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Minor excavations and small finds at three Mesolithic sites, Isle of Oronsay, Argyll

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SUMMARY

The locations of minor excavation pits and of auger holes in the vicinities of Cnoc Sligeach, Cnoc Coig and Caisteal nan Gillean I and II, Oronsay, between 1972 and 1976 are given, together with descriptions of the stratigraphy in the pits in which traces of human activity were found. Four limpet hammers, one (possible) limpet scoop and 19 fragments of flint are illustrated. Radiocarbon age determinations of two samples of charcoal fragments and of five samples of shells (from occupation debris or from storm-beach gravel deposits) are given. The significance of the finds and of the radiocarbon ages is discussed briefly.

INTRODUCTION

Between July 1972 and July 1976, in the course of investigation of relationships between Mesolithic occupation refuse and raised beach and storm-beach deposits at three sites on the island of Oronsay, Argyll, several small pits were dug, auger holes were sunk and a number of small finds were encountered. The positions of the excavations made in the vicinity of Cnoc Sligeach, together with details of a barbed point found in one of these excavations, are recorded elsewhere (Jardine & Jardine 1978). Prior to publication of a detailed report on major excavations made at the three sites by Dr P A Mellars between 1970 and 1979 (interim reports: Mellars 1978 1979, 1981), it may be useful to record the positions of the minor excavations made in the vicinity of Cnoc Coig (also known as Druim Arstail or Druim Harstell; cf Wickham-Jones *et al* 1982) and Caisteal nan Gillean, and to describe and illustrate the stratigraphy and additional finds encountered at all three sites. The positions of the sites on the island of Oronsay and in relation to each other are shown in fig 1b. The finds illustrated in figs 2 and 3 are in the care of the Hunterian Museum, University of Glasgow.

CNOC SLIGEACH AREA

The locations of excavation pits in the vicinity of Cnoc Sligeach, together with a vertical section illustrating the relationships between the major stratigraphical units revealed in a line of small pits opened in 1973, are shown in fig 1. The detailed stratigraphy in pits where traces of human activity were found is described below.

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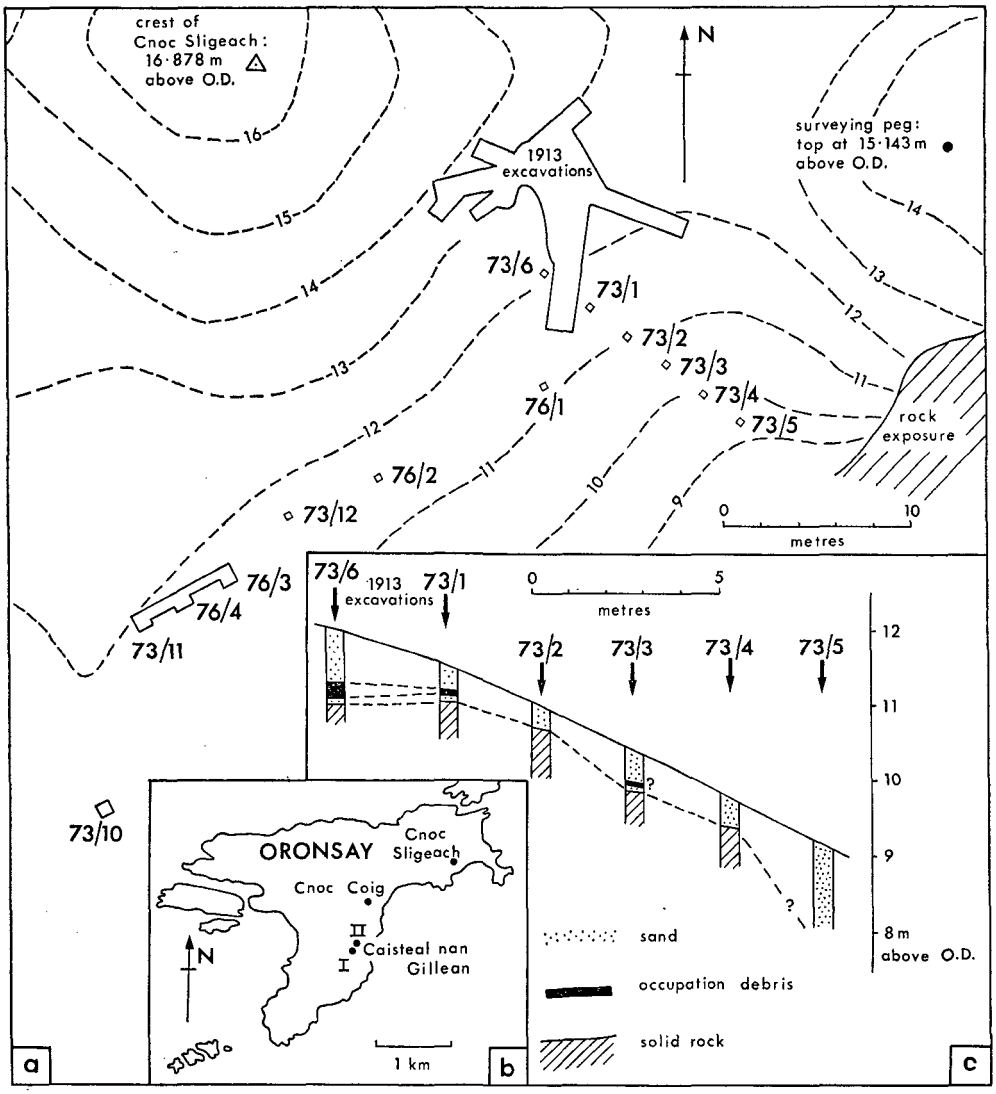

