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~~HBMC11-IAMHB(3SP)885~~

Ancient Monuments Laboratory Report No 4716

Preliminary analytical results for brooches from Tarrant Hinton, Dorset

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November 1985

All the non-ferrous brooches were analysed qualitatively by X-ray fluorescence (XRF). A number were also sampled so quantitative analyses by atomic absorption (AA) could be carried out. The XRF results presented here may be modified when the AA results become available as the quantitative figures will allow more precise callibration of the XRF analyses.

Note that 756 and 838 appear to join and are analytically very similar.

The enamel on 211 is turquoise in the outer field and red in the inner one. 656 has three square fields for enamel on its lower bow, the outer two are red but none of the enamel in the central field survives. 839 has three circular fields in a corresponding position; the outer ones are blue and the middle one red.

In with the brooches were three bags containing scrap metal. No 811, the end of a bar ingot, was gunmetal; No 356, an irregular lump, was leaded bronze, as were the metal droplets, No 63.

Table of XRF Alloy identifications

Excavation No	Brooch type	Alloy
638	Nauheim	Iron
259	"	Bronze
197	Nauheim Derivative	Bronze
795	" "	Bronze
216	" "	Brass
743	Early hinged	Bronze
269	" "	Iron
775	" "	Iron
726	" "	Iron
874	Maiden Castle	Bronze
380	" "	Bronze
127	" "	(Leaded) gunmetal
803	" "	Bronze
415	Aucissa	Brass
887	Hod Hill	Brass + T
295	" "	Brass +T and Niello
744	Colchester Derivative	Brass/gunmetal
50 *	" "	Brass
635*	" "	?(Leaded) gunmetal + T
637*	" "	Leaded bronze + T
839*	T-shaped	Gunmetal + E
656*	"	Leaded gunmetal + E
169	"	Bronze
877	"	(Leaded) bronze
837*	"	Bronze/gunmetal
170	"	Leaded bronze/gunetal
159*	Headstud	Brass
756*	Large with head plate	(Leaded) bronze + T
228	?	Bronze
16	?	Leaded bronze/gunmetal
838	?	(Leaded) bronze
211	Disc	Gunmetal + E + T

Notes

T = tinned * = sample taken for AA
E = enamelled
"(Leaded)" alloys probably contain a few percent of lead while "Leaded" ones contain rather more.
Brass is mainly copper and zinc; bronze, copper and tin; while gunmetals contain significant amounts of both zinc and tin. Where more than one alloy name is given the XRF results were ambiguous.