Reports from the Environmental Archaeology Unit, York **2001/53**, 5 *pp.*

Assessment of samples rich in mosses from the early 7th century AD tide mill at Nendrum Monastery, Co. Down, N. Ireland

by

Allan Hall

Summary

Eleven samples of moss or moss-rich sediment from an early 7th C. AD tide mill at Nendrum, Co. Down, were examined. All contained very well-preserved remains of mosses which indicated an origin in woodland. The material was very consistent in its character and probably does not merit much further study.

KEYWORDS: NENDRUM MONASTERY; CO. DOWN; N. IRELAND; TIDE MILL; 7TH C. AD; PLANT REMAINS; MOSSES;

Author's address:

Environmental Archaeology Unit
Department of Biology
P. O. Box 373
University of York
York YO10 5YW

Telephone: (01904) 433851
Fax: (01904) 433850

Prepared for:

Museum of London Specialist Services
46 Eagle Wharf Road
London N1 7EE

10th October 2001

Assessment of samples rich in mosses from the early 7th century AD tide mill at Nendrum Monastery, Co. Down, N. Ireland

Introduction

This report discusses eleven samples, consisting largely or wholly of moss, from excavations of a tide mill of early 7th century AD date, in the intertidal zone close to the site of Nendrum Monastery, at the S end of Strangford Lough, Co. Down, N. Ireland. They were submitted for assessment by Museum of London Specialist Services on behalf of Environment and Heritage Service, Department of the Environment (N. Ireland), whose staff undertook the excavations in 1999-2000.

Methods

The samples submitted ranged in size from a few tens of grammes of moss shoots to subsamples of 500 g taken from much larger original samples. On inspection, the larger samples were found to consist almost entirely of tangled moss shoots and small subsamples were taken from them in turn for the assessment (weights are shown in Table 1). These subsamples were rinsed on a 300µm-mesh sieve to remove the very small amount of silt and fine organic debris present and the resulting residues examined under a low-power binocular microscope with oblique illumination. Mosses (and some other remains) were recorded semi-quantitatively using a three-point scale (rare, common, abundant) and the scores entered to a computer database using *Paradox* software.

Results

The results of this assessment are shown in Table 2. All the samples consisted largely or wholly of well-preserved moss shoots and in some cases there were fragments which retained their green colour. Very few specimens had undergone any substantial decay. The presence of some shoots of a leafy liverwort, *Plagiochila* sp. indicates the superb state of preservation. Such plants are rarely encountered as subfossils in natural or archaeological deposits and those previously encountered by the author (remains of *Frullania dilatata* in Early Christian rath deposits at Deer Park Farms, Co. Antrim, N. Ireland, Kenward *et al.* in prep.) were of a species which is rather more robust than the *Plagiochila* seen at Nendrum.

As Table 2 shows, the samples were consistently rich in the large, dendroid moss *Thamnobryum alopecurum*, often occurring as whole plants (up to about 120 mm long), with the basal rhizoids still attached and, in some cases, held in clumps and clearly pulled from the ground together. One sample gave evidence of a clump of *Thamnobryum* shoots adhering to a fragment of bark, indicating that this material, at least, had been growing on an exposed tree root or tree-base (one of the typical habitats of this species). Moreover, the range of other taxa recorded, and the frequent presence of oak buds and bud-scales (and in one sample also wood sorrel seeds) clearly points to an origin in woodland. Some taxa, such as *Pseudoscleropodium purum*, are perhaps more characteristic of less shaded habitats but an origin in a woodland clearing readily explains its presence with such an otherwise very characteristic woodland floor/tree-base group.

That some of this material was recorded as packing in the fabric of the mill probably explains the presence of all of it at the site. It certainly does not seem likely to have grown in and around the mill (and certainly not if it was within the tidal reach for all or most of its working life, since most of the taxa recorded are not found in areas subject to inundation and certainly not especially salt-tolerant).

It is noteworthy that many of the taxa, though widely distributed throughout the British Isles, are not recorded from the area around the southern end of Strangford Lough according to the distribution maps of Hill *et al.* (1994). This seems likely to reflect a low incidence of recording of bryophytes in the area rather than a real change in distribution, though reduction of forest cover would certainly have led to the restriction in range of many of the mosses recorded here. There is no reason, therefore, to suppose the mosses were not collected from woods in the general area of Nendrum.

Recommendations

Given the general similarity in the kinds of mosses in the assemblages in these samples, it is probably not worth undertaking further, more detailed analyses of this group of samples in order, for example, to explore differences between assemblages from different parts of the structure or between different phases of building. It may be worthwhile to examine more material from selected samples to increase the number of taxa purely as archaeobotanical records, but it is difficult to justify this on the grounds of refinement of the archaeological narrative for this site.

