# Wooden Writing Tablets from Southwark - Preservation and Identification

### (A) Southwark, St. Thomas St. 747241

The outer surface of this tablet is stained brown, but the remainder is almost white in colour and crystalline in appearance. The "wood" disintegrates into small splinters when touched. These fragments are found to consist of individual tracheids and ray cells when examined by transmitted light.

The sample effervesces with dilute hydrochloric acid, leaving very little residue. This suggests that the wood is largely replaced by a carbonate (presumably calcium).

A sample from the tablet was air dried, coated with gold-palladium, and examined in the scanning electron microscope. From the observations made, it was deduced that calcium carbonate was first deposited in the cell lumina. This was followed by decay of the original wood, producing internal cell casts. This seems to be a very similar process to that described for the replacement of wood by iron corrosion products.<sup>(1)</sup>

It was difficult to identify this specimen because of the unusual state of preservation. However, no vessels are present, indicating that the sample is a conifer, (see Plate I) It was difficult to identify the type of cross-field pits (see Plate II), but they do not seem to be of the large, window-like type. This eliminates <u>Pinus</u> sp. (pine). No indications of spiral thickening were observed (this may be recognised in replaced woods<sup>(1)</sup>) therefore it is not <u>Taxus</u> sp. (yew). As no resin canals were observed, <u>Picea</u> sp. (spruce) and <u>Larix</u> sp. (larch) are also eliminated.

Therefore, the sample is thought to be <u>Abies</u> sp., (presumably <u>alba</u>, silver fir, the common european species).

The results of the examinations of the other writing tables are given below in condensed form.

(B) 747240

#### <u>Condition</u>

Brittle and hard

Splits up into individual elements easily.

### Identification

Vessels absent Rays uniseriate

Resin canals not observed

Cross field pits small

Spiral thickening not observed.

The sample is therefore identified as silver fir.

A second fragment with this tablet was identified as <u>Quercus</u> sp (oak). The state of preservation was similar.

(C) 747245. T2 (S1

#### <u>Condition</u>

Brittle and hard.

Splits up into individual elements.

Identification

Vessels absent

Cross field pits small

Spiral thickening not observed

Resin canals not observed (C.S. only)

The wood is therefore a conifer, possibly silver fir.

2.

(D) т6

#### Condition

Brittle and hard.

Splits up into individual elements.

Effervesces with dil. HCl. "Cell walls" much thinner after treatment, but structure still recognisable.

Identification

Vessels absent

Cross field pits small

Spiral thickening not observed

. Resin Canals not observed (C.S. only)

The wood is therefore a conifer, possibly silver fir.

(E) 747244 T6 (11)

# Condition

Hard.

Only slight tendency to split up into individual elements

No effervescence noted with dil. HCL. Little change of appearance after treatment.

Identification

Vessels absent

Cross field pits small

Spiral thickening not observed

Resin Canals not observed (C.S. only)

The wood is therefore a conifer, possibly silver fir.

(F) т6 (16

## Condition

Can be cut with a razor blade

Only slight tendency to split up into individual elements. Slight effervescence with dil. HCL. Remaining wood structure is recognisable but very delicate.

# Identification

Vessels absent

4

Cross field pits small

Spiral thickening not observed, although some spiral checking may be present. Resin canals not observed (C.S. only)

4

The wood is therefore a conifer, possibly silver fir.

#### Comment on the Identifications.

Two of the samples were identified as most probably <u>Abies alba</u> (silver fir). The remaining samples were not definitely identified but were possibly also silver fir (although <u>Picea</u> sp. (spruce) and <u>Larix</u> sp. (larch) could not be clearly eliminated in all cases). It is interesting that these species are not normally considered to have been present in England during the Roman period, therefore it must be assumed that the wood was imported. Silver fir is a native of the mountains of Central and Southern Europe.

Other wooden writing tablets of the inlaid wax type have also been identified as silver fir and larch. (2)(3)

### Preservation

The degree of infiltration and replacement of the wood varies from sample to sample. They can be arranged in approximate order of degree of impregnation:-



The degree of replacement might well influence the behaviour of the wood on drying. As 747241 consists mainly of calcium carbonate, it should shrink very little. However, 747244, which contains little calcium carbonate might shrink much more. It is difficult to predict the behaviour of the intermediate stages. Presumably, the wood component might shrink, but the calcium carbonate might act as a "skeleton," preventing much overall shrinkage.

It would be interesting to relate preservation to burial conditions. For example, it seems possible that the little altered wood might have come from more permanently waterlogged conditions, while the replaced wood might have been influenced by a fluctuating water table.

Further work with the SEM would provide more information about the state of preservation and identification of the tablets.

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### References

- Keepax, C. 1975. Scanning Electron Microscopy of Wood Replaced by Iron Corrosion Products. <u>Journal of Archaeological Science</u>. 2, 145-150
- (2) Chapman, H. 1974. Letters from Roman London. <u>The London Archaeologist</u>, <u>2</u> No. 7
- (3) Biek, L. 1963. <u>Archaeology and the Microscope</u> London: Lutterworth Press p 146.

## <u>Plates</u>

I :- Tracheid Casts with Casts of bordered pit-pairs. 2,000 x

II :- Ray cell casts. 2000 x



# Plate II

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