

Proc Soc Antiq Scot, 116 (1986)

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LAVACROON, ORPHIR, ORKNEY

COLLEEN BATEY

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Lavacroon, Orphir, Orkney

Colleen Batey with Claudine Freeman

Recorded Finds in Numerical Order

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41	Worked stone	42/815
42	Pottery	42/861
43	Flint	71/849
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45	Industrial waste	38/831
46	Worked stone	36/835
47	Worked stone	36/845
48	Pottery	36/872
49	Flint	35/832
50	Furnace material ?	35/870
51	Furnace material ?	35/877
52	Worked stone	35/877
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55	Pottery	34/887
56	Furnace material ?	32/898
57	Pottery	31/862

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60	Worked stone	28/837
61	Flint	28/871
62	Pottery	32/862
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70	Industrial waste/stone	56/885
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76	Burnt clay	56/861
77	Iron	64/859

78	Worked stone	57/881
79	Worked stone	57/881
80	Pottery	57/885
81	Pottery	56/866
82	Burnt clay	61/872
83	Pottery	61/885
84	Pottery	62/885
85	Pottery	63/871
86	Pottery	63/875
87	Iron	63/893
88	Furnace material ?	64/873
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90	Pottery	70/867
91	Industrial waste	70/882
92	Industrial waste	69/891
93	Pottery	67/888
94	Worked stone	74/875
95	Furnace material ?	74/882
96	Burnt clay	73/876
97	Worked stone	75/884

98	Iron	70/850
99	Furnace material ?	75/883
100	Pottery	75/884
101	Furnace material ?	74/886
102	Pottery	71/858
103	Iron	74/850
104	Burnt clay	77/866
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109	Iron	91/811
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112	Flint	94/850
113	Iron	96/832
114	Pottery	97/885
115	Iron	82/842
116	Iron	86/838
117	Iron	87/879

118	Iron	72/810
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120	Iron	75/843
121	Iron	75/895
122	Iron	77/808
123	Pottery	79/823
124	Burnt clay	79/845
125	Worked stone	79/893
126	Flint	61/847
127	Iron	65/892
128	Pottery	66/895
129	Flint	69/838
130	Burnt clay	69/843
131	Worked stone	69/892
132	Worked stone	69/898
133	Iron	51/808
134	Iron	78/850
135	Pottery	59/898
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138	Iron	46/878
139	Stone and mortar	49/858
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141	Worked stone	32/837
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143	Clay pipe	36/887
144	Iron	38/885
145	Pottery	38/888
146	Iron	99/850
147	Flint	38/815
148	Worked stone	39/817
149	Clay pipe	39/846
150	Iron	39/879
151	Flint	22/810
152	Flint	27/896
153	Iron	74/884
154	Iron	76/879
155	Copper alloy	78/871
156	Worked stone	78/872
157	Flint	78/875

158	Whalebone	79/881
159	Industrial waste	61/879
160	Iron	65/865
161	Flint	64/870
162	Industrial waste	65/875
163	Pottery	66/856
164	Worked stone	66/871
165	Burnt clay	67/878
166	Furnace material ?	67/881
167	Furnace material ?	67/882
168	Mortar	68/865
169	Iron	68/872
170	Burnt clay	68/875
171	Pottery	69/876
172	Burnt clay	69/884
173	Pottery	69/896
174	Furnace material ?	55/865
175	Worked stone	55/879
176	Pottery	55/870
177	Worked stone	57/882

178	Iron	56/884
179	Pottery	56/885
180	Mortar	59/874
181	Burnt clay	58/876
182	Industrial waste	75/866
183	Industrial waste	76/877
184	Burnt clay	67/861
185	Worked stone	63/881
186	Pottery	58/862
187	Pottery	56/881
188	Worked stone	58/886
189	Iron	56/871
190	Flint	56/850
191	Flint	52/850
192	Pottery	59/900
193	Pottery	58/890
194	Pottery	32/900
195	Pottery	100/900
196	Pottery	74/850
197	Industrial waste	68/890

198	Industrial waste	72/890
199	Burnt clay	54/850
200	Burnt clay	100/900
201	Glass	42/900
202	Glass	94/900
203	Clay pipe	60/900
204	Pottery	-
205	Crucible	-

Metals

Iron

LN79 5 91/867

Corroded iron. Probable nail shank. 63mm x 22mm x 14mm.

LN79 14 73/893

Corroded iron spike or chisel. Possibly rectangular in section tapering with one end broken or squared off. 140mm x 12mm x 9mm-21mm with corrosion.

LN79 63 52/855

Six lumps of iron concretion. Less than 45mm x 43mm x 27mm

LN79 64 53/859

Corroded iron nail. Possibly large drawing pin. Shank 20mm x 3mm
Head 15mm diameter.

LN79 66 51/894

Corroded iron nail. Square sectioned shank 6mm x 7mm x 5mm
(with corrosion) Head 15mm diameter.

