11 Plant remains *by Dorothy Rankin*

11.1 Methodology

Forty-three sediment samples were processed using a system of flotation and wet-sieving, adapted from the *Siraf* system (Williams 1973). They ranged in size from 1 litre to 26 litres. The floating debris (flot) was collected in mesh sizes 0.3 mm and 1 mm and the non-floating residue (retent) was wet-sieved through a 1 mm mesh. Identifications of weed seeds and cereals were made using modern comparative material from the reference collection of AOC Archaeology Ltd. The nomenclature for wild species follows that of the *Flora Europaea* (Tutin et al 1964–80).

11.2 Samples

Thirty-eight samples produced plant remains, spanning the occupation, rebuilding and abandonment of the abbey. At least thirteen samples originated from the midden deposits and, except for three samples thought to relate to Periods I or IV/V, all of these derived from Period IV (see especially 4.7.1 Middens). Seven of the samples derived from fills of the great drain. These are mainly thought to belong to Periods IV and V, although there may be some reworking of these deposits. (4.7.2 Great drain fills). Indeed, the fills themselves appear to reflect a phase when the drain had fallen into disuse, having been allowed to silt up. The remaining samples derive mainly from floor deposits and most of these are linked to Period IV. The results are described below and summarised in Table 3.

11.3 Results

11.3.1 Charred plant remains

This component was dominated by cultivated plants or weed species associated with cereal production. Oats predominated, with lesser amounts of barley and wheat. No remains of chaff were recovered. The non-cereal element included segetal and ruderal species, together with those more commonly associated with aquatic environments, as well as moors and bogs.

11.3.2 Uncharred plant remains

Uncharred remains were recovered from 26 samples. There were no cereal testa or uncarbonised cereal grains. The remains were dominated by mud-loving species, and semi-aquatics. Nineteen samples contained such species, predominantly *Ranunculus scleratus* L. (celery-leaved crowfoot) and *Callitriche* sp. (water star-wort), of which seven samples produced a large quantity of remains.

Some of the species represented in the samples were of a very robust nature, such as seeds of raspberry and elderberry. Intriguingly, deposits of uncarbonised fig were recovered; their presence, in that fig is not a commonly growing species in Scotland, suggests that at least some of the assemblage of uncarbonised remains does represent monastic waste rather than later, intrusive material. However, although fig is not usually found as a modern contaminant, this possibility cannot be totally ruled out (Dickson & Dickson 1996, 631).

11.4 Discussion

The composition of the charred plant assemblage through all phases of deposition reflects a striking consistency. Oats predominate throughout with lesser quantities of barley, wheat and weed seeds. This probably reflects the use of these cereals throughout the occupation of the site, with oats being the most popular in all periods. Indeed this shows very much the trend for the high medieval period in Scotland (Boyd 1988). Investigations at Perth, for instance, found that oats and barley were the most frequently recovered cereals there too (Robinson 1987).

Unfortunately it has not been possible to determine whether the crops at Dundrennan were locally grown. Certainly, the weed assemblage, indicating sandy acid soils, could have come from local fields. The chaff debris normally associated with cereal processing is absent (whereby heat is applied to the grain to remove enclosing lemmas and paleas) and this suggests an already fully processed crop. Furthermore, there is no evidence for bulk storage and drying of grain. Thus, these plant remains probably represent domestic refuse or the sweepings of kitchen hearths rather than the debris of crop processing.

The use of turf as a fuel is suggested by some carbonised weed seeds found in association with carbonised earthworm eggs, as the practice of using turf to bank fires was widespread in the medieval period (pers comm, J Miller).

Much of the uncarbonised material was recovered from deposits in the great drain or associated middens, including possible latrine waste. Although cereal bran can be an indicator of such deposits, cereal testa were absent in the present case.