FIG 1 a, Map of southern part of Cnoc Sligeach, showing the positions of pits and trenches opened between 1973 and 1976 and the approximate position of the excavations made by W H Bishop in 1913. Based on a map drawn from the results of an instrumental survey made by J E Gray in 1970. Contours are in metres above Ordnance Datum, Newlyn. b, Map of Oronsay, showing the positions of Cnoc Sligeach, Cnoc Coig and Caisteal nan Gillean I and II. c, Vertical section through the line of pits CS 73/6 to CS 73/5, illustrating relationships between stratigraphical units revealed in the pits. Vertical exaggeration × 2

Excavation pit CS 73/1	Ground level:	11·60 m above OD
Grey sand, composed mainly of quartz grains		0·25 m
Orange-brown quartz sand		0·10 m
Occupation layer: black carbonaceous sand, with numerous (complete) shells of *Patella* spp		0·07 m
Grey quartz sand containing frequent shells of *Patella* spp and one cobble-sized, disc-shaped rock clast		0·11–0·33 m
Solid rock (irregular surface)		

Excavation pit CS 73/3	Ground level:	10·44 m above OD
Grey sand, composed mainly of quartz grains		0·30 m
Grey-orange quartz sand with occasional fragments of shells of *Patella* spp		0·15 m
Dark brown to black quartz sand with shells of *Patella* spp and one possible limpet scoop		0·02 m
Grey quartz sand		0·00–0·08 m
Solid rock		

Excavation pit CS 73/6	Ground level:	12·00 m above OD
(Slightly disturbed) grey to orange-grey sand, composed mainly of quartz grains		0·70 m
Occupation layer or layers: dark-brown quartz sand with numerous shells of *Patella* spp, especially in lower half		0·20 m
Grey quartz sand		0·10–0·30 m
Solid rock		

Excavation pit CS 76/1	Ground level:	11·26 m above OD
Turf		0·05 m
Occupation layer or layers: shell component comprises mainly *Patella* spp, but included are *Ensis* sp, *Ostrea edulis* L, *Pecten maximus* (L) and an unidentified whelk; one fragment of mammalian bone; three fragments of avian bones; eight small fragments of (? fire-cracked) rock, four elongate smooth pebbles (possible limpet scoops); one possible and one probable limpet hammer (fig 2: 1a & 1b)		0·25 m
Grey quartz sand		0·05 m
Orange-brown quartz sand		0·30 m
Dark brown quartz sand		0·15 m
Solid rock		

Excavation pits CS 73/11, CS 76/4, CS 76/3 and connecting trenches

A simplified representation of the section exposed in the north-western sides of pits CS 73/11, CS 76/4, CS 76/3 and the trenches connecting these pits is given in Jardine & Jardine (1978, fig 1b). Details of the stratigraphy revealed in these three pits and connecting trenches are given below.

Excavation pit CS 73/11	Ground level:	12·09 m above OD
(cf Jardine 1978, 186–87)		
Grey-brown sand, composed mainly of quartz grains		0·10 m
Dark brown, humus-enriched quartz sand		0·10 m
Wedge-shaped occupation layer: mainly (complete) shells of *Patella* spp		0·03–0·20 m
Light brown quartz sand with frequent small fragments of molluscan shells; thickness variable		0·03–0·10 m
Occupation layer: mainly (complete) shells of *Patella* spp, but including one right valve of *Pecten maximus* (L), at 11·59 m above OD, dated by radiocarbon assay (Table 1, Birm-465); one possible limpet scoop		0·10–0·13 m
Light brown quartz sand, with abundant small fragments of molluscan shells; at 11·37 m above OD, three horizontal disc-shaped cobbles		0·40 m
Light brown quartz sand interstratified with rod- and disc-shaped pebbles of greywacke; small fragments of wood charcoal, in association with angular (? fire-cracked) pebble-sized rock clasts; one rib bone of a large mammal (unidentified); one complete valve of *Ostrea edulis* L and one incomplete valve of *Arctica islandica* (L). The valve of *A islandica* (at 11·09 m above OD) was dated by radiocarbon assay (Table 1, Birm-464)		0·10 m