LN79 67 61/855

Amorphous lump of iron. 14mm x 9mm x 7mm

LN79 77 64/850

Corroded, possible iron spike, curved in profile, tapering.
133mm x 8mm x 6mm.

LN79 87 63/893

Corroded piece of iron ? nail shank.

46mm x 13mm x 9mm

LN79 89 64/884

Fine strip of iron. Possible fish hook. ? modern 63mm (total length) x 4mm x less than 2mm

LN79 98 70/850

Fragmented piece of iron. 18mm x 18mm x 13mm

LN79 103 74/850

Three small flat fragments of iron. Less than 18mm x 9mm x 1mm

LN79 106 76/850

Flat band of corroded iron, broken at both ends. Pierced by circular hole with partial outline of another. 109mm x 33mm x 13mm

LN79 109 91/811

Corroded piece of iron. ? rivet head. 27mm x 25mm x 24mm

LN80 111 94/824

Thin sheet of iron, rectangular 46mm x 25mm x less than 1mm

LN80 113 96/832

Flat tongue shaped portion of iron object . Probable handle.

91mm x 24mm-16mm x 8mm

LN80 115 82/842

Lump of iron. Thick sheet of iron. 48mm x 47mm x 17mm

LN80 116 86/838

Thin piece of iron. ? nail shank. 32mm x 2mm x 2mm

LN80 117 87/879

Corroded iron nail. 123mm x 24mm x 20mm. Also iron fragment, curved, circular in section, possibly twisted strands of metal. 88mm x approx 14mm diameter.

LN80 118 72/810

Corroded iron nail. Shank 44mm x less than 2mm Head approx 5mm

LN80 119 74/809

Corroded iron - possible rectangular plate. 31mm x 24mm x 2mm without corrosion.

LN80 120 75/843

Iron nail. 27mm x 6mm x 5mm and head 12mm x 8mm with corrosion.

LN80 121 75/895

Corroded iron ? nail shank. 44mm x 7mm x 6mm

LN80 122 77/808

Corroded iron. 65mm x 8mm x 7mm

LN80 127 65/892

Corroded iron lump. Strip of metal bent to form a hook. 22mm x 17mm x 9mm

LN80 133 51/808

Corroded iron nail ? modern. 60mm x 8mm x 5mm Head 5mm in diameter

LN79 134 78/850

Corroded nail. 24mm x 5mm x 6mm. Also portion of nail shank. 45mm x 10mm x 10mm

LN79 136 90/850

Two pieces of corroded iron. Curved in profile, one tapering to a point. Largest 57mm x 1mm x 1mm

LN79 137 96/850

Corroded piece of 'U' shaped iron. Probably modern. 45mm x 5mm x 4mm. Also lump of corroded iron, shaped like a cork screw. 43mm x 20mm x 23mm

LN80 138 46/878

Corroded iron. Circular and flat. 26mm x 29mm x less than 1mm

LN80 142 37/815

Corroded iron - possible metal plate. 19mm x 13mm x 3mm

LN80 144 38/805

Corroded iron mass, in six pieces. Possibly originally part of a tool. Largest 68mm x 15mm x 9mm

LN79 146 99/850

Corroded iron - shaft of metal broken along length, with possible nail-like head. Total dimensions 39mm x 20mm x 10mm

LN80 150 39/879

Amorphous lump of iron. 23mm x 14mm x 7mm

LN80 153 74/884

Four corroded pieces of iron. Probable nail shank. Largest 21mm x 6mm x 3mm

LN80 154 76/879

Rectangular iron rivet plate. Approx 26mm x 20mm x 7mm

LN80 160 65/865

Corroded iron nail with shank tip bent. Shank 39mm x 2mm diameter Head 6mm diameter

LN80 169 68/872

Amorphous piece of iron. 9mm x 14mm x 9mm

LN80 170 56/884

Amorphous piece of iron. 13mm x 11mm x 7mm

LN80 180 56/871

Corroded iron, curving in shape. With possible fragments of nail shank. Largest 58mm x 6mm x 4mm

Copper Alloy

LN79 72 59/863

Copper alloy rod with flattened end, rounded in section. ?
rivet. 15mm x 3mm diameter

LN88 155 78/871

Copper alloy disc, possibly a button. Decorated with
four groups of three 'flowers' separated by semi-circles dividing
the field into quadrants and forming a cross-like effect. Slight
decoration forming outside border. Pattern may have been picked
out by colours because there are traces of black along raised
areas on one side. (Illus 9) Diameter 21mm x less than 1mm

Stone

Steatite

LN79 9 83/859

Probable vessel sherd, with ridge on 'outer' surface. (Illus 7)
23mm x 19mm x 10mm

LN79 36 45/847

Part of steatite ingot mould. Rectangular in shape originally,
with deep groove with rounded end. Traces of burning and tooling
on opposite face. (Illus 7 & 9) 54mm x 2mm x 16mm

Miscellaneous

LN79 8 87/823

Medium grained sandstone ? worked. 86mm x 81mm x 25mm

LN79 10 81/845

Fine grained sandstone, worked, wedge shape.

