

Excavation of a standing stone site at Deepdale, Stromness, Orkney

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During the winter of 1976–7, the larger of two standing stones 2.75 km SW of the Ring of Brodgar became loosened during ploughing and was removed by the farmer, Mr B Reid. Shortly afterwards a local teacher, Mr S Firth, noticed the loss and informed the Orkney Heritage Society. Accordingly it was decided to excavate with the objective of locating the stone-hole and remaining parts of the stone, and the work was undertaken by the author on behalf of North of Scotland Archaeological Services (for the Scottish Development Department) in July 1978.

PREVIOUS RECORD OF THE STONES

In a description dated 2 August 1928, the Royal Commission survey includes the following information (RCAMS 1946 II, 325):

. . . two standing stones, 120 ft apart, set with their major axes N.W. and S.E. Their position is in cultivated land between the 50 and 100 ft contour lines. The one on the N., which shows a packing of small stones at the base, has apparently been damaged, as two loose fragments lie beside it; but it still rises to a height of 6 ft, with an average width of 4 ft 6 in and an average thickness of 4½ in. The other is in the adjoining field and a little higher up the ridge. It is of very irregular shape and leans over towards the W. in such a way that,

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although its length is 7 ft 6 in, the vertical height from ground level is only 6 ft 6 in. It has a maximum width of 5 ft 3 in and tapers gradually to a point.

At the present time the northernmost, still extant stone stands in pasture, but it attracts cattle which habitually rub against it, and topsoil erosion has revealed a box-like setting of edge-set stones at the base, c 1.0 m by 0.2 m (internal dimensions) and of which c 0.3 m are visible above ground. A single fragment c 1 m across now lies against this setting, rather than the two mentioned by the Royal Commission. Prior to excavation no above ground traces of the fallen stone were visible and no crop markings existed, despite favourable conditions.

EXCAVATION OF THE STONE-HOLE

The stone-hole was picked up in the second of two 6 m by 1 m cuttings laid out over the presumed location, NGR HY 2718 1166 (fig 1), and proved to have a fill largely of modern soil, redeposited clay, and turf-like clods undoubtedly the result of the upheaval of the stone 18 months previously. Fortunately the base of the stone itself remained to an average height of 0.25 m; this was *in situ* in its original packing (fig 2).

