptera gen et sp. indet.															

Phase	**III**	**III**	**III**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**III/ IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**
Context	38/3	38/3	38/4	365/5	365/5	296/5	296/5	296/6	296/6	250/5	250/5	161/1	161/1	161/3	161/3
Sample	5/T	5/T2	8/T	96/T	96/T2	93/T	93/T2	94/T	94/T2	66/T	66/T2	40/T	40/T2	41/T	41/T2
Processed sample size /kg	3	2.15	2.5	3.1	2.8	2	1.35	2.6	4.1	2	2.5	2.5	4	3	5.85
Coleoptera sp. (pupae)										1			A		1
Total MNI	**61**	**65**	**34**	**385**	**61**	**56**	**41**	**22**	**46**	**51**	**39**	**32**	**84**	**94**	**88**
Total Species	**34**	**35**	**22**	**72**	**28**	**19**	**20**	**14**	**18**	**30**	**20**	**10**	**24**	**39**	**36**

Appendix

*Section A1. Detailed accounts of the results of assessment/analysis of the samples from 14-16 and 48-50 Newmarket St., Dublin, for plant macrofossils and general composition. Entries marked * were only examined during the assessment stage.*

Phase I

***Feature/Context 288** [late medieval-*c*. 1673/4; from early truncated firepit]
Sample 87/T (2.2 kg sieved to 300 microns with washover)

Moist, mid brown to mid grey-brown to dark grey to black (charred material)—colours quite jumbled—crumbly (working plastic), slightly silty clay. Stones (over 60 mm) were present. Charcoal and possibly other fine charred material was common.

The moderate-sized washover of about 125 ml consisted almost entirely of flaky angular charcoal (to 15 mm in maximum dimension), apparently mostly oak (*Quercus*). There were traces of grit and mortar (to 5 mm).

Phase III

Feature/Context 38/3 [*c*. 1681- *c.* 1725; main backfill of barrel cistern]
Sample 5/T2 (2.15 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid grey-brown, sticky (working soft, rubs brown), ?slightly sandy clay silt. Stones (2 to 6 mm) and fragments of ?coal were present.

There was a very small washover of about 80 ml, mainly 'mineral' material (cinder and coal) with a little wood and other organic debris preserved by anoxic waterlogging. The wood included fragments of well-preserved softwood (conifer) with worm holes, presumably formed prior to discard, and there were some thin flakes (less than 2 mm) of conifer wood. Precise identification of the softwood was not achieved, but it did not appear to be pine and seemed most likely to be spruce (*Picea*) or larch (*Larix*), though the possibility of a New World species cannot be ruled out. Chips of oak wood (to 10 mm) were also present.

Other remains of 'useful' plants included extremely well preserved achenes of hemp (*Cannabis sativa*), nutshell of hazel (*Corylus avellana*), single tentatively identified fragments of nutshell of walnut (*Juglans regia*) and grape pip (*Vitis vinifera*), seeds of fig (*Ficus carica*), leaf and twig material of gorse or furze (*Ulex*), seeds of blackberry (*Rubus fruticosus* agg.) and 'bran' fragments (less than 1 mm) of wheat/rye (*Triticum/Secale*). Other taxa were mainly weeds of various kinds, though a single leaf of bell heather (*Erica cinerea*) may be related to the presence of a little peat (to 5 mm) in the sample.

Amongst the remains noted in the assessment subsample but not subsequently observed in the second subsample were fragments of charred ?peat (to 5 mm) and endocarp ('core') of apple (*Malus sylvestris*). Both subsamples yielded a few seeds of weld or dyer's rocket (*Reseda luteola*). Although widely used as a dyeplant (as a source of yellow) in medieval and post-medieval times, the plant has been very successful as a weed of waysides and other urban habitats, so its presence may not indicate its specific use at this site.

***Feature/Context 38/4** [*c*. 1681-1725; basal fill of barrel cistern]
Sample 8/T (2.5 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid grey-brown, crumbly to slightly sticky, very stony, ?slightly sandy, slightly clay silt. Small stones of 2 to 6 mm were abundant, whilst those of 6 to 20 mm were present.

The very small washover of about 25 ml consisted of cinder, coal, bark and a little wood (to 5 mm), with a few poorly preserved seeds (though with traces of well-preserved fig seeds). The small flora included various remains of hemp, weld, gorse and a small variety of weeds.

