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 hoped 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 often formed part of an artefact(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.

ANCIENT MONUMENTS LABORATORY

MATERIAL WOOD ETC.

DENNY ABBEY
SITE: Denny abbey ..... (DATE:)

SHEET: 1

AM No	~~X-Ray No~~ Excav. No.	Photo No	Description and Report	Ref No
	539 (Grave Axl)		There are three fragments of partly carbonised material, probably wood. There is no remaining identifiable structure.	
717113	540		This ~~ei~~ is a fragment of uncarbonised root, probably of modern origin.	
717115	544		This small sample consists of a mixture of amorphous charcoal and mineral grains.	
717117	552		There is a fragment of oak twig and a ~~fr~~ piece of pine charcoal.	
721538			This sample contained one identifiable fragment of oak charcoal.	
721575			This is pine wood.	
721586			This sample yielded seeds, insect remains, unidentifiable carbonised material, coal, and coke fragments.	
721588			This sample contained charcoal, seeds, insect remains. Two of the charcoal fragments were of oak, and one was of the Crataegus (hawthorn) type.	
721593			This sample was found to contain seeds, insect remains, and some charcoal. There are fragments of willow and Crataegus type charcoal. There is also one wood fragment. The structure is masked by iron deposits, but the general appearance is of oak.	

Carole A Reynolds
26/11/73

ANCIENT MONUMENTS LABORATORY

MATERIAL SOIL,Etc.

DENNY ABBEY

SITE:..... (DATE: 21/10/75

1

SHEET: .....

AM No	~~X-Ray No~~	~~Photo No~~	Description and Report	Ref No
721586	"Earthy layer from garderobe pit.For examination and analysis"		This sample yielded unidentifiable charred material,coal,and coke fragments.	DAC '72 IV (S4)
721588	"Peaty layer from garderobe-contained leather, etc.Examination and analysis."		This sample was found to contain charcoal, seeds,and insect remains.Unfortunately,the small size of the sample greatly restricts the interpretations that may be made.However, detailed seed and insect reports are attached. Two of the charcoal fragments were oak (Quercus sp.),and one was hawthorn-type (Malus / Sorbus/Pyrus/Crataegus sp.)	DAC '72 IV (S7)
721593	"Charcoal layer in garderobe pit. Identification and analysis."		This sample was found to contain some charcoal,seeds,and insect remains.This was also a small sample,but detailed identifications are attached, The charcoal is willow (Salix sp.) and hawthorn-type.There is also one wood fragment. The structure is masked by iron deposits,but the general appearance is of oak.	DAC '72 IV (S3)

Gale A. Keepax