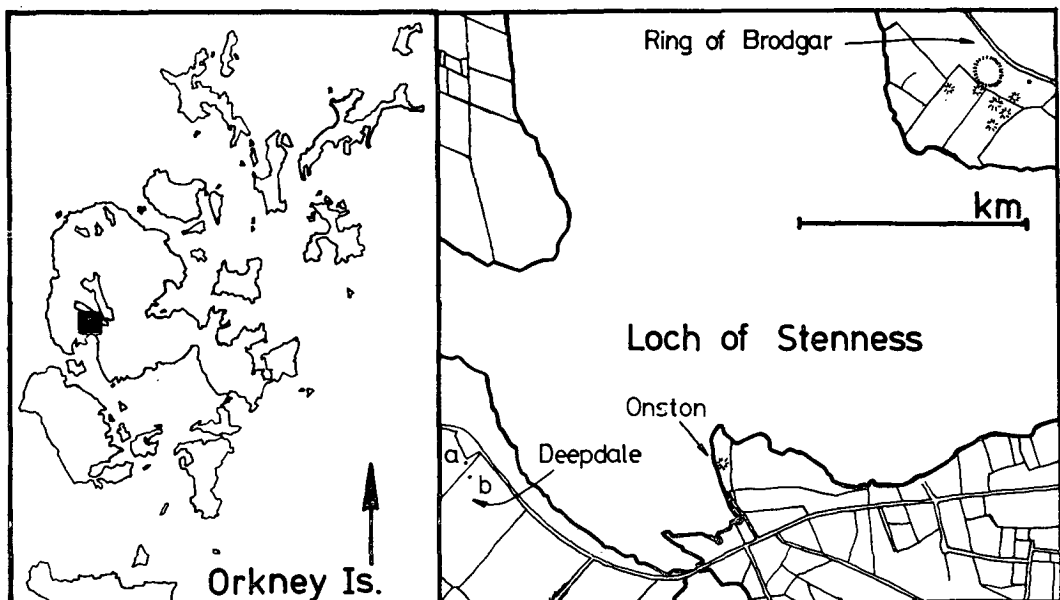


FIG 1 Location map of the Deepdale site

Three features of the layout of the hole indicate the manner in which the stone was erected. Firstly, the base of the stone was embedded in a gritty, heterogeneous clay, probably the backfill of the hole itself, and no packing stones accompanied it. This bedding medium would certainly have been adequate to hold the stone upright in its 1 m deep hole, though it could be argued that over a period of time it could have worked its way loose aided by the action of groundwater – indeed that this accounts for the fact that the stone was leaning over steeply by the 20th century AD. However the stump was apparently cleanly broken off, and still in a vertical position in the clay packing, except where this was removed in 1976/77 at the northern end of the stone. In this

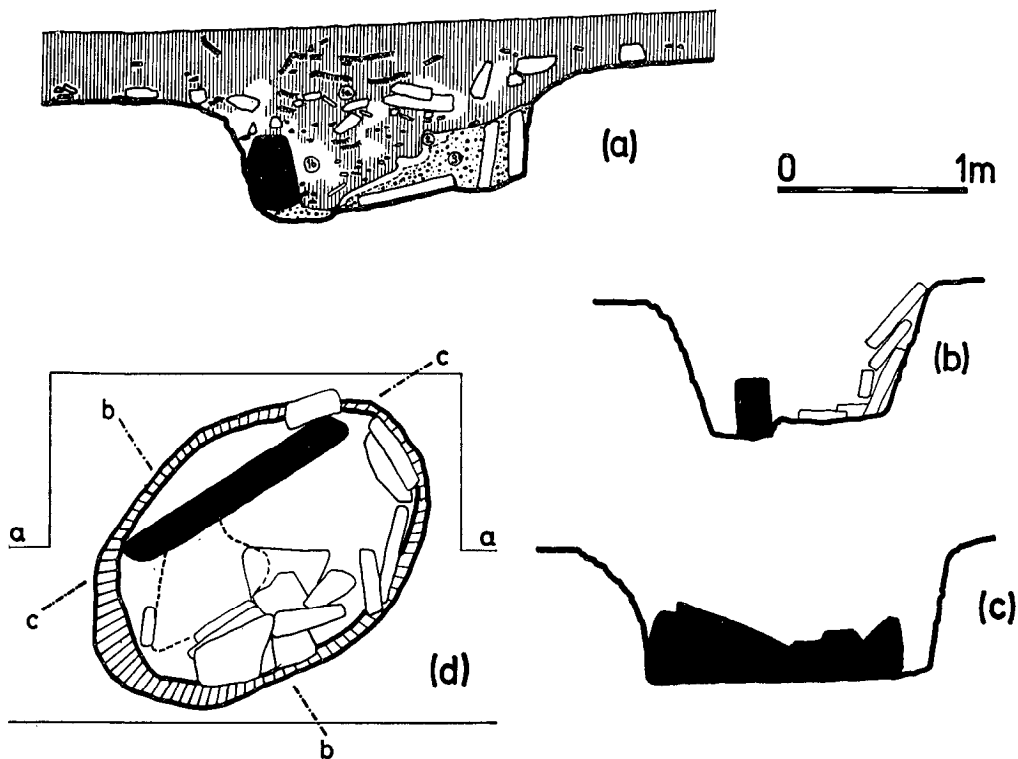


FIG 2 (a) section through the stone-hole: 1a, humus and turves; 1b, redeposited clay packing material; 2, 1976/77 silt layer; 3, undisturbed clay packing, (b) profile bb across stone-hole, (c) profile cc across stone-hole, (d) plan of stone-hole: dotted - extent of modern disturbance below stump level

case, then, it must be supposed that (a) the stone came to be broken, probably in the last few hundred years, and (b) the shallowness of the packing above the stump allowed the stone to slump, unimpeded by the resistance of packing stones.