***Feature/Context 191/-** [post *c*. 1725; from pump apparatus in brick cistern]
Sample 89/T (3.0 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid to dark grey-brown, sticky, very slightly sandy, clay silt. Stones (2 to 6 mm) were present. The sample smelled very strongly of oil/petrol – presumably modern contamination.

There was a small washover of about 150 ml, mainly woody debris including some slivers of well-preserved conifer wood to 60 mm (?from boards), as well as fine fragments of softwood, perhaps representing sawdust. Other wood fragments were much less well preserved, soft and decayed and with 'worm' holes through them. Cinders and coal were also present, but very few fruits and seeds: a curious combination of traces of hemp achenes and embryos of water-plantain, *Alisma*.

***Feature/Context 207/-** [late C17/C18?; ashy organic rear garden dump]
Sample 59/T (2.5 kg sieved to 300 microns with washover)

Just moist, mid to dark grey-brown, unconsolidated, very ashy, slightly sandy silt, with lumps of mid grey-brown indurated clay. Large mammal bone and white flecks of ?ash were present. During processing a sheen was noted which indicated the presence of some contaminant oil in the deposit.

This sample yielded a moderate-sized washover of about 160 ml of cinders (to 25 mm), with (unusually) little material in the less than 4 mm fraction. Traces of charcoal, coal and ?modern elder (*Sambucus nigra*) seeds and tree leaf fragments were also observed.

Phase III/IV

***Feature/Context 29/7** [*c*. 1725; lower fill of stone privy]
Sample 3 (3.2 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid brown, crumbly and slightly sticky to soft (rubs brown), moderately stony, slightly sandy clay silt. Stones (2 to 20 mm) were common and larger stones (20 to 60 mm) were present.

The very small washover (of about 50 ml) contained some coal, wood (to 5 mm, including small fragments of conifer) and very decayed fragments of textile. The few, rather decayed seeds included various fruits—fig, strawberry (*Fragaria* cf. *vesca*) and blackberry (*Rubus fruticosus* agg.), all consistent with the nature of the feature, and a few weeds (with seeds of weld which may well also fall in this category).

***Feature/Context 29/8** [*c*. 1725; basal fill of stone privy]
Sample 4/T (3.0 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid brown to mid grey-brown, sticky (working soft), slightly sandy, clay silt. Stones (2 to 20 mm) and ?charcoal were present.

This subsample yielded a very small washover of about 25 ml of wood (to 5 mm), bark and charcoal with a few rather poorly preserved seeds, mainly weed taxa. There were traces of weld seeds, but also root-basal twig fragments of heather (*Calluna vulgaris*) and leaf epidermis of gorse. Some ?peat (to 5 mm) was also noted; this may well have been the source of the heather remains.

***Feature/Context 40/4** [*c*. 1720-1750; basal fill of brick cistern]
Sample 30/T (4.0 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid to dark grey-brown, with some areas mid brown, crumbly (working soft and slightly sticky, rubs brown), slightly clay silt. Small stones (2 to 6 mm) were present.

There was a very small washover of about 75 ml of very decayed wood (to 10 mm) with coal and cinders; the wood included small (<2 mm) flecks of softwood and there were also traces of peat (to 5 mm). A few snails were also noted. Seeds were sparse; they included hemp and weld.

***Feature/Context 31/3** [*c*. 1725?; basal fill of stone cistern]
Sample 28/T (3.5 kg sieved to 300 microns with paraffin flotation and washover)

Moist, light to mid brown to mid grey-brown, stiff and sticky (working soft and sticky, rubs brown), slightly stony, slightly sandy silty clay. Stones (2 to 20 mm and over 60 mm) and charcoal were present.

The very small washover of about 85 ml from this subsample consisted of woody debris, the wood (to 25 mm) moderately well preserved and perhaps including 'chips'. Conifer wood (to 5 mm) was present amongst these fragments. There was also a well-preserved fragment of woven textile. Seeds and fruits were sparse but mostly well preserved. They included one specimen which appeared to be the introduced purslane, *Portulaca oleracea*, along with weld and a few weed taxa. Purslane was initially introduced as a garden plant (presumably as the subspecies *sativa*), at least as early as 1200 (reference cited by Preston *et al*. 2002) and it is described by Clement and Foster (1994) as an alien arriving with bird-seed, wool, cotton, and tan-bark and becoming established in various (southern) parts of the British Isles today. It appears not to have become part of the naturalised flora of Ireland, however, and the fossil, if correctly named, probably represents an imported seed rather than a seed originating in a plant which grew in the city. Intriguingly, this plant has also been recorded, tentatively, from post-medieval (17^{th}/18^{th} century) deposits in Chester (Hall *et al.* 2002 and Jaques *et al*. 2004) and would perhaps come to be a typical plant for the period were more deposits with good preservation to be examined.