85mm x 57mm tapering to 30mm x 13mm

LN79 11 81/863

Medium grained sandstone. ? part of ard. 112mm x 75mm tapering to 58mm x 37mm

LN79 17 68/826

Circular fine grained sandstone gaming piece. Flat on one side and uneven on the other. (illus 8) 22mm diameter x 8mm

LN79 24 58/844

Medium grained sandstone. Worked. ? part of ard. 92mm x 54mm tapering to 44mm x 45mm tapering to 39mm

LN79 25 58/844

Plough marked micaceous siltstone. Ovoid form ? tool. 95mm x 45mm max. x 10mm

LN79 27 57/842

Medium grained sandstone. Square in section. ? Hone. 200mm x 40mm x 38mm

LN79 32 46/838

Squared off, flat siltstone. 70mm x 70mm x 10mm

LN79 35 46/871

Worked shale with rounded and smooth outer side. Originally part of curved object. 48mm :: 24mm x 20mm

LN79 38 44/819

Coarse sandstone. Small blackened patches on side. ? Whetstone. 100mm x 37mm x 28mm

LN79 40 43/897

Fine grained sandstone. Roughly triangular in shape ? two serrations in one edge. 38mm x 24mm x 15mm

LN79 41 42/815

Medium grained sandstone pebble. Probably worked. ? Rubber. (illus 8) 109mm x 38mm x 20mm

LN79 46 36/835

Fine grained sandstone. Worked. 65mm x 30mm x 23mm

LN79 47 36/845

Fine sandstone ? whetstone, square in section. 41mm x 15mm tapering to 8mm x 10mm

LN79 52 35/887

Worked fine grained sandstone, slightly twisted in shape with ridge on one face. 58mm x 51mm x 20mm tapering to 10mm

LN79 54 33/881

Medium grained sandstone, oval in section. ? ard fragment 80mm
x 50mm x 26mm

LN79 60 28/837

Fine grained sandstone . ? Whetstone. Roughly square in section.
110mm x 32mm tapering to 19mm x 23mm

LN79 70 55/885

Two fragments of volcanic rock or ? industrial waste. Largest
26mm x 24mm x 14mm

LN79 75 58/882

Medium grained sandstone pebble, rounded and pointed end.
Worked. 75mm x 38mm x 33mm

LN79 78 57/881

Spatulate shaped sandstone. Worked. 99mm x 60mm max x 12mm

LN79 79 57/881

Fine grained sandstone whetstone.(illus 8) 80mm x 17mm x 10mm

LN79 94 74/875

Whetstone. Medium grained sandstone.(illus 8) 106mm x 29mm x
13mm

LN79 97 75/864

Medium grained sandstone. Possible slabstone used for grinding.
Plough scarred. 102mm x 63mm x 25mm thick on one side tapering
to 15mm thick on other.

LN80 110 93/822

Fine sandstone ? whetstone 93mm x 28mm x 20mm

LN80 125 79/893

Fine grained micaceous sandstone, worked. (illus 8) 77mm x 31mm
tapering to 11mm x 7mm

LN80 131 69/892

Fine sandstone ? Hone. 44mm x 38mm x 18mm

LN80 132 69/898

Fine grained sandstone. Rectangular in section. ? Whetstone.
139mm x 35mm x 17mm

LN80 137 59/899

Worked, fine grained sandstone - having rounded depression and
possible traces of another. 104mm x 47mm-23mm x 28mm

LN80 140 49/898

Fine grained micaceous sandstone, having two edges straight and
squared off. 75mm x 35mm x 12mm

LN80 141 32/837

Black siltstone with two narrow, shallow grooves/incised lines
on one smoothed face. 25mm x 18mm x 5mm

LN80 148 39/817

Fine grained micaceous sandstone. ? Hone. 75mm x 28mm x 20mm

LN80 156 78/872

Igneous rock ? dolerite with one smoothed, flattened and slightly curved surface. 34mm x 31mm x 19mm

LN80 164 66/871

Fine sandstone. Oval in section. ? Whetstone. 60mm x 52mm x 27mm

LN80 175 55/879

Slab-like piece of fine grained worked sandstone. Rectangular in shape. 185mm x 95mm x 15mm

LN80 177 57/882

Medium grained sandstone pebble. Appears flattened and worn. 127mm x 62mm x 20mm

LN80 185 63/881

Fine grained sandstone. ? Whetstone. 140mm x 35mm x 20mm

LN80 188 58/886

Weathered siltstone - rather like a narrow 'cotton reel' shape. 40mm x 20mm x 22mm 'Band' approx 8mm thick.

