

Ancient Monuments Laboratory
Report 119/91

IDENTIFICATION OF TWO GEMSTONES
FROM SANCTON, HUMBERSIDE
(AML SITE NUMBER 1251)

Mrs M E Hutchinson

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 119/91

IDENTIFICATION OF TWO GEMSTONES
FROM SANCTON, HUMBERSIDE
(AML SITE NUMBER 1251)

Mrs M E Hutchinson

Summary

Two red stones from a cremation were identified as almandine garnets. Keywords: gemstone, garnet, Anglo-saxon, cremation.

Author's address :-

Mrs M E Hutchinson

Ancient Monuments Laboratory
English Heritage
23 Savile Row
London
W1X 2HE

IDENTIFICATION OF TWO GEMSTONES FROM SANCTON, HUMBERSIDE.
AML Site Number 1251

M E Hutchinson, FGA DGA

The remains of two studs were submitted for identification of the red gemstones. The stones and accompanying fragments of glass and bone had come from a cremation and this accounted for the condition of the material. The bag is labelled 'Sancton, A1531, glass, 2 studs', but both stones are almandine garnet. They were identified by energy dispersive X-ray fluorescence spectroscopy (ED-XRF) and their characteristic absorption spectrum.

Identification

a, The stone is an almandine garnet, cut as a circular, high domed cabochon with a bevel round the flat bottom. The stone has been superficially cracked by the heat of the fire and there are three small chips round the base but is not badly damaged. The stone is moderately included with long accicular 'needles', probably rutile, arranged in three crystallographic directions. Other inclusions may be present but the surface of the stone is so obscured that it is difficult to examine its interior. Round the base of the dome are globules of metal which may be part of a band setting which has melted.

b, As above, almandine garnet cut as a high domed cabochon with a bevel round the flat bottom. There are two small chips on the base and the stone has a flat on one side formed when the bevel was being ground, but these do not detract from the appearance of the stone, and would not have been seen when it was mounted. The stone has been cracked superficially but not shattered, and the surface also has been affected by the heat of the cremation fire. Accicular inclusions are present aligned in two crystallographic directions and these are so numerous in one area that they may have caused a 'cat's eye' on the surface of the stone. This is an optical effect which appears as a wavering band of light on the surface of a cabochon cut stone and can form an attractive feature.

There is a hard but brittle metallic looking layer on the surface of both stones which was identified by ED-XRF as containing copper, zinc, and possibly lead. This may have been formed from the metals of the setting but could have come from other objects.

Conclusion

These two stones have been identified as almandine garnet, $\text{Fe}_3\text{Al}_2(\text{SiO}_4)_3$, but few garnets are of just one type. Almandine forms part of an isomorphous series the end members of which are pyrope ($\text{Mg}_3\text{Al}_2(\text{SiO}_4)_3$) and spessartite $\text{Mn}_3\text{Al}_2(\text{SiO}_4)_3$ garnet, and members of this series gradually merge into one another. The garnet is named after the predominant member, in this case almandine, the iron garnet.