***Feature/Context 272/5** [C18?; ?basal backfill of brick cistern]
Sample 77/T (3.3 kg sieved to 300 microns with washover)

Moist, mid grey-brown to mid grey, stiff and sticky to soft (working very sticky, rubs brown), sandy clay silt, with some stones (2 to 60 mm) present.

The small washover of about 20 ml was mostly 'cinder-like' material, but with some decayed wood fragments (to 10 mm, including conifer wood to 2 mm) and ?peat (to 5 mm). The rather small assemblage of fruits and seeds and other remains included hemp and weld, together with a single seed of opium poppy (*Papaver somniferum*, the only record for this group of samples), fragments of leafless heather twig and a modest group of weeds. Although not subjected to paraffin flotation, there were small numbers of insect remains in the washover; they were typical of the site and included *Tipnus unicolor*, and the storage pests *Oryzaephilus* sp. and *Cryptolestes* sp.

***Feature/Context 17/2** [*c*. 1674-1700; basal fill of barrel cistern]
Sample 6/T (2.7 kg sieved to 300 microns with paraffin flotation)

Moist to wet, mid to dark brown to mid to dark grey-brown, soft to crumbly (rubs brown), slightly silty, amorphous organic sediment with fine herbaceous detritus. Clasts of mid grey-brown, sticky, clay silt (to 25 mm), wood, ?marine shell and ?eggshell were present.

The rather large residue of about 600 ml largely comprised woody detritus, mainly from hardwoods, and the fragments (to 30 mm) soft and rather decayed. The remainder (about 200 ml) was mineral material, mainly sand, grit, and gravel. There was very little other than wood in the organic fraction—a few rather poorly preserved seeds and traces of twig fragments of heather. Both flot and residue contained a few seeds of weld.

***Feature/Context 17/3** [*c*. 1674-1700; basal fill of barrel cistern]
Sample 7/T (2.1 kg sieved to 300 microns with paraffin flotation)

Moist, mid grey-brown, brittle to slightly sticky (working soft and sticky, rubs brown), ?slightly humic, clay silt. There were no obvious inclusions.

The smallish washover of about 80 ml consisted of woody debris (mainly wood fragments to 10 mm, amongst them conifer wood to 3 mm, and a little bark). There were a few fruits and seeds, amongst which were traces of well-preserved fig seeds and moderate numbers of weld seeds. No interpretatively very useful assemblage was present, however.

Feature/Context 296/5 [post *c*. 1789?; organic backfill of stone cistern]
Sample 93/T2 (1.35 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid brown to black (black internally – sulphides), soft and slightly sticky (working soft and sticky and rubs brown), humic, very slightly sandy, slightly clay silt. No obvious inclusions were present.

This subsample yielded a small washover of about 40 ml in which there were a few food remains—traces of oat (*Avena*) and wheat/rye 'bran', apple endocarp, and blackberry and elder seeds—with a little gorse leaf material and hempseed. There were also a few weed seeds, some of them typical cornfield weeds recorded only as fragments and perhaps arriving milled with the flour which is evidenced by the wheat/rye bran. Moderate numbers of (?freshwater) snails were also present and the presence of *Daphnia* ephippia and ostracod shells suggests the deposit formed in standing water (as might be the case with a cistern!) but that it may not have been particularly clean from the point of view of potability for humans.

Feature/Context 296/6 [post *c*. 1789?; organic backfill of stone cistern]
Sample 94/T2 (4.1 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid brown to black (internally – sulphide staining), soft and slightly sticky (working soft and sticky, rubs brown), humic, very slightly sandy, slightly clay silt. There were no obvious inclusions.

The very small washover of about 260 ml comprised cinders and some rather decayed wood, with some quite coarse animal hairs, sometimes matted with concretion-like material. There were traces of peat, and some snails (as in the subsamples from 296/5) with a trace of well preserved fig seeds. The assessment subsample also yielded hemp seed remains. The large less than 1 mm fraction was rich in fine (conifer) wood fragments one might imagine came from sawdust.

Feature/Context 365/5 [late C17/early C18; main backfill of wood-lined butter storage pit]
Sample 96/T2 (2.8 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid to dark brown to mid to dark grey-brown, crumbly (working slightly sticky), ?slightly ashy, slightly clay, sandy silt. Coal and ?wood were present.