Flint and Chert - retouched

LN79 29 48/832

Red flint ? splintered piece. 18mm x 14mm x 4mm

LN79 31 46/830

Grey flint flake with cortex. ? scraper Retouched edge 22mm
long . 9mm x 9mm x 5mm

LN79 43 71/849

Honey-coloured flint scraper, made on split pebble. Retouched
edge around total circumference. (illus 7) 17mm x 15mm x 7mm

LN79 49 35/832

Red flint ? scraper or tip of broken knife - pointed fairly
abruptly retouched. Damaged along break. Retouched edge approx
26mm of circumference (illus 7) 4mm x 11mm x 6mm

LN80 126 61/847

Butt end of probable blade in grey flint, some spalling on
ventral face. Two edges retouched, 12mm and 18mm. Slightly
patinated. (illus 7) 21mm x 18mm x 6mm

LN79 190 58/850

Part of struck pebble of brown flint with cortex. 18mm x 22mm x
3mm

Flint and Chert - Unretouched

LN79 19 62/806

Chip of grey flint with white cortex. - Burnt. 19mm x 18mm x 6mm

LN79 21 61/841

Piece of cream-coloured chert, probably struck, possibly a core.
26mm x 25mm x 19mm

LN79 26 58/801

Flake fragment of grey flint. 16mm x 11mm x 3mm

LN79 61 28/071

Piece of waterworn cream flint. Pebble. 24mm x 14mm x 4mm

LN79 69 58/882

Flake of brown flint with 75-80% cortex. 18mm x 14mm x 4mm

LN80 112 94/850

Honey-coloured flint flake 18mm x 9mm x 2mm

LN80 129 59/638

Piece of grey flint with cortex. Burnt. 17mm x 16mm x 7mm

LN80 147 38/815

Piece of waterworn grey pebble flint. 21mm x 21mm x 10mm

LN80 151 22/810

Piece of grey/cream flint with cortex. Thermal fracture. 28mm x
19mm x 7mm.

LN80 152 27/896

Piece of waterworn grey flint. Natural flake which is severely abraded. 19mm x 15mm x 2mm

LN80 157 78/875

Piece of low quality grey ? flint. 24mm x 15mm x 10mm

LN80 161 64/878

Flake of brown pebble flint. - large percentage of cortex, broken. 15mm x 9mm x 3mm

LN79 191 48-50/800-900

Chip of brown flint with cream, unrolled cortex. 11mm x 12mm x 3mm

Pottery

Type 1

Dark grey hard fabric, varying in firing colour from orange to dark grey. Gritting varies from large to much finer inclusions, some are very dark and glassy, also mica and quartz content. Very similar to Type 2 in fineness of fabric.

LN79 2 92/801

One ? wall sherd, very fine fabric with no large inclusions. 15mm x 10mm x 7mm

LN79 4 92/848

One wall sherd. 18mm x 18mm x 7mm

LN79 30 48/855

One wall sherd. 24mm x 21mm x 4mm

LN79 33 48/855

One ? damaged thin sherd. Surface abraded. 18mm x 13mm x 4mm

LN79 71 59/888

Wall sherd, very fine fabric with quartz and mica grits. 20mm x 17mm x 6mm

LN79 73 57/856

Small fragment of ? wall sherd seems to be almost brick red throughout. 15mm x 13mm x 7mm

LN79 100 75/844

Dense wall sherd. Prominent hole in one edge ? from burnt out organic inclusion. 32mm x 25mm x 11mm

LN80 187 56/81

Abraded wall sherd, soft fine fabric but very dark glassy hard inclusions. 40mm x 24mm x 8mm

LN79 204 (Finds before organised field walking.)

Two wall sherds:

1) large grits visible in section. Abraded and slightly curved. 30mm x 33mm x 11mm

11) slightly finer fabric, gritting as above. Abraded.

Slightly curved in section. 25mm x 28mm x 9mm

Type 2

Hard grey brown sandy fabric with oxidised exterior face. Large grit inclusions, quartz sandstone and fragments of iron ore. Fine clay matrix with few small angular quartz grains and some similar to Type 6 also.

LN79 37 45/861

Wall sherd with ? plant inclusions with very fine gritting. 24mm x 16mm x 8mm

LN79 55 34/887

Highly abraded wall sherd, slightly coarser than RF37 21mm x 11mm x 8mm

LN79 57 31/862

One wall sherd. 21mm x 16mm x 7mm

LN79 62 32/862

One wall sherd. 18mm x 15mm x 5mm

LN79 84 62/885

Very abraded sherd, oxidised. Some inclusions of unidentified rock. 18mm x 17mm x 8mm

LN79 108 76/878

Highly abraded wall sherd. 28mm x 25mm x 10mm

LN79 192 48-50/800-900

One wall sherd. Abraded. 19mm x 16mm x 9mm

Type 3

Dark fabric, sandy grey/black and very micaceous, fragments of iron ore with very little quartz in a fine matrix. Variable coarseness.