Table 3 Plant remains

		Phase	I	IV	IV/V	V
Charred remains						
Species/Genus	Common name	Plant part				
Cerealia indet	indet. cereal	caryopsis		17	2	4
Cerealia indet	indet. cereal	vesicular fragments		***		*
cf Cerealia indet	cf indet. cereal	caryopsis	*	2		*
Hordeum vulgare indet	barley	caryopsis		2	1	
Hordeum vulgare indet (asymmetrical)	six-row barley	carlopsis		2		
Hordeum vulgare hulled, symmetrical	six-row hulled barley	caryopsis		1	1	
Hordeum vulgare hulled, asymmetrical	six-row hulled barley	caryopsis			1	
Hordeum vulgare naked, symmetrical	six-row hulled barley	caryopsis		2		
Avena sp	oat	caryopsis	4	145 (127)	15	3
cf *Avena* sp	cf oat	caryopsis	2	3	1	*
Triticum cf *aestivo-compactum*	cf bread/club wheat	caryopsis		1		1
Triticum sp	wheat	caryopsis		1		
cf *Triticum* sp	cf wheat	caryopsis				
Hordeum / *Triticum* sp	barley/wheat	caryopsis		2		
Secale / *Triticum* sp	rye/wheat	caryopsis		2		
Corylus avellana L	hazel	shell	1	6		
cf *Corylus avellana*	cf hazel	bud			1	
Rubus idaeus L	raspberry	achene		3		1
Vitis vinifera L	common grape	pip				
Sambucus nigra / *racemosa*	elderberry	drupe		1		
cf *Ficus carica*	cf common fig	pip		1		
Euphorbia helioscopia L	sun spurge	seed				2
Chysanthemum segetum L	corn marigold	achene	1	1		3
Rumex acetosella agg	sheep's sorrel	nutlet		1		
Scleranthus annuus L	annual knawel	seed		1		
Brassica cf *nigra*	black mustard	seed		1		
Ranunculus repens / *acris* / *bulbosus*	creeping/meadow buttercup	achene	1			
Stellaria media (L) Vill	chickweed	seed				
Polygonum persicaria / *lapathifolium*	persicaria/pale persicaria	nutlet				
Polygonum cf minus	bistort	nutlet				
Polygonum sp	bistolt	nutlet		1		
Chenopodium album L	fat hen	seed		3		
Atriplex / *Chenopcdium* sp	orache/goosefoot	seed		1		
Rumex sp	dock	nutlet				
Polygonaceae indet	bistort	nutlet		1		
Silene cf *alba*	white campion	seed		1		

Table 3 (*cont.*) Plant remains

		Phase	I	IV	IV/V	V
Galium aparine L	cleavers	seed		1		
Rumex longifolius/*obtusifolius*	dock	nutlet		1		
Potentilla sp	cinquefoil	achene		1		
Rosaceae indet	rose family	seed		1		
Poa sp	meadow grass	caryopsis		1		
Gramineae indet	grass family	caryopsis		3		2
cf Gramineae indet	cf grass family	caryopsis	*			
Compositae indet	daisy family	achene		2	1	
cf Compositae indet	cf daisy family	achene		1		
Vicia/*Lathyrus*/*Pisum* sp	vetch/tare/pea	seed		1		
Leguminosae indet	pea family	seed		1		
cf Leguminosae indet	cf pea family	seed		1		
Calluna vulgaris/*Erica* sp	ling/heather	stem/leaflets		22 (13)		
Calluna vulgaris (L) Hull	ling	bud		6		
cf *Calluna vulgaris*/*Erica* sp	ling/heather	misc. parts				
Carex sp – *biconvex*	sedge	nutlet		2	1	1
Carex sp – *trigonous*	sedge	nutlet		13	1	2
Cyperaceae indet	sedge	inard		6		
Cyperaceae indet	sedge	nutlet		1		
Menyanthes trifoliata L	bogbean	seed		1		
cf *Eleocharis* sp	cf spike rush	seed	1			
Juncaceae indet	rush	seed		1		
Indeterminate	indeterminate	bud		6	**	
Indeterminate	indeterminate	seed/inard	2	36	3	4
Indeterminate	indeterminate	misc parts		11		3
Uncharred remains						
Species/Genus	Common name	Plant part				
Rubus idaeus *L*	raspberry	achene			1	
Urtica dioica L	common nettle	seed	11	154 (28)		
Urtica sp	nettle	seed		1	1	
cf *Urtica* sp	cf nettle	seed	1	1		
Ranunculus scleratus L	celery-leaved crowfoot	achene	149	5894 (1124)	2	2
Callitriche sp	water star-wort	nutlet	6	136		
Sonchus asper	prickly sowthistle	achene		1	1	
Sambucus nigra/*racemosa*	elderberry	drupe		52 (16)		2
Potentilla sp	cinquefoil	achene		75 (15)		
cf *Potentilla* sp	cf cinquefoil	achene		10 (1)		
Rosaceae indet	rose family	achene		2		
Indeterminate	indeterminate	seed	3	28 (4)		
Ficus carica	fig	pip	1	20 (2)		
cf *Ficus carica*	cf, tig	pip		50 (5)		
Polygonum persicaria/*lapathifolium*	persicaria/pale persicaria	nutlet		20 (2)	1	