There was a small washover of 125 ml comprising coal, cinders, and wood fragments, amongst which were traces of hempseed, *Sphagnum* stem fragments and gorse leaves, with a few weed taxa and traces of peat (to 10 mm). In this instance, the assessment subsample proved to be somewhat more productive of remains of plants likely to have been of use to the inhabitants of the property: as well as hemp, there were traces of hop (*Humulus lupulus*) achenes, heather twig, plum stone, weld seed, and *Sphagnum imbricatum* leaves.

Phase IV

***Feature/Context 24/2** [C18/pre 1847; plant hole, formal garden]
Sample 1/T (1.5 kg sieved to 300 microns with washover)

Just moist, dark grey-brown to very dark grey, unconsolidated very ashy, slightly sandy, slightly clay silt. Stones (2 to 6 mm) were present.

The moderate-sized washover of about 125 ml of (predominantly) cinders and coal 'char' also contained some coal and a little charcoal; there were some small charred twigs which may well have been from gorse, of which charred leaves were identified amongst the finer fractions.

Feature/Context 161/1 [late C18/early C19; basal fill of wood-lined privy pit]
Sample 40/T2 (4 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid brown to mid grey-brown, soft and slightly sticky, to crumbly (working soft, rubbing brown), ?humic, slightly sandy slightly clay silt. Stones (6 to 60 mm, including quartz) and fine plant material were present.

There was a rather small washover (for a subsample as large as 4 kg) of about 350 ml, but this volume did not include a piece of worked wood. This was approximately 250 x 25 x 20 mm, squared and with an oblique-cut narrow end, the other end extremely worn, the tissue strongly impregnated with calcium carbonate in places. It was a softwood, perhaps spruce or larch. Well-preserved softwood fragments were also present in the finer wet residue fractions, perhaps representing wood-working rather than decay. Also present was some peat, both uncharred (to 30 mm) and charred (to 20 mm) and modest amounts of *Sphagnum imbricatum*, mainly in the form of detached leaves. Several parts of heather plants were noted, some of which might have arrived with peat: there were capsules, flowers, and shoot and twig fragments, and tentatively identified charred and uncharred root/basal twig fragments.

Food or flavouring remains in the sample included hop (some very well preserved achenes), apple (endocarp), fennel (*Foeniculum vulgare*, mineralised mericarps), and blackberry and raspberry (*Rubus idaeus*) seeds. There were also modest quantities of distinctive leaf fragments consisting mainly of cuticle (upper and/or lower surfaces). These often bore simple hairs and the cells of the cuticle had somewhat sinuous walls. But most distinctive were some fragments bearing marginal teeth—these matched those of tea, *Camellia sinensis* (the cartilaginous tooth were rather decayed or absent, but overall there was a good likeness to the illustrations of tea leaves given by Winton and Moeller (1906, fig. 353) and Wallis (1955, fig. 53c). The epidermal cells matched well those shown by Winton and Moeller (*ibid*., figs 355-6). A further check on this determination was made by use of modern tea leaves (from a sample of 'jasmine tea', the coarsest leaf fragments available at the time. Some other remains which may represent food included eggshell membrane and fish bone. One of the leaf fragments subsequently identified as tea carried a well-preserved egg of the intestinal parasite *Trichuris*, some small evidence for the presence of faecal material in this deposit.

Recorded from the assessment subsample but not seen subsequently were traces of hawthorn (*Crataegus monogyna*) and rose (*Rosa*) pyrenes, perhaps eaten, too.

Feature/Context 161/3 [late C18/early C19; main fill of wood-lined privy pit]
Sample 41/T2 (5.85 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid grey-brown to black internally (sulphide staining), soft to slightly sticky (working soft, rubs brown), humic, slightly clay silt and amorphous organic sediment. Small stones (2 to 6 mm) were present.