LN79 34 46/843

One wall sherd. Burnt. 18mm x 13mm x 9mm

LN79 44 41/885

Thin sherd. 25mm x 19mm x 4mm

LN79 80 57/885

One sherd, burnt. 14mm x 12mm x 7mm

LN79 193 58/898

One wall sherd. Coarser. 18mm x 18mm x 11mm

Type 4

Fine dark grey/brown fabric with a few quartz, mica specks and larger grains of quartz sandstone and non identifiable fragments. Oxidised exterior face. Very similar to Type 6.

LN79 81 56/866

? base sherd, slightly thinning towards one edge. 31mm x 27mm x 7mm max

LN79 99 79/867

Highly curving / shoulder sherd. Damaged exterior. Gritted with

one prominent inclusion of ? micro crystalline quartz. 25mm x
15mm x 5mm

LN79 93 67/888

Damaged ? wall sherd. Very abraded. 32mm x 19mm x 8mm

LN79 107 76/869

Small fragment similar to RF85 but with fewer inclusions. 14mm x
11mm x 7mm

Type 5

Dark grey fabric. micaceous clay matrix with a low percentage of
sub angular quartz inclusions. Oxidised exterior face and
sooted, reduced throughout. Coarser than Type 6; probably from
the same vessel.

LN79 105 76/855

Highly abraded wall sherd, exterior face with hole for ? burnt
out inclusion. 24mm x 21mm x 4mm

LN80 173 69/896

Fine wall sherd. Half sooting and burnt accretion, burnt
throughout. 27mm x 25mm x 5mm

Type 6

Very fine dark grey fabric with oxidised face, micaceous. Some
interior sooting.

LN80 123 79/823

Small chip, abraded ? base sherd. 15mm x 14mm x 5mm

LN80 186 58/862

Worn wall sherd. 25mm x 18mm x 10mm

Various fabrics

The following sherds appear to be single examples of different fabrics. They are sufficiently distinctive to be separated from the types distinguished above.

LN79 42 42/861

Heavily gritted base sherd, dark fabric slightly pinkish on lower surface. Fine matrix with angular quartz grains. 27mm x 26mm x 8mm

LN79 48 36/872

Wall sherd reduced with oxidised surfaces. Hard black fabric with quartz, almost vitrified. Densely gritted with 10-15% sub angular rounded quartz. Wheelthrown. 26mm x 16mm x 5mm

LN79 83 61/885

Thick ? base sherd, pale pink exterior faces, dark grey fabric, slightly gritted. Very soft finish fabric with sparse quartz grains. Coarse. 34mm x 19mm x 10mm

LN79 85 63/871

? Wall sherd, with interior lines visible, handmade. Fine clay with large quartz inclusions and sandstone grains and iron ore. 45mm x 30mm x 12mm

LN79 102 71/858

Two small sherds. 1) abraded, dark fabric with pinkish exterior,

rather amorphous. Some rock fragments in fabric. 28mm x 17mm x 10mm
ii) dark grey fabric with buff/pink exterior face. ? base sherd. Fine clay fabric though coarse with rounded grits. Very little quartz, mica flecked. 30mm x 20mm x 10mm

LN80 135 59/898

Abraded wall sherd, dark fabric with brick red finish, fractures rougher with very little quartz. 17mm x 19mm x 7mm

LN80 145 38/888

Very fine sherd of pink-red fabric, with traces of very worn yellowy glaze. 13th-14th century, probably shoulder sherd. 21mm x 12mm x 5mm

LN80 171 69/876

Dark grey fabric, wall sherd, pale pink interior and deep red-orange exterior. Very fine fabric, soft cracking on interior with occasional grains of unidentified material. Possibly related to Type 1 36mm x 20mm x 8mm

LN80 176 55/878

Thick dense curving wall sherd, abraded dark grey fabric, gritten reddish pink exterior and burnt interior deposit. Very fine fabric, burnt and almost reduced interior. Finer than fabric Type 3. 55mm x 31mm x 9mm

LN80 179 56/885

Abraded curving wall sherd, reddish exterior faces. Gritten. Diagonal line on exterior face ? plough damage. Fine fabric. 35mm x 30mm x 7mm

LN79 194 32/990

? Base/wall sherd, probable dark grey fabric with two small holes on lower surface which is dark grey. Probable upper surface is very pale buff colour. Fine clay with very small grits. Abraded. 30mm x 25mm x 11mm (Not unlike fabric Type 2)

Post Medieval Pottery

LN80 114 97/885

Wall sherd with dark brown glaze on each face. 18th-19th century Scottish earthenware with lead glaze. 38mm x 24mm x 5mm