Table 3 (*cont.*) Plant remains

		Phase	I	IV	IV/V	V
Polygonum sp	perslcarla	nutlet		3		
Chenopodium album	fat hen	seed		20 (2)	1	
Chenopodium / *Atriplex* sp	goosefoot/orache	seed		15 (3)		
Atriplex sp	orache	seed		22 (4)		
Rumex sp	dock	nutlet		70 (7)		
Umbelliferae indet	carrot family	achene		1		
Caryophyllaceae indet				26 (14)		
cf Leguminosae/ Cruciferae indet	pea/mustard family	seed		3	1	
Carex sp	sedge	nutlet				
Bryophyta	moss	fruiting capsule		15 (6)		

Notes to Table 3
1. Asterisks denote relative quantity using a DAFOR scale: * rare, ** occasional, *** frequent, **** abundant, ***** dominant.
2. One large sample (context 193) was riddled, using a standard sampling riddle, into various fractions of its original size. For totals including seeds from this sample, in Period IV, numbers in brackets represent the actual number of seeds recovered while unbracketed numbers represent estimates of totals which would have been recovered using 100% of all samples.

However, this does not necessarily mean that the material was not faecal in origin. In general, the recovery techniques were more appropriate to unwaterlogged deposits and the conditions for preservation were far from ideal. Cereal bran is very delicate and does not always survive, even in wet or anaerobic conditions. Thus some of the deposits containing uncarbonised edible plant remains – such as raspberry, elderberry and fig – may after all represent human faeces in the great drain or in reworked garderobe deposits.

The similarity of the deposits of the great drain to those elsewhere, predominantly the midden complex, even in their inclusion of the uncharred remains of *Ranunculus scleratus* L., may indicate that the latter sediments originated from the drain itself. That is, they represent silts removed from a clogged drainage system. This would also mean that the midden deposits had been reworked in antiquity, rather than found in a primary, undisturbed state.

There are doubts as to the age of some of the uncharred assemblage. Part of the assemblage may be ancient and waterlogged (Holden 1995). Many of the weed seeds represented are those with fairly robust seed coats such as elderberry, raspberry and fig (and as suggested above some of these may be inclusions in faecal deposits). These durable seeds could have survived for some time without waterlogging, mineralisation or charring. Should this be the case, their presence probably reflects their persistence in the primary archaeological sediments, rather than contamination either by redeposition or by biological activity. In contrast, the presence of semi-aquatic species such as *Callitriche* sp. and *Ranunculus scleratus* L. in great numbers, particularly from midden deposits, could represent secondary inclusions introduced by earthworm activity, animal burrows and root systems. Alternatively, these semi-aquatic species could have been deposited into the drainage channel during its use. These plants grow in the muddy edges of streams and ponds and the seeds could have been deposited into the stream channel which flushed through the great drain, collecting in the sediments which formed in this channel while it was in use and, afterwards, as it began to silt up completely. The presence of iron salts on some of these seeds probably results from the fluctuating local water table, indicating episodic waterlogging.

next section