By contrast with the processed material from 161/1, there was a very large (even for 5.85 kg) washover of 1150 ml in which a few rather large fragments of worn (but also ?worked) conifer wood (again apparently not pine) were present. Perhaps not surprisingly, it proved to be the richest source of interpretatively significant plant remains, though with the same overall composition as 161/1. The more abundant components were wood, bark and *Sphagnum imbricatum* (shoot fragments and leaves; there were also charred and uncharred fragments of peat), with the following food remains: apple (endocarp), flaxseed (*Linum usitatissimum*), blackberry and fig seeds and wheat/rye 'bran', and with an abundance of tea leaves. Also present were modest amounts of brown 'flaky' material (to about 10 mm) which at first was thought to be bark. Closer inspection showed, however, that the flakes carried vascular tissue in distinct narrow bands and so could not possibly be bark. One specimen was of the size and approximate shape of a half-acorn, but the presence in the sample of another specimen with a smooth outer surface and a separate layer of rather striated tissues inside which was tentatively identified as part of an acorn meant that the former could not be the same. Subsequently it was established with reasonable certainty that the brown flakes (and the first 'half-acorn') were shell from cocoa (*Theobroma cacao*) beans. Comparison with modern material kindly supplied by Messrs Nestlé at York gave a good match and, moreover, it is possible that two small (<5 mm) fragments of amorphous dark-coloured organic material in rather angular clasts also found in this sample are remains of the 'nibs', the interior part of the cocoa-bean, enclosed by the shell and the basis for the manufacture of cocoa and chocolate. A further unusual food was gooseberry (*Ribes uva-crispa*), of which there were certainly fragments of fruit epidermis, with characteristic long 'prickles', again matching the figures of Winton and Moeller (1906, fig. 364). Some seeds, apparently of *Ribes* and probably also gooseberry, were noted; in some cases the seeds appeared to be mineral-impregnated and in some cases to carry remains of the mesocarp (flesh) around the seed.

Again, a variety of remains of heather were present with twig fragments in more than trace amounts. These and the *Sphagnum* material and some other remains (?cotton-grass (*Eriophorum vaginatum*) rhizome/stem, and bell heather

leaves) may all have arrived with peat, though as before the traces of flowers and capsules of heather, as well as leafy shoot tips, are perhaps more likely to represent cut whole vegetation, as was probably the case with the gorse leaves. As with so many of the other samples, hempseed and hop achenes and the seeds of weld were present in small amounts.

***Feature/Context 250/4** [early/mid C18; basal (privy) fill of barrel cistern]
Sample 67/T (2.2 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid brown to mid grey-brown, soft to crumbly (working soft and slightly sticky), humic, slightly sandy, slightly clay silt. Cockle shell was present.

The small washover of about 125 ml comprised granular debris, mainly cinders and very decayed wood (to 20 mm), together with some flakes of spongy tissue thought to have originated in bark. Some fragments of peat (to 15 mm) were noted and these may be the source of some of the seeds, as well as the *Sphagnum imbricatum* leaves, though most of the identifiable remains were from weed taxa. There were also traces of heather (as seed capsules and perhaps also charred root/twig fragments).

Feature/Context 250/5 [early/mid C18; main (privy) fill of barrel cistern]
Sample 66/T2 (2.5 kg with paraffin flotation and washover)

Moist, mid/dark grey-brown to dark grey to black (internally), crumbly (working soft), ?humic, ?slightly sandy, slightly clay silt. Stones (2 to 6 mm) and concretions were present.

There was a rather small washover of about 250 ml of woody and herbaceous debris including some pale 'strawy' material and modest quantities of peat. Clasts of *Sphagnum imbricatum* shoots probably originated with the peat, as, no doubt, did the single shoot fragments of the moss *Meesia triquetra*. This species, formerly *M. tristicha* Br. Eur., is now extremely very restricted within the British Isles—it is only recorded from one station in W. Ireland—but was formerly quite widespread, to judge from fossil records in late glacial and Flandrian peats (cf. Dickson 1973, 108-9 and fig. 49). A range of parts of heather plants was present, too. As in several other of these later samples, hop achenes were noted—here in modest quantities, but all fragmentary. There were modest amounts of tea leaf fragments and traces of cocoa shell, as well as endocarp and seeds of apple, and seeds of blackberry, as well as wheat/rye 'bran' (less than 1 mm). The assessment subsample gave essentially the same results but with a record for raspberry.

Section A2. Summary of assessment/analysis of the samples from 14-16 and 48-50 Newmarket St., Dublin, for the eggs of intestinal parasites.

Seventeen 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 parasite eggs, the 'squash' technique routinely reveals other microfossil remains, and, where present, these were noted.

Where present the numbers of eggs were small and might be attributed to a 'background' level indicating that the deposits contained some, but were not primarily of, faecal material. This is perhaps most interesting for those deposits interpreted as 'privy' fills, indicating that this was probably not their sole, or even primary, function. The following table (Table A2.1) summarises the assessment results and includes the additional Sample 12 (Context 25/5, not assessed).