LN80 128 66/895

Dense red fabric, damaged surfaces, two grooves on one flat side. ? base sherd. Earthenware. 23mm x 20mm x 7mm

LN79 195 100/998

Rim sherd of salt glazed stoneware. Glaze speckled pale brown, with slight ridge below rim on outer side. Upper rim surface generally flattened but slightly curving. 18th century, English juq. 24mm x 25mm x 6mm

LN80 196 74/850

Basal sherd with interior glaze. Brick red fabric. Glaze pale cream with brown patches, very cracked. Late 18th-19th century domestic earthenware bowl. 41mm x 27mm x 18mm

Tile

LN79 58 32/893

Dense brick red fabric. ? drain pipe. Probably modern. 24mm x
22mm x 12mm

Burnt Clay

LN79 1 93/858

Burnt clay with one flattened face. 30mm x 25mm x 15mm

LN79 23 58/812

Burnt stone or clay. 33mm x 15mm x 15mm

LN79 59 32/896

Burnt clay with blackened surfaces. 22mm x 24mm x 20mm

LN79 76 86/861

Four fragments, one with flat face and two others with evidence
of burning.

19mm x 18mm x 10mm (flat face)

19mm x 18mm x 5mm (burning)

18mm x 18mm x 10mm (burning)

15mm x 12mm x 7mm

LN79 82 61/872

Burnt clay - plant impressions visible. 28mm x 14mm x 11mm

LN79 96 73/876

Burnt clay. 26mm x 22mm x 16mm

LN80 124 79/845

Burnt clay with possible plant impressions. 32mm x 25mm x 4mm

LN80 130 69/843

Burnt clay. 23mm x 19mm x 13mm

LN80 170 68/875

Two fragments of burnt clay. 12mm x 8mm x 7mm; 15mm x 9mm x 7mm

LN80 172 69/884

Burnt clay. 25mm x 16mm x 18mm

LN80 184 67/881

Three pieces of burnt clay. 23mm x 16mm x 12mm; 28mm x 23mm x 12mm; 22mm x 12mm x 10mm

LN79 199 54/850-890

Burnt clay with darkened areas. 11mm x 9mm x 7mm

LN79 200 99-100/800-900

Burnt clay. ? grassmarks. 75mm x 65mm x 48mm

Crucibles

LN79 20 61/837

Fragment of crucible. Thin layer of glassy waste adhering to face. Used to melt copper or one of its alloys. (illus 7) 26mm x 24mm x 5mm

5 : C10

LN79 205 (Find made before organised field walking)

Crucible fragment with rim. Clay fabric (illus 7) Approx 26mm diameter x 3mm

Miscellaneous Industrial Waste/Furnace Material ?

LN79 13 73/849

Burnt clay with black glassy industrial waste adhering. 33mm x 22mm x 8mm

LN79 15 72/834

One piece of ? lead/industrial waste. 23mm x 17mm x 5mm

LN79 28 51/828

Black glassy industrial waste with stone attached. 28mm x 24mm x 19mm

LN79 39 43/885

Stone with black/brown glassy industrial waste adhering. 43mm x 40mm x 19mm

LN79 50 35/870

Stone with black glassy industrial waste adhering. 41mm x 30mm x 16mm

LN79 51 35/877

Black glassy industrial waste with burnt clay adhering. 28mm x 25mm x 19mm

LN79 56 32/808

Stone-like material with black industrial waste with possible iron inclusions adhering. 35mm x 34mm x 17mm

LN79 65 51/861

Burnt clay. Black and cindery texture on two faces. ? part of furnace material. 25mm x 12mm x 6mm

LN79 68 60/866

Burnt clay with black glassy industrial waste adhering. 25mm x 18mm x 10mm

LN79 74 32/896

Burnt clay adhering to blackened glassy industrial waste. 18mm x 12mm x 19mm

LN79 88 64/873

Burnt clay with fragment of buff/green industrial waste adhering. 18mm x 18mm x 12mm

LN79 95 73/882

Burnt clay with grey industrial waste adhering. 54mm x 40mm x 33mm

LN79 99 75/883

Burnt clay with black glassy industrial waste adhering. 26mm x 26mm x 12mm

LN79 101 74/886

Fragment of curved ? burnt clay/stone with grey glassy industrial

waste adhering. ? Hearth lining or fuel ash slag. 27mm x 23mm x 5mm

LN80 166 67/881

Approximately eight fragments of burnt clay and several smaller ones. Two largest have industrial waste adhering. 53mm x 37mm x 23mm ; 36mm x 24mm x 28mm

LN80 167 67/882

Two fragments of burnt clay with industrial waste forming a layer within the fabric and glaze on one face. 30mm x 15mm x 17mm ; 18mm x 15mm x 14mm

