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QUALITATIVE ANALYSES OF SOME ROMAN BROOCHES FROM RIBCHESTER, LANCS

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Summary

Seventeen Roman brooches were analysed qualitatively by XRF. The results are presented and compared with those from a large corpus. A variety of types of applied decoration was also noted.

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A total of 17 brooches were examined and analysed qualitatively by X-ray fluorescence (XRF). The results are given in the table below. The alloy names have the following meanings: Brass is mainly copper and zinc, bronze mainly copper and tin while gunmetals are copper containing significant amounts of both tin and zinc; two names denote uncertainty or an intermediate composition. Alloys described as leaded contain major amounts of lead, of the order of 10% or more, while (leaded) alloys have lower but significant lead contents.

Table: Analytical results

Brooch	No	Type	Alloy	Decoration
1868	670	Hod Hill	brass	niello
3294	358	?	leaded bronze/gunmetal	
3354	357	fantail	brass	enamel
5002	02	geometric plate	(leaded) bronze/gunmetal	enamel and applied silver
5487	03	Lamberton Moor	leaded bronze	
5751	19	knee	(leaded) bronze	tinned
5999	22	Wroxeter	leaded bronze	enamel
6084	03	Thealby Mine	leaded bronze	
6188	03	disc	leaded bronze	repoussé brass plate soldered on. tinned?
7022	102	plate	bronze	
7250	209	Colchester	iron	
7507	209	S-shaped	bronze	
7657	201	fantail	gunmetal	enamel
7896	315	penannular	bronze/gunmetal	
8346	396	penannular	brass (pin=bronze)	
9308	541	trumpet	brass	
9832	670	Lamberton Moor	leaded bronze	

The alloys used to make specific brooch types generally correspond to the results obtained as part of a larger survey (Bayley 1992). The trumpet brooch is of a type with a loose headloop and so it was expected that it would be made of brass or gunmetal while the Lamberton Moor brooches with their fixed headloops were expected to be leaded bronzes. Thealby Mine and Wroxeter types are most commonly of leaded bronze, though the number analysed is smaller so the general pattern is less clear cut. Knee brooches are also normally leaded bronze, as is the example here.

Hod Hill brooches are most commonly brasses so the example here is of the expected composition. Niello is not common on brooches but Hod Hills are one

of the few types that do carry it so its presence is uncommon but not unparalleled. It appears to be a copper sulphide niello as silver was not detectable by XRF, and this corresponds to the results obtained by La Niece in her survey (1983).

Fantails are most commonly bronzes but examples with discs or plates on the bow are usually brasses or gunmetals. No 3354.357 thus conforms to the expected pattern but No 7657.201 does not, though it is not the only exception to the general pattern.

Only one other S-shaped brooch has been analysed and that, like the example here, was a bronze.

The repoussé plate on No 6188.03 was made of a zinc-containing copper alloy, most probably brass, and was attached to the leaded bronze backing plate with lead-tin solder. This is the normal method of construction and composition for brooches of this type. The front surface now looks grey in colour which may be a product of the corrosion the brooch has undergone or may be the remains of tinning applied to it; the former is more likely.

Penannular brooches are made of the whole range of unleaded alloys so the results for the Ribchester examples are unremarkable. The pin of No 8346.396 is of a different alloy to the loop, a not uncommon occurance.

The enamel in No 3354.357 is turquoise and red in individual fields on both the fantail and the plate on the bow. That in No 5999.22 is in three fields on the bow, each holding eight juxtaposed blocks of two alternating colours. The colours in the central field are 'black' and turquoise while those in the outer fields are white and 'black' (the 'black' is actually a dark olive green). Both the spots and the triangular fields on the fantail of No 7657.201 once held enamel; all that survives is opaque red.

References

Bayley, J (1992) *Non-ferrous metalworking in England: late Iron Age to early medieval*. Unpublished PhD thesis, University of London.

La Niece, S (1983) Niello: an historical and technical survey. *Antiquaries Journal*, **63**(2), 279-97.