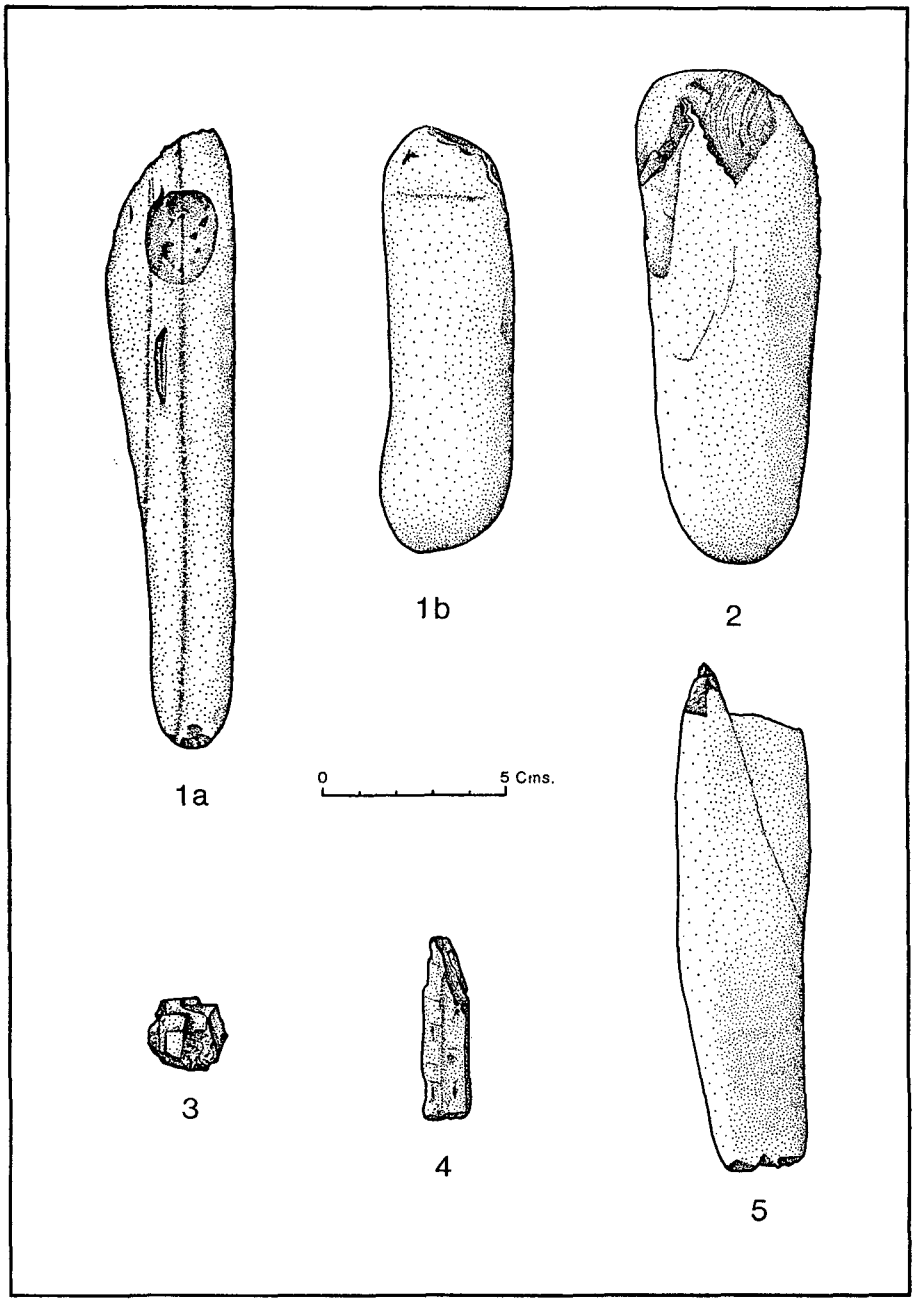

FIG 2 Limpet hammers and other occupation debris from minor excavations in the vicinities of Cnoc Sligeach, Cnoc Coig and Caisteal nan Gillean I and II. 1a and 1b, found in CS 76/1; 2, found in CC 72/6; 3 (metal ore), found in CS 76/3; 4, found in CC 72/15; 5, found in CNG 76/1

Light brown quartz sand with traces of fragments of wood charcoal, in association with disc-shaped pebbles	0·15 m
Horizontally arranged, disc-shaped cobbles of greywacke, c 100–150 mm long diameter, with occasional medium-sized fragments of molluscan shells in a sand-sized matrix	0·15 m
Mixture of tightly packed, thin disc-shaped pebbles and cobbles of greywacke, 50–100 mm long diameter, and pounded, medium-sized fragments of molluscan shells, mainly *Patella* spp; occasional sporadic occurrences of small, diffuse, dark brown or black patches of (?) charcoal; shells of *Ostrea edulis* L, *Patella* spp, *Arctica islandica* (L) and *Littorina* spp from 10·79 m above OD and pounded fragments of shells of *Patella* spp from 10·59 m above OD were dated by radiocarbon assay (Table 1, Birm-463 and Birm-462). The thickness of this layer is very variable	0·20–0·60 m
Solid rock	