LN80 174 55/865

Burnt clay with black glassy industrial waste adhering. 33mm x 22mm x 8mm

LN80 197 58/890

Black glassy industrial waste. Amorphous shape. 18mm x 16mm x 15mm

LN80 198 72/890

Curved fragment of black, glassy, cindery industrial waste. 29mm x 11mm x 17mm

Industrial Waste by Weight

1979 Industrial Waste

	Weight
59-60/850-890	81.4g
57-58/850-890	379.0g
50-51/850-890	98.9g
73-74/800-850,890-900	186.5g
64-66/800-850,890-900	174.3g
66-68/800-850,890-900	43.8g
87-88/800-900	150.4g
30-32/800-900	159.0g
72-73/850-890	28.8g
99-100/800-900	19.3g
36-38/800-900	271.7g
58-60/800-850,890-900	55.5g
64-65/850-890	77.7g
56-58/800--850,890-900	244.2g
63-64/850-890	134.5g
65-66/850-890	118.6g
58-59/850-890	94.3g
98-99/800-900	15.1g
60-61/850-890	10.6g
54-55/850-890	33.8g
69-70/850-890	4.3g
66-70/800-850,890-900	12.1g
81-82/800-900	281.6g
40-42/800-900	219.5g
79-80/850-890	30.9g
80-90/800-900	72.1g

44-46/800-900	194.0g
79-80/80-850,890-900	167.0g
55-56/850-890	32.1g
83-84/800-900	567.7g
51-52/850-890	180.3g
61-62/850-890	131.4g
56-57/850-890	212.0g
62-63/850-890	20.4g
32-34/800-900	363.8g
68-69/850-890	441.2g
92/815 (RF 3)	296.3g
46-48/800-900	231.4g
90-92/900-900	57.2g
66-67/850-890	48.4g
70-71/850-890	597.5g
72/890 (RF 198)	136.2g
85-86/800-900	23.9g
77-78/850-890	28.8g
68/890 (RF 197)	14.4g
54-46/800-850,890-900	168.5g
52-53/850-890	58.4g
28-30/800-900	295.7g
76-77/850-890	4.6g
73-74/850-890	159.6g
52-54/800-850,890-900	209.7g
71-72/800-850,890-900	23.8g
89/837 (RF 7)	15.2g
38/831 (RF 45)	26.2g
89/891 (RF 92)	24.3g
34-36/850-890	326.0g
75-76/850-890	338.9g

78-79/850-890	261.0g
74-75/850-890	84.1g
93-94/800-900	272.2g
70/882 (RF 91)	554.0g
53-54/850-890	77.5g
42-44/800-900	855.8g
38-40/800-900	675.9g
50-52/800-850,890-900	1001.8g
48-50/800-900	668.0g
75-76/800-850,890-900	12.1g
51/881 (RF 65)	1.5g
64-65/850-900	2.7g
61/841 (RF22)	10.7g

Total Weight for 1979 12kg 871g
(RF 16, RF 70 not available for examination)

1980 Industrial waste

76-78/800-850,890-900	6.2g
87-88/800-900	69.9g
73-75/850-890	347.8g
79-80/850-890	258.0g
69-70/850-890	295.2g
29-30/800-900	32.1g
70-75/850-890	3.1g
43-45/800-900	73.3g
46-48/800-900	1.3g
55-60/850-890	40.9g

26-28/800-900	9.7g
60-62/850-890	170.7g
79-80/800-850,890-900	19.7g
69-70/800-850,890-900	33.8g
76-78/850-890	13.7g
33-35/800-900	36.4g
50-52/850-890	99.3g
65-70/850-890	49.2g
66-68/850-890	435.9g
56-58/800-850,890-900	219.5g
50-55/850-890	21.9g
59-60/800-850,890-900	88.5g
36-38/800-900	104.4g
63-65/860-890	65.7g
75-80/850-890	175.0g
61/879 (RF 159)	161.8g
65/876 (RF 162)	31.1g
76/887 (RF 183)	97.7g
75/866 (RF 182)	58.1g

Total Weight for 1780 3kg 19.8g

Chemical Analysis of Slag

Mille Tornblom and Anna Svardh, Riksantikvarieambetet and Statens Historiska Museum, Stockholm.

Introduction

Morton and Windrove have published a method for determining the composition and smelting temperature of slags formed in metallurgical processes. The chemical composition of the slag is analysed and the smelting temperature is estimated in a ternary phase diagram.

Method

Two samples were analysed:

Sample No. 1 was taken from a piece of slag with a weight of 207.1g

Sample No. 2 was taken from a slag lump weighing 40.05g

(both from context 90-100/800-900)

The content of total iron, metallic iron and Fe^{2+} was determined by titration with $KMnO_4$. The content of SiO_2 , CaO , MgO , MnO and Al_2O_3 was determined with atomic absorption spectrophotometry, using an instrument from Perkin-Elmer Model 460. The P_2O_5 content was determined spectrophotometrically. To determine the smelting temperature the total iron content minus the metallic iron is used as FeO . The anortite contains CaO , Al_2O_3 and SiO_2 in the proportions 1:1.82:2.14. The sum of the contents of FeO , SiO_2 and anortite equals to 100% and the smelting temperature estimated from the phase diagram.

