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REPORT

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PETROLOGICAL ANALYSIS OF UNSTAN WARE POTTERY FROM KNAP OF HOWAR, ORKNEY

Eleven sherds of Unstan ware pottery from Knap of Howar, together with samples of clay found at the site, were submitted for fabric analysis. Thin sectioning of the samples allowed a division into four groups on the basis of temper inclusions. These are listed below following the descriptions of the fabrics. Munsell colour charts are referred to together with free descriptive terms.

Description of the fabrics

1. I ⑨ 191 . Fairly thick, moderately hard fabric, light red (2.5YR 6/8) outside surface, dark grey inner surface, with a dark greyish-brown core. Fairly sandy fabric.

2. III ④ 227. Medium thick, moderately hard fabric, dark grey (5Y 4/1) throughout. Burnished on the outside surface, plain rim form.

3. III ④ 295. Thin, moderately hard fabric, yellowish-red (5YR 5/6) outside surfaces, dark grey core. Plain rim form.

4. III ④ 358. Thick, hard fabric, greyish-brown (10YR 5/2) outside surface, dark grey inner surface and core. The outside surface has been lightly burnished. Numerous inclusions of large pieces of shell protrude through the surface.

5. II ③ 144. Moderately thick, fairly hard fabric, dark grey (5Y 4/1) outside surface, buff inner surface and core. Numerous small inclusions of shell can be seen in fresh fracture.

6. II ③ 396. Medium thick, fairly hard fabric, dark grey (10YR 4/1) throughout. Lightly burnished on the outside surface.

7. II ③ 285. Thin, moderately hard fabric, dark grey (10YR 4/1) outside surfaces, black core.

8. III ③ 204. Medium thick, fairly hard fabric, black outside surface and core, reddish-brown inner surface. The outside surface has been lightly burnished. Small inclusions of shell can be seen in fresh fracture.

9. I ①. Group of small eroded sherds, light buff on one side, dark grey on the other. Small inclusions of shell are present.

10. II ③ 24. Medium thick, dark grey (7.5YR N4/) throughout. Small inclusions of shell can be seen in fresh fracture.

11. Ic ⑨ 215. Medium thick, moderately hard fabric, dark grey (7.5YRN4/) outside surface and core, buff-grey inside surface. Inclusions of shell can be seen protruding through the surfaces. Decorated with incised lines.

Group I (Shell/Sandstone)

Nos. 4, 5, 8, 9, 10 and 11.

Numerous inclusions of small fragments of crushed fresh shell in an anisotropic matrix of fired clay. Also present are frequent fine-grained micaceous sandstone grains, together with a scatter of subangular quartz grains, average size 0.20-.30mm., and flecks of mica.

Group II (Sandstone)

Nos. 1 and 6.

Inclusions of medium-grained sandstone, together with numerous grains of subangular quartz, average size 0.20-.50mm., set in an anisotropic matrix of fired clay.

No. 7.

Inclusions of fine-grained micaceous sandstone, together with a scatter of subangular quartz grains, average size below 0.10mm., and abundant flecks of mica, set in an anisotropic matrix of fired clay.

Group III (Mudstone)

No. 2.

The prominant inclusions are frequent grains of mudstone, up to 2.50mm. across, in a matrix of anisotropic fired clay. Also present are a scatter of subangular quartz grains, average size 0.15-.30mm., and a few crushed fresh shell fragments.

Group IV (Quartz)

No. 3.

Numerous well-sorted grains of subangular quartz, average size 0.20-.40mm., in an anisotropic matrix of fired clay.

Analysis of Clay

Samples of unfired clay found at the site were baked and then sectioned for study under the petrological microscope in the same way as the pottery.

A. Hse. II passage C (3).

B. Hse. II (5).

C. I (1) 12 .

Thin sectioning shows that all the samples contain numerous inclusions of crushed fresh shell, together with grains of fine-grained micaceous sandstone, and frequent grains of subangular quartz, average size 0.20-.50mm.

Discussion

The above analysis suggests that there is no reason to

suspect anything other than a fairly local source for the pottery, as the main inclusions present in the samples are all to be found within the general area of the site. A view strengthened by the degree of similarity between thin sections of clay recovered from the site and Group I.

These results confirm previous petrological examination of Unstan ware, which was shown to contain inclusions common to the area from which the pottery was found (Phemister, 1942).

Report on the stone axe from Knap of Howar

The surface colour is pale greenish-grey; the butt end is slightly damaged. Length: 5.4cm., max. width: 4.2cm., thickness: 1.1cm., weight: 34.9gms. A thin section was taken from the centre and revealed a fine-grained uniform aggregate of rhomboid dolomite grains, among which are scattered angular detrital quartz grains of similar size. Two veins of pyrite transverse the matrix, and can be seen on the surface of the axe running around the edges. The rock is a fine-grained dolomite. Small bands of dolomite occur fairly frequently within the Middle Old Red Sandstone formations of the Orkneys, and so the rock could have originated from a local source on Papa Westray.

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Phemister, J. (1942) 'Report on samples of Neolithic pottery from Scottish sites', PSAS , 76(1941-42), 131-132.

Plate I - Dolomite axe.

Plate II - Photomicrograph showing a matrix composed of fine-grained dolomite with a scatter of angular quartz grains. A discrete band of pyrite can be seen transversing the centre. Polarized light x 60

(Photograph and Photomicrograph by N.Bradford)

Plate I