Trench connecting CS 73/11 and CS 76/4	Ground level:	11·90–12·03 m above OD
Grey-brown sand, composed mainly of quartz grains, at depth becoming dark brown, humus-enriched quartz sand		0·20–0·35 m
Layer of shells, mainly *Patella* spp, of variable thickness; probably extremity of occupation layer		0·00–0·05 m
Light brown quartz sand		0·20 m
Occupation layer: shell component comprises mainly *Patella* spp, but includes *Pecten maximus* (L), ? *Mytilus* sp; eight fragments of antler, including two probable limpet scoops, one fractured; 12 avian bones; two fragments of mammalian bone; several small fragments of (? fire-cracked) rock; two flint fragments (fig 3, 1a & 1b)		0·05 m
Light brown quartz sand, containing several pieces of (? burnt) pumice (at 11·30 m above OD) and a few disc-shaped pebbles and small fragments of charcoal (at c 10·85 m above OD)		> 0·60 m

Excavation pit CS 76/4	Ground level:	11·81–11·90 m above OD
Grey-brown sand, composed mainly of quartz grains, at depth becoming dark brown, humus-enriched quartz sand		0·35–0·40 m
Light brown quartz sand, with thin, wedge-shaped layer of shells (mainly *Patella* spp) at eastern end		0·02–0·15 m
Thin occupation layer: shell component comprises mainly *Patella* spp, but includes *Ensis* sp, ? *Mytilus* sp and ? *Buccinum* sp; claws of *Cancer* sp; avian bones (some burnt); fish vertebrae; angular rock fragments (? fire-cracked); two flint pebbles (? cores) and two flint flakes (fig 3, 2a–d); possible limpet scoops of rock and antler or bone		0·02–0·05 m
Light brown quartz sand		0·18 m
Occupation layer: shell component comprises mainly *Patella* spp, but includes *Ostrea edulis* L (five left valves, four right valves), *Ensis* sp, ? *Mytilus* sp, *Venerupis rhomboides* (Pennant); claws of *Cancer* sp; avian bones, including vertebrae and skull bones; part of lower right mandible of *Lutra lutra* (L); two small fragments of shell of *Sepia* sp; vertebrae of fish; two small fragments of (? fire-cracked) rock; several fragments of wood charcoal; one bone barbed point (Jardine & Jardine 1978)		0·02–0·05 m
Light brown quartz sand, with occasional small fragments of molluscan shells and, at base, a few small fragments of charcoal		0·52–0·75 m
Disc-shaped pebbles of greywacke, with quartz sand and occasional shell debris in interstices; fragments of wood charcoal, at 10·41 m above		