Retention and disposal

All the material should be retained for the present.

Archive

All material is currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

Acknowledgements

The author is grateful Museum of London Specialist Services for providing the material and the archaeological information, and to English Heritage for allowing him to contribute to this report.

References

Hill, M. O., Preston, C. D. and Smith, A. J. E. (1994). *Atlas of the bryophytes of Britain and Ireland. 3. Mosses (Diplolepideae).* Colchester: Harley Books.

Kenward, H., Hall, A. and Carrott, J. (in prep.) Environment, activity and living conditions at Deer Park Farms: evidence from plant and invertebrate remains. Submitted for publication to EHS, DoE(NI).

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

Tutin, T. G. *et al.* (1964-80). *Flora Europaea* **1-5**. Cambridge: University Press.

Table 1. Samples examined, subsample weights, and context information.

Sample	*Context*	*Weight (kg)*	*Context type*
6	4	0.010	Tr1, E ext, c4 lower level
9	18	0.010	Tr 4, c18, approx 1 m S of flume
10	18	0.010	Tr 4, c18, approx 1 m S of flume
21		0.050	Tr 4, top of E-W section 1m S of flume
32		0.015	Tr 4, bedding/waterproofing from flume feeder
34		0.010	packing from N end of cut for beam c34
35		0.015	packing from base of N side of flume
36		0.010	from base of timber c19
37	3	0.015	silt layer at face of wheelhouse wall
38		0.015	from among stones underlying c6
40		0.030	from among stones to W of wall c31

Table 2. Mosses and other plant remains recorded from samples from the Nendrum tide mill, Co. Down. Taxonomic order and nomenclature follow Smith (1978) for mosses and Tutin et al. *(1964-90) for vascular plants. Numbers are abundance scores on a three-point semi-quantitative scale. * indicates material which included shoots which retained a green coloration.*

Sample		6	9	10	21	32	34	35	36	37	38	40
Context (where known)		4	18	18						3		
Musci												
Polytrichum commune Hedw.		-	-	-	-	-	-	2	-	-	-	-
Polytrichum sp(p).		-	-	-	-	-	-	-	1	-	-	-
Dicranum cf. *majus* Sm.		-	-	-	-	-	-	2	-	-	-	-
Mnium hornum Hedw.		-	-	-	-	-	-	1	-	-	-	-
Plagiomnium undulatum (Hedw.) Kop.		-	-	-	-	-	1	-	2	1	2	1*
Neckera complanata (Hedw.) Hüb.		-	-	-	-	-	-	-	1	-	-	-
Thamnobryum alopecurum (Hedw.) Nieuwl.	-	3*	3	3	-	-	1	2	3	1	2*	
Thuidium tamariscinum (Hedw.) Br. Eur.	3	-	-	1	3	2*	2	2	1	2	1	
Isothecium myurum Brid.		-	1	-	-	-	2	-	1	1	-	-
I. myosuroides Brid.		-	-	-	-	-	-	2	-	-	-	-
Pseudoscleropodium purum (Hedw.) Fleisch.	-	-	-	-	-	1	-	-	-	-	-	
Cirriphyllum piliferum (Hedw.) Grout		-	-	-	-	-	-	-	-	1	-	1
Eurhynchium striatum (Hedw.) Schimp.		1	-	-	-	1	1	1	1	2	1	2*
E. praelongum (Hedw.) Br. Eur.		-	-	-	-	-	1*	-	-	1	1	-
Rhytidiadelphus cf. *loreus* (Hedw.) Warnst.	-	-	-	-	-	-	2	-	2	-	-	
Pleurozium schreberi (Brid.) Mitt.		-	-	-	-	-	-	1	-	-	-	-
Hylocomium cf. *brevirostre* (Brid.) Br. Eur.	-	-	-	-	2	1	1	1	1	2	-	
Hepaticae												
Plagiochila sp(p).		-	-	-	-	-	-	-	1	1	-	1

Sample	6	9	10	21	32	34	35	36	37	38	40
Context (where known)	4	18	18						3		
Angiospermae											
Corylus avellana L. (buds/bud-scales)	-	1	-	-	-	-	-	-	-	-	-
Quercus sp(p). (buds/bud-scales)	2	-	-	-	-	1	1	-	1	1	-
Oxalis acetosella L. (seeds)	-	-	-	-	1	-	-	-	-	-	-
Viola sp(p). (capsule segment)	-	-	-	-	-	-	-	-	-	-	1
Lapsana communis L. (achenes)	-	-	-	-	-	-	-	-	-	1	-
dicotyledon leaf fragments	-	-	-	-	-	1	-	-	-	-	-