Report 1661.

IDENTIFICATIONS OF WOOD AND CHARCOAL FROM ARCHAEOLOGICAL SITES.

Types of samples.

Wood and charcoal(i.e. burnt wood)occur commonly on archaeological sites.Charred wood consists almost entirely of carbon,and therefore does not suffer biological degradation. It is affected by mechanical breakdown only.However,unburned wood provides a suitable substrate for the activities of decay organisms such as fungi and bacteria.Therefore it is only preserved in unusual circumstances.On some sites,timber is preserved by waterlogging,as at Carlisle.On other sites,wood is preserved where it has been in contact with a metal such as iron or copper,as at Chelmsford,Wicken Bonhunt,and Mucking.

Preparation and identification of samples.

The degree of success in identification of wood depends mainly on its state of preservation.The structure of burnt wood is often perfectly preserved,and identification may be made by observation of a freshly fractured surface under reflected light.The condition of unburned wood is much more variable.The structure of waterlogged wood may be well preserved,but sometimes apparently well preserved wood displays very little structure at a microscopic level.

It is usually necessary to obtain thin sections of wood to allow identification.These can be very difficult to obtain when the material is very soft.It is often possible to harden the wood sufficiently for sectioning by soaking in 70 -90% IMS.

Waterlogged wood is often compressed and distorted.The structure may be revived sufficiently for identification by treating the sections on the microscope slide with strong sodium hypochlorite solution,followed by washing with distilled water.This treatment was successful with the Catterick wood,but over treatment results in destruction of the sample.

Occasionally,the wood (usually dry samples) is very hard.It may be softened by boiling a small cube of the wood about 0.5cm.square in water until it sinks,and then soaking in 50% alcohol(eg methylated spirits),50% glycerine for about 72 hours.

Wood which has been preserved by contact with iron is often extremely difficult to identify.The iron corrosion products may completely mask the wood structure.It may sometimes be possible to remove some of this iron with EDTA.However,often there is no wood remaining,as they have been completely replaced by iron corrosion products. Very little microscopic detail is preserved,and identification is correspondingly difficult.It is virtually impossible to section this iron impregnated wood,so identification must be based on the appearance under reflected light.

It is to be honed that future work with the newly acquired scanning electron microscope will help overcome some of the problems mentioned above.

Interpretation of results.

It is extremely difficult to reconstruct past environmental conditions from a list of wood identifications.This is because wood was often selected for a particular purpose(eg lighting a fire,making artefacts).Therefore,the sample often will not directly represent the proportions of species once growing in the vicinity of the site. Also,the introduction of timbers from furthur afield cannot be ruled out.However,it is sometimes possible to make tentative environmental suggestions,particularly when many large samples are identified(see Grimes Graves,environmental series 12/74),or when the identifications may be considered in the light of other environmental evidence.

Wood has oftan formed part of an attefact(eg. at Mucking,Carlisle,Little Waltham).

Identification of these samples therefore yields technological information. Occasionally, it is possible to obtain some idea of the type of structure which a few wood remnants once formed a part of (eg. at Chelmsford).

Information is sometimes obtained indicating the selective use of different timbers for lighting and maintaining a fire.(for example, at Gussage All Saints).

Wood identification may be of practical use; for example, at Westow, identification of the burnt timbers of an Anglo-Saxon house allowed a copy to be built, utilising the correct timbers for each part of the structure.

MATERIAL CHARCOAL

WEST SHOW

SITE: ..NEWTON UNIT NO.3..... (DATE: 15/2/73

SHEET: .....

	X-RAY INDEX	PROTEIN INDEX	Description and Report	Excavator's Ref No
[illegible]98	"Main Beam".		All Ash.	Sample 1
[illegible]99	"Side Plank"		All Oak.	Sample 2
[illegible]00	"Roof Timber ?"		All Oak.	Sample 3
[illegible]01	"Large Cross Beam"		Predominantly Oak, with a few fragments of Hazel twig.	Sample 4
[illegible]02	"[illegible]"		All Oak	Sample 5
0603	"Side Plank"		All Oak	Sample 6
0604	"Wattles"		Mainly Hazel twigs, with a few fragments of Ash, and one Willow fragment.	Sample 7
0605	"Reeds"	*	The Sample consists mainly of grass; the remains of prickle hairs can be seen on some surfaces. These hairs are of a type found in many grasses and occur on Phragmites australis, the reed. Unfortunately, no other Taxonomic characters were seen. There are also some remains of Hazel nut shells.	Sample 8
660606	"Charred material"		A sandy deposit containing finely divided charcoal, and some Hazel twig fragments.	Sample 9
	"Botanical Samples"	*	Oak acorn Branch thorn of Hawthorn. This is probably not "Wheat", Triticum; after allowing for erosion, shape suggests that it could be 'Rye', Secale. Structure suggests a cereal straw rather than Phragmites (reed).	No. 319 No. 375 No. 376 No. 377

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* Identification at the Jodrell Laboratory, Royal Botanic Gardens, Kew.