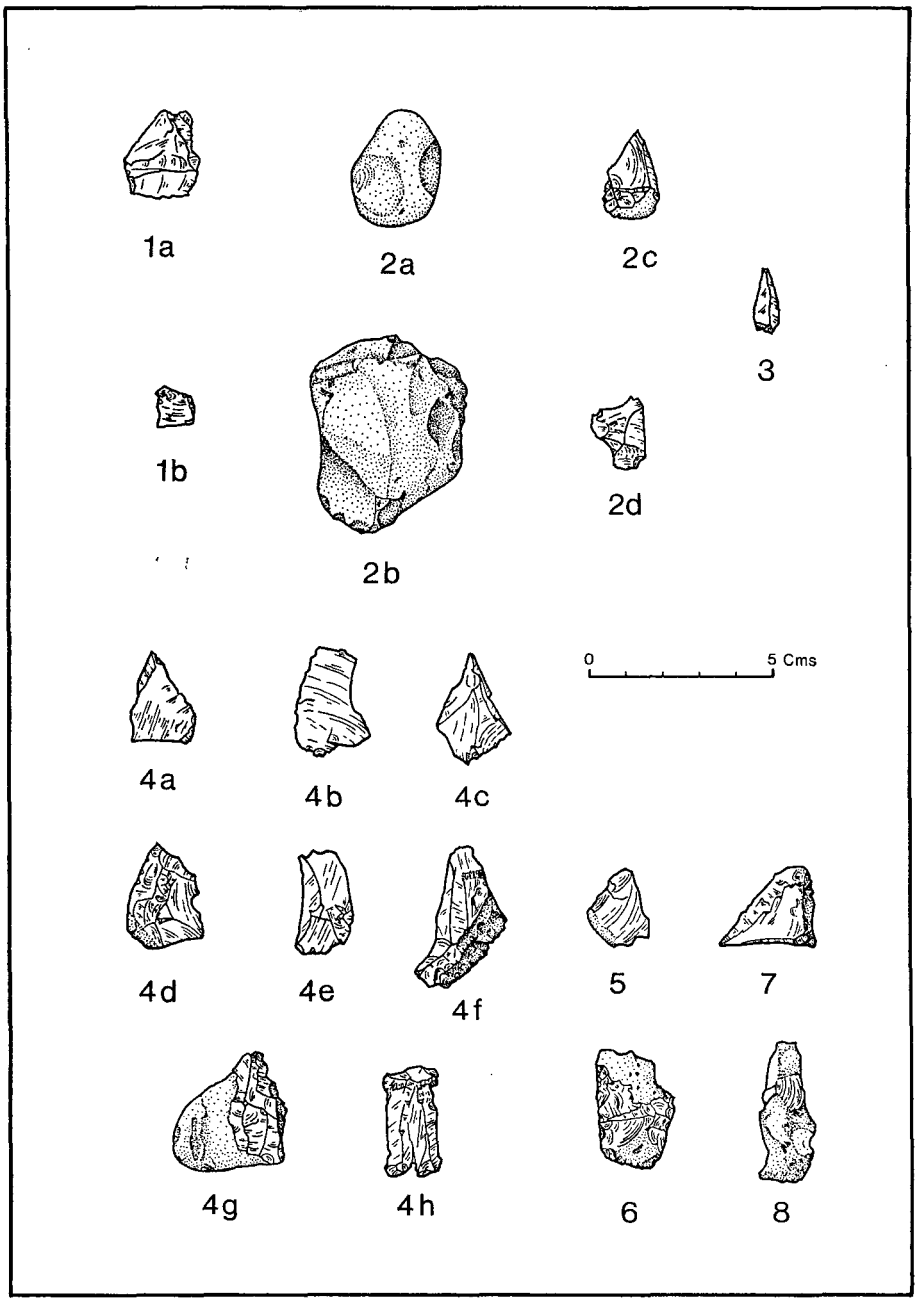

FIG 3 Flint fragments from minor excavations in the vicinities of Cnoc Sligeach, Cnoc Coig and Caisteal nan Gillean I and II. 1a and 1b, found in trench connecting CS 73/11 and CS 76/4; 2a and 2b (? cores), 2c and 2d (flakes), found in CS 76/4; 3, found in trench connecting CS 76/4 and CS 76/3; 4a–4f (flakes), 4 g and 4h (cores), found in CS 76/3; 5, found in CC 72/5; 6, found in CNG 73/5; 7, found in CNG 75/5; 8, found in CNG 76/1

OD, dated by radiocarbon assay (Table 1, SRR-1457), located adjacent to shells of *Patella* spp and *Littorina littorea* (L)	0·70 m
Finely comminuted shell debris and pebble-sized subangular clasts of greywacke	> 0·10 m

Trench connecting CS 76/4 and CS 76/3 Ground level: 11·68–11·81 m above OD

Note: Samples from individual occupation layers encountered in this trench were not extracted separately. Finds recovered from a sieved bulk sample included the following: *Patella* spp, *Ensis* sp, *Pecten maximus* (L), ? *Mytilus* sp, *Trivia arctica* (Montagu); fragments of claws of *Cancer* sp; two fragments of antler and a possible antler limpet scoop; several fragments of avian bones, two mammalian bones, two fish vertebrae; several small fragments of (? fire-cracked) rock; one flint flake (fig 3, 3)

The profile in the trench was as follows:

Grey-brown sand, composed mainly of quartz grains, at depth becoming dark brown, humus-enriched quartz sand; at the eastern end molluscan shells occur in the humus-rich sand	0·40–0·68 m
Light brown quartz sand	> 0·05 m
Occupation layer, wedging out at eastern end of trench: composed mainly of shells of *Patella* spp	0·00–0·02 m
Light brown quartz sand	> 0·10 m
Occupation layer, occurring only at western end of trench: composed mainly of shells of *Patella* spp (but see Note above)	0·00–0·05 m
Light brown quartz sand	> 0·15 m
Occupation layer, occurring only in western part of trench: composed mainly of shells of *Patella* spp (but see Note above); bone barbed point found, at 11·01 m above OD, at western extremity of trench, at junction with CS 76/4	0·00–0·05 m
Light brown quartz sand	> 0·15 m

Excavation pit CS 76/3 Ground level: 11·68–11·73 m above OD

Grey sand, composed mainly of quartz grains	0·15 m
Orange-brown quartz sand	0·45–0·55 m
Dark brown, humus-enriched quartz sand intermixed with occupation material; shell component comprises mainly *Patella* spp, but includes *Ostrea edulis* L, *Cerastoderma* sp; weathered fragment of bone or antler; small fragments of wood charcoal; numerous angular fragments of (? fire-cracked) rock; one possible limpet hammer; one small piece of metal ore (iron pyrites, with thin cover of iron oxide, ? haematite; fig 2, 3); eight fragments (two cores, six flakes) of flint (fig 3, 4a–h)	0·08–0·20 m
Light brown quartz sand, with occasional small fragments of molluscan shells and rare small fragments of charcoal together with small clasts of greywacke at c 10·63 m above OD	1·00–1·18 m
Mixture of storm-beach pebbles of greywacke and complete and incomplete molluscan shells, mainly *Patella* spp	> 0·20 m

CNOC COIG AREA

The locations of minor excavation pits in the vicinity of Cnoc Coig are shown in fig 4, together with vertical sections illustrating the relationships between the stratigraphical units revealed in the pits. The detailed stratigraphy in two pits in which traces of human activity were found is described below.