Result

Table 1

Sample No.	Fe _{tot}	Fe ₂₊	FeO	Fe ₂ O ₃	Fe _{met}	SiO ₂
1	7.96	6.44	6.52	2.17	1.37	74.90
2	65.05	50.86	63.05	20.07	1.82	6.86

Sample No.	CaO	MgO	Al ₂ O ₃	MnO	Glowing loss	Sum
1	4.16	0.20	0.68	0.84	1.09	98.81
2	3.27	0.83	0.99	0.32	1.41	97.41

Table 2

Sample No.	FeO %	SiO ₂ %	Anorite	Sum	Smelting temp. C
1	9.05	69.28	21.67	99.99	1500 C.
2	90.64	6.33	3.03	100.00	1200-1120 C.

Sample No. 1 has a very low iron content and corresponding high SiO₂ content giving a high smelting temperature.

Sample No. 2 has the opposite proportions giving a low smelting temperature. The slags can be products from either a reduction process or smelting.

Mortar

LN79 6 92/874

Shelly mortar with ridge in one surface. Triangular in section.

65mm x 34mm x 14mm

LN80 139 49/858

Shelly mortar with one flat surface. 62mm x 26mm x 8mm

LN80 168 68/865

Fragment of white mortar. 26mm x 23mm x 8mm

LN80 180 59/874

Fragment of white mortar/? burnt clay. 23mm x 18mm x 13mm

Glass

LN79 53 34/803

Dark green glass. Curved with smooth round edge. ? Modern. 30mm

x 24mm x 21mm

LN80 201 42/900

Fragment of green glass. Curved with finished edge. ? Modern.

15mm x 7mm x 3mm

LN80 202 94/900

Fragment of green glass from vessel. ? Modern. 25mm x 25mm x

5mm

Beads

LN79 12 79/820

Blue glass bead. Round, with roughly triangular faceted faces. Fragment missing. (illus 9) 9mm x 8mm diameter

LN79 18 69/897

Round glass bead fragment, broken longitudinally. Dark green interior with three bands of red and yellow diagonal stripes decorating exterior with black stripes on middle band of decoration. (illus 9) 16mm x 15mm x 6mm

Clay Pipe

LN80 143 36/887

Pipe stem. Late 18th to 19th century. 14mm x 7mm diameter

LN79 149 39/846

Pipe mouthpiece. Late 18th to 19th century. 25mm x 7mm diameter tapering to 4mm diameter

LN80 203 60/890

Part of pipe bowl. 14mm x 9mm x 2mm

Bone

LN80 158 79/881

One piece of whalebone. 68mm x 42mm x 28mm

Mammal Bone Fragments

Identified by D. James Rackham

LN79

36-38/800-900	One calcined longbone fragment.
43-45/800-900	One cow tooth
46-48/800-900	Two cow teeth, juvenile.
46-48/800-900	One calcined bone fragment.
54-55/850-890	Two burnt bone fragments.
55-56/850-890	Burnt bone piece ? phalanx of cow
56-58/800-850,890-900	Two burnt bone fragments; one non-burnt indet. fragment.
55-60/850-890	One burnt bone fragment; one sheep tooth, Upper molar 2
57-58/850-890	Very small sheep astragalus (analogous in size to examples from the excavations at Birsey)
58-59/850-890	Two calcined bone fragments
60-61/850-890	Fragment of burnt pelvis bone, possibly pig/ cow/ or indet.
60-62/850-890	Fragment of chopped mammal bone, indet ? vertebra.
62-63/850-890	Two burnt bone fragments.
63-64/850-890	Fragment of sheep phalanx (1st), adult, proximal
64-65/850-890	Two burnt bone fragments.
64-66/800-850,890-900	Fragment of calcined bone.
66-68/800-850,890-900	Fragment of burnt bone.
66-68/850-890	Tooth, adult cow, Maxillary Premolar 4

69-70/850-890 Fragment of burnt bone.
72-73/850-890 Fragment of calcined bone.
73-74/800-850,890-900 Six fragments of burnt bone.

LN80

56-58/850-890 Two cow teeth, Molar 2, upper and lower
59-60/850-890 Cow, parts of upper jaw, juvenile,
deciduous Premolar, c. 6 months old.

Mollusc Fragments

Identification Moira Murphy

57-58/859-890 *Buccinum undatum*, whelk, one
62-63/850-890 *Littorina littorea*, common periwinkle, one
63-64/850-890 Small shell sample of Limpets and
Littorina littorea
65-66/850-890 Small shell sample of *Littorina*
littorea, 50+
87-88/800-900 *Mytilus edulis*, mussel, two