

Ancient Monuments Laboratory Report 75/90

BUTTERMARKET, IPSWICH, SUFFOLK (1AS 3104): (2) CARBONISED LOAVES.

Peter Murphy BSc MPhil

AML reports are interim reports which make available the results of specialist investigations in advance of full publication. They are not subject to external refereeing and their conclusions may sometimes have to be modified in the light of archaeological information that was not available at the time of the investigation. Readers are therefore asked to consult the author before citing the report in any publication and to consult the final excavation report when available. Opinions expressed in AML reports are those of the author and are not necessarily those of the Historic Buildings and Monuments Commission for England.

Ancient Monuments Laboratory Report 75/90

**BUTTERMARKET, IPSWICH, SUFFOLK (1AS 3104): (2)
CARBONISED LOAVES.**

Peter Murphy BSc MPhil

Summary

Fragments from seven small carbonised loaves found in the fill of a burnt Late Saxon cellar were examined by light microscopy and under the scanning electron microscope. A range of plant tissues was present, full characterisation of which would have required extensive preparation of reference material. This preliminary study, however, demonstrates the predominance of Triticum/Secale type pericarp fragments in an amorphous vesicular matrix. The material will be retained for possible future study in more detail.

Author's address :-

Peter Murphy BSc MPhil
Centre of East Anglian Studies University of East Anglia Norwich
Norfolk

© Historic Buildings and Monuments Commission for England

Buttermarket, Ipswich (IAS 31042: L2) Carbonised loaves

Introduction

Within the fill of building 2022 a group of flat round small carbonised loaves, 2388, was associated with an area of wickerwork/basketry, 2252, and a dense deposit of carbonised cereals, 2126. Intact examples were conserved for display purposes, but seven fragmentary specimens were examined to determine their contents and to describe their microstructure.

Methods

The seven samples were initially examined at low power under a binocular microscope. The specimens were repeatedly fractured and notes were made on their structure and any macrofossils which they contained. Subsequently typical fragments were examined under the scanning electron microscope in order to study more closely scraps of epidermal and other plant tissue.

Results

The fragments typically show an open porous structure of irregular empty vesicles with walls of amorphous charred material. Scraps of plant tissue are visible embedded within this amorphous material. The plant tissue includes the following components:

- 1) Tissue fragments composed of long transverse cells (Plate 1). Cell patterning of this type is very characteristic of grain pericarp of both *Triticum* (wheat) and *Secale* (rye): (Körber-Grohne 1964, 46). Distinguishing between small pericarp fragments of these two genera presents some difficulties (Holden 1990). However, the fragment show in Plate 1 shows no obvious sign of pitting in the cell walls and there are some short rows of transverse cells apparently with thickened end walls -features said to be characteristic of rye pericarp. Tissue of this type was more frequently observed on fractured surfaces. than any of the following types.
- 2) Tissue fragments (? testa) with hexagonal isodiametric cells up to about 35 microns across.
- 3) Fragments of stem tissue with annular thickening in the vessels, up to about 1.5mm in diameter.
- 4) An oval hilum, c. 1mm long, from a legume seed, possibly *Pisum*.
- 5) An intact grain of rye, *Secale cereale*.

Other components, showing less well-defined cell structure or gross morphology are present.

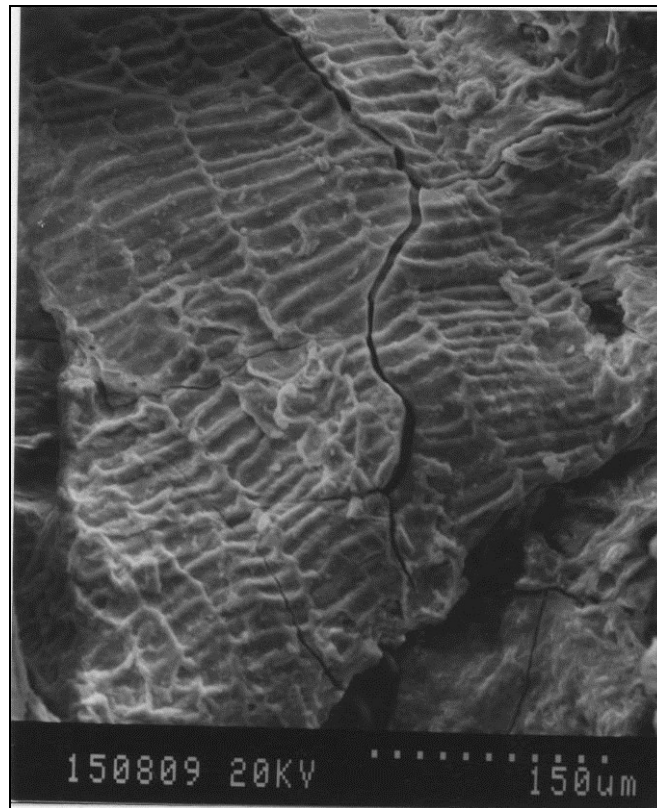
Conclusions

Full characterisation of the plant tissue in these loaves would involve preparation of a great deal of reference material. Insufficient time is available for such work at present, though all the material will be retained for possible future study.

On the basis of-this preliminary examination it appears that cereal pericarp (bran) forms a major component of the loaves and that this includes rye pericarp. Other plant tissues are, however, present. Quantification is difficult, so it is hard to say whether this other tissue

merely represents material contaminating coarsely-ground wholemeal flour or an intentional addition to the loaves.

Plate 1 : Cereal pericarp (bran)



References

Holden, T. (1990) 'Transverse cell patterns of wheat and rye bran and their variation over the surface of a single grain' *Ciraea* 6(2), 97-104

Korber-Grohne, U. (1964) 'Bestimmungsschlüssel für subfossile Juncus - Samen und Gramineen - Früchte. In Haarnagel, W. 'Probleme der Küstenforschung im Südliehen Nordseegebiet Band 7, 32-47. Hildesheim