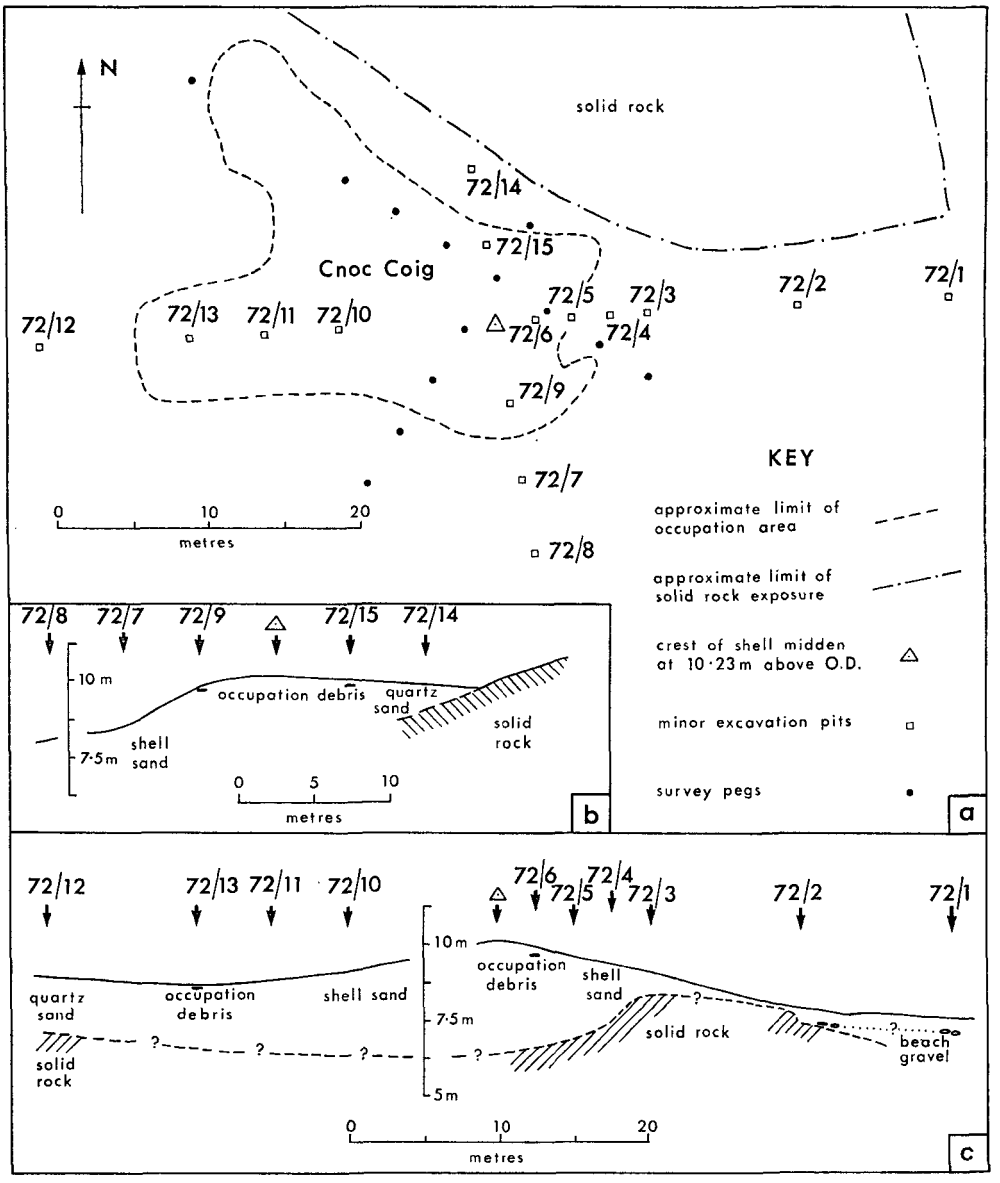

FIG 4 a, Map of Cnoc Coig and adjacent area, showing positions of minor excavation pits opened in 1972 in relation to survey pegs of major archaeological excavations by Dr P A Mellars between 1973 and 1979. Based on a map drawn by Dr A S Tricker on the basis of instrumental surveying in 1973. b, Vertical section along S–N line of pits, illustrating relationships between stratigraphical units revealed in the pits. Vertical exaggeration ×2. c, Vertical section along W–E line of pits, illustrating relationships between stratigraphical units revealed in the pits. Vertical exaggeration ×2

Excavation pit CC 72/6	Ground level:	9·88 m above OD
Light brown sand, composed mainly of quartz grains		0·25 m
Occupation surface: limpet hammer (fig 2, 2); pebble-sized, disc-shaped clasts of greywacke; traces of dark carbonaceous matter (? charcoal)		

Excavation pit CC 72/15	Ground level:	9·99 m above OD
Dark brown sand, composed mainly of quartz grains		0·12 m
Occupation layer: occasional (complete) shells of *Patella* spp, one fragment of flint (fig 3, 5); one possible limpet scoop (fig 2, 4)		

CAISTEAL NAN GILLEAN AREA

The locations of minor excavation pits and 75 mm diameter bucket-auger holes in the vicinity of Caisteal nan Gillean I and II are shown in fig 5, together with vertical sections illustrating the relationships between the stratigraphical units revealed in the majority of the pits and auger holes. The detailed stratigraphy in the three pits in which traces of human activity were found, and in excavation pit CNG 73/6, is described below (cf stratigraphy at excavation pit CNG 72/2 in the adjacent raised beach, described in Jardine 1978, 185).