The second feature is the extreme off-set position of the stone in its hole, which suggests that it was erected by being hauled upright from a prone position on the ground the other side of the hole. If this was the case, then it is likely to have been tipped into the hole by simple leverage, jammed against the far side, and then raised to the vertical with ropes or otherwise. According to the measurements given by the Royal Commission we can arrive at a final mass for the stone of between 1,250 kg and 1,500 kg¹; taking 4,000 to 5,000 years of erosion into account, we could add a notional 20% to these values to give us a *minimum* of 1½ tonnes. At this order of magnitude it is quite unlikely that a group of men could raise the stone by muscle-power alone, and of course even its transportation over a modest distance would have required a fair sized group to turn out in the first place.

The third feature of the stone-hole, meanwhile, is the collection of flat stones on the 'open' side of the hole. Although the uppermost had clearly been exposed in 1976-7, the lower ones remained undisturbed in the clay packing, though not against the stone. These lay as if fallen from a stack on the side of the hole, or perhaps shovelled in as the hole was backfilled after the erection of the stone. It is suggested that these stones were incorporated in some temporary structure used to wedge the stone partially upright during its elevation; for example, it may have been easiest to haul the stone up by degrees, blocking or wedging it during pauses.

IMPORTANCE OF THE DEEPDALE STONE

It would not be fitting to propose intimate relations between outlying stones and the principal monuments in the Loch of Stenness area, such as in the present instance between Deepdale and Brodgar or Stenness. Very small amounts of charcoal were recovered during the excavation, insufficient in fact for radiocarbon dating, so that one of the main aims of the excavation must be considered unfulfilled. Regardless of research objectives, the salvage aspect of the work is rendered all the more poignant for this inability to demonstrate even the chronological position of the stone in relation to its companions in the surrounding landscape, for the well publicised case of the Odin stone (Marwick 1976) is backed by local knowledge of the disappearance of a number of less impressive monoliths in the same area. It is surely a tragic indictment of modern times that these vital clues to the meaning of the great monuments of the area should have been smudged out so anonymously after having stood for so long unmolested, and a poor consolation that in the present case the location alone has been saved.²

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NOTES

- Calculations relevant to the estimation of the original mass of the fallen stone. A fragment of the stone, part of the remaining pieces left *in situ*, was removed; this weighed 7.83 kg and had a volume of $3.33 \times 10^{-3} \text{ m}^3$, and therefore had a specific gravity of $2.35 \times 10^3 \text{ kg m}^{-3}$. The stump of the stone had dimensions of $1.34 \times 0.15 \text{ m}$, and the base was 0.95 m below the surface of the field, on average. The above ground height of the stone is given as 7 ft 6 in (2.29 m), therefore a rectangularly shaped stone of constant width and thickness would have measured at least $0.15 \times 1.34 \times 3.24 \text{ m}$. This gives a mass of 1,530 kg, or about $1\frac{1}{2}$ tonnes. However the maximum width is given as 5 ft 3 in (1.60 m), that is wider than the base measurement. For ease of calculation, let us suppose a below-ground width of a constant 1.34 m, a trapezoidal middle section widening to the maximum width of 1.60 m at 1.29 m above ground, and a top section tapering to a point 2.29 m above ground. This gives a total volume of $((0.95 \times 1.34) + (1.29 \times 1.34) + (1.29 \times 0.13) + (1.00 \times 1.60 \times \frac{1}{2})) \times 0.15 \text{ m}^3$, and a mass of 1,399 kg. These calculations assume a constant thickness etc, but a low estimate of 1,250 kg and a high one of 1,500 kg should bracket the range of possible shape variations, ie the stone weighed between $1\frac{1}{4}$ and $1\frac{1}{2}$ tonnes before its demise.
- Stone A (remaining) and stone B (fallen) are 44.5 m apart, centre to centre. Stone B and Onston cairn subtend an angle of 82° at stone A. In addition, stone B is 16.5 m into its field from the modern fence.