Table A2.1. Summary of the investigation of deposits from 14-16 and 48-50 Newmarket Street, Dublin, for the eggs of intestinal parsites. Key: org = approximate percentage of 'squash' composed of organic detritus; inorg = approximate percentage of 'squash' which was of inorganic material; f. spores/hyphae = fungal spores and/or hyphae; ?phyt = ?phytolith or 'plant silica' fragments; diatoms – the figure in parentheses gives the minimum number of different forms present; Trichuris *– sub-columns indicate numbers of eggs with 0, 1 or 2 polar plugs intact; f = few (up to 3 individuals); s = some (4 to 20); m = many (21 to 50); v = very many (more than 50).*

Context	Sample	Phase and Date	Context/ Feature type	org	inorg	pollen/ spores	f. spores/ hyphae	?phyt	diatoms	*Trichuris*			*Ascaris*
										0	1	2	
38/3	5	III *c.* 1681- *c.* 1725	Main backfill of barrel cistern	30	70	f	-	-	f(1)	1	-	-	-
38/4	8	III *c.* 1681- *c.* 1725	Basal fill of barrel cistern	50	50	s	-	-	-	1	-	-	-
191/-	89	III post *c.* 1725	From pump in brick cistern	10	90	f	-	-	-	-	-	-	-
25/5	12	III/IV *c.* 1725	Basal fill of a tanning pit	5	95	-	-	-	-	-	-	-	-
29/7	3	III/IV *c.* 1725	Lower fill of stone privy	5	95	f	-	-	-	-	-	-	-
29/8	4	III/IV *c.* 1725	Basal fill of stone privy	5	95	-	-	-	-	-	-	-	-
40/4	30	III/IV *c.* 1720- *c.* 1750	Basal fill of brick cistern	50	50	s	-	-	s(2)	-	-	-	-
31/3	28	III/IV *c.* 1725	Basal fill of stone cistern	5	95	-	-	-	-	-	-	-	-
272/5	77	III/IV ?C18	?Basal backfill of brick cistern	5	95	-	-	-	-	-	-	-	-
17/2	6	III/IV *c.* 1674-1700	Basal fill of barrel cistern	70	30	s	-	f	-	1	-	-	-
17/3	7	III/IV *c.* 1674-1700	Basal fill of barrel cistern	75	25	m	m	-	m(5)	-	-	-	-
296/5	93	III/IV post *c.* 1789?	Organic backfill of stone cistern	75	25	s	-	-	m(8)	1	-	-	?1
296/6	94	III/IV post *c.* 1789?	Organic backfill of stone cistern	50	50	s	-	-	m(4)	-	-	-	-
24/2	1	IV C18/pre-1847	Formal garden bole	50	50	-	-	s	-	-	-	-	-
161/1	40	IV late C18/early C19	Basal fill of wood-lined privy pit	75	25	m	s	-	-	5	1	-	-
161/3	41	IV late C18/early C19	Main fill of wood-lined privy pit	75	25	m	-	s	m(5)	2	1	1	?1
250/4	67	IV early/mid C18	Basal (privy) fill of barrel cistern	50	50	m	-	s	-	-	-	-	-
250/5	66	IV early/mid C18	Main (privy) fill of barrel cistern	90	10	f	-	-	f(1)	2	-	-	-

Section A3. Summary notes on other biological remains recovered during assessment/analysis of the samples from 14-16 and 48-50 Newmarket St., Dublin.

Shell

Small quantities of shellfish remains were recovered from several of the samples. There was too little material to be of any great interpretative value but the shells of cockle and mussel most likely represent food waste.

Very small numbers of freshwater bivalves and/or snails were recovered from Contexts 38/3, 40/4, 161/1, 161/3, 296/5 and 296/6.

Bone

The vertebrate remains recovered from the samples were mostly well preserved and those which could be identified were mainly fish. The largest accumulations of material were recovered from the barrel cistern fills, 250/4 and 250/5, of 18th century date, and an ashy garden dump (207/-) dated to the late 17th/18th century. Scorched and burnt bones were common within the deposits resulting in some fresh breakage damage because of the brittle nature of these fragments. The identified fish bones included the remains of Gadidae (including haddock, ling and ?cod), herring and flatfish, together with single fragments of ?ray and ?grey gurnard. These taxa, particularly the gadids, are typically recovered from medieval and post-medieval urban deposits and clearly formed an important element of the diet. Mammal and bird remains in the samples were not particularly numerous, but included caprovid, pig, hare/rabbit and chicken. All the vertebrate remains are likely to represent domestic household refuse from the preparation and consumption of food.