Excavation pit CNG 73/5	Ground level:	11·52 m above OD
Top soil		0·20 m
White sand, composed almost entirely of small fragments of molluscan shells		0·20 m
Orange-brown sand, composed mainly of quartz grains, with occasional fragments of molluscan shells, numerous small to medium-sized, disc-shaped clasts of locally derived greywacke and one (worked) fragment of flint (fig 3, 6) at c 11·17 m above OD		0·15 m
Grey-white sand, composed mainly of quartz grains		> 0·20 m

Excavation pit CNG 73/6	Ground level:	10·85 m above OD
Top soil		0·05 m
White sand, composed mainly of small fragments of molluscan shells		0·90 m
Layer mainly of complete shells of *Patella* spp and incomplete shells of *Littorina littorea* (L), together with occasional pebble-sized, (mainly) disc-shaped clasts of greywacke. Interstices filled with grey-white sand, composed mainly of small fragments of molluscan shells		0·05 m
Light orange-brown (at depth becoming grey) sand, composed mainly of quartz grains		> 1·05 m

Excavation pit CNG 75/5	Ground level:	7·77 m above OD
White sand, composed mainly of fragments of molluscan shells		0·15 m
Layer of small to medium-sized, disc-shaped clasts of greywacke, complete and incomplete shells of (mainly) *Patella* spp and *Littorina littoralis* (L), together with one (worked) fragment of flint (fig 3, 7)		0·10 m
Grey-white sand, composed mainly of fragments of molluscan shells		0·10 m
Layer of small to medium-sized, disc-shaped clasts of greywacke, medium-sized fragments of shells (including *Arctica islandica* (L)) and coarse shell-sand		0·05 m
Grey-white shell-sand		0·05 m
Layer of small to medium-sized flat clasts of greywacke, with shell-sand		0·05 m
Grey-white shell-sand		0·05 m
Solid rock		

Excavation pit CNG 76/1	Ground level:	11·65 m above OD
White sand, composed mainly of fragments of molluscan shells		0·20 m
Layer of shells, mainly *Patella* spp, together with one fragment of flint (fig 3, 8)		0·05 m
Grey-white shell-sand		0·25 m

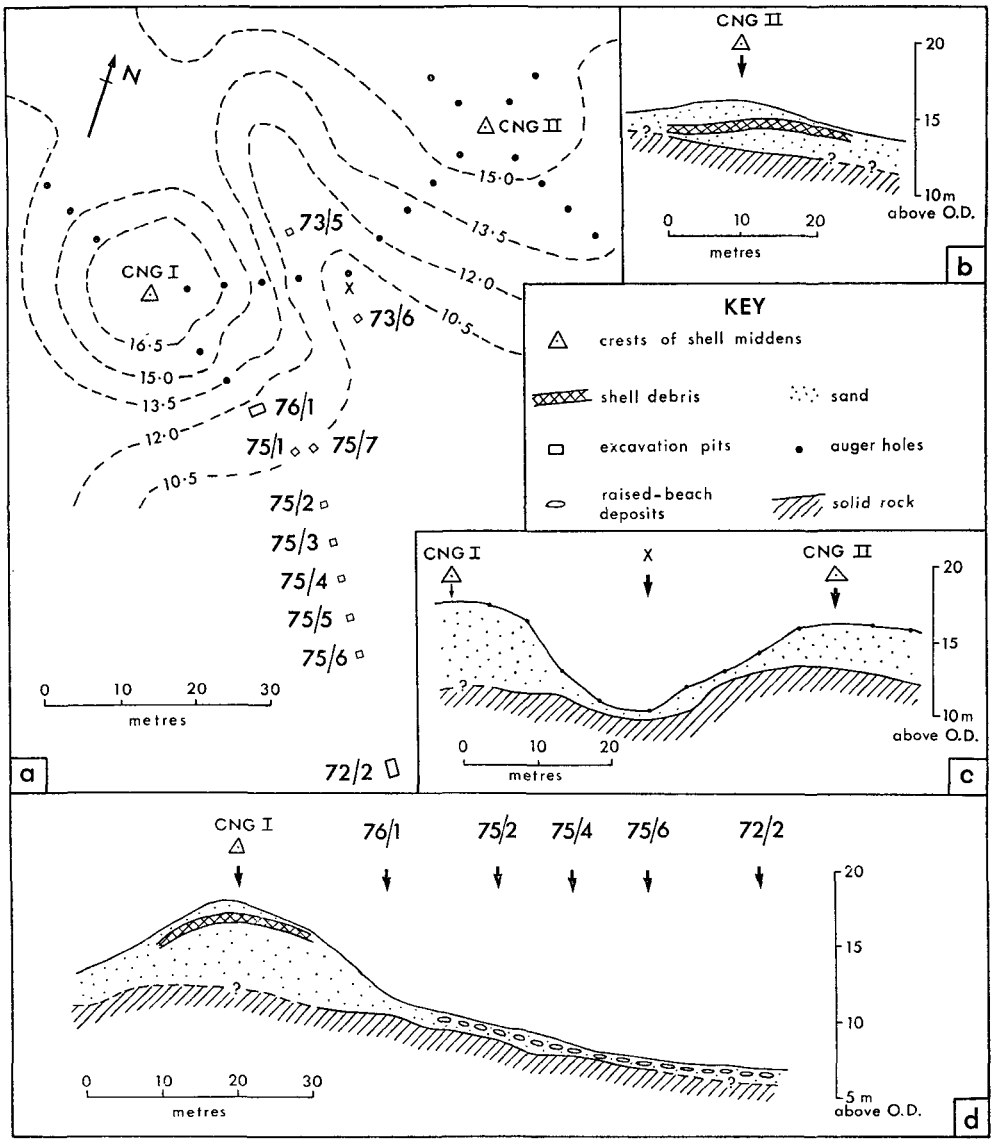

FIG 5 a, Map of Caisteal nan Gillean (CNG) I and II and adjacent areas to the south, showing locations of minor excavation pits opened between 1972 and 1976 in relation to lines of auger holes sunk by Dr P A Mellars and the authors. Based on a map drawn by D Balfour and A McKenzie on the basis of instrumental surveying in 1971. Contours are in metres above Ordnance Datum, Newlyn. b, Section through the crest of Caisteal nan Gillean II, showing the approximate position of occupation shell debris in relation to underlying and overlying sand deposits and to solid rock. Vertical exaggeration ×2. c, Section through the crests of Caisteal nan Gillean I and II, along lines of auger holes, showing the position of solid rock in relation to the ground surface. Vertical exaggeration ×2. d, Section extending through the crest of Caisteal nan Gillean I south-eastwards through the adjacent raised-beach deposits, showing the contrasting positions of the occupation debris in the vicinity of the crest of Caisteal nan Gillean I and the raised-beach debris in relation to the surface of solid rock. The positions of several of the excavation pits along the line from CNG 76/1 to CNG 72/2 also are shown. Vertical exaggeration ×2

Occupation layer: shells, mainly *Patella* spp (dated 5890 bp ±70, SRR-1458b); rare clasts of greywacke; occasional small fragments of charcoal (dated 4750 bp ±180, SRR-1458a); one possible limpet hammer (fig 2, 5) and other small clasts of greywacke	0·10 m
Grey-white shell-sand	0·30 m
Large greywacke clast	
Grey-white shell-sand	0·25–0·35 m
Solid rock	

TABLE 1
Radiocarbon age determinations of samples from sites at Cnoc Sligeach and Caisteal nan Gillean
The significance of the determined ages of the shell material is discussed in Jardine (1978)

Site	Nature of material dated	Position of sample	Lab No	Age of sample in radiocarbon years bp	$\delta^{13}C$
CNOC SLIGEACH Excavations CS 73/11 CS 76/4, CS 76/3 and connecting trenches	Valve of *Pecten maximus*	Within occupation layer in CS 73/11	Birm-465	5900±150 (middle) 6010±150 (inner)	−2·2‰ −1·3
	Single valve of *Arctica islandica*	Within occupation layer in CS 73/11	Birm-464	6840±190 (middle) 6910±160 (inner)	+0·2 +0·2
	Wood charcoal	50 mm below top surface of storm-beach gravel deposit in CS 76/4	SRR-1457	4670±50	−24·1
	Shells of *Ostrea edulis*, *Patella* spp, *A islandica* and *Littorina* spp	Within storm-beach gravel deposit in CS 73/11	Birm-463	7210±130 (middle) 8220±170 (inner)	−1·2 −0·1
	Shells of *Patella* spp	Within storm-beach gravel deposit in CS 73/11	Birm-462	6390±160 (middle) 5850±140 (inner)	−1·5 −1·5
CAISTEAL NAN GILLEAN Excavation CNG 76/1	Wood charcoal	Within occupation layer	SRR-1458a	4750±180	−26·0
	Shells, mainly *Patella* spp	Within occupation layer	SRR-1458b	5890±70	+0·9

DISCUSSION

The main purpose of this communication is to describe and record, rather than discuss the significance of, archaeological evidence present at the three sites on Oronsay. The following points, however, should be noted.

1. The evidence recorded at Cnoc Sligeach suggests that, in addition to the main shell mound (crest at 16·878 m above OD, fig 1), which increases in thickness from 0·02 m near CS 73/3 to c 0·30 m in the vicinity of the crest, there are at least three individual thin layers of occupation debris, separated by sand, present in the vicinity of CS 73/11, CS 76/4 and CS 76/3. These layers may be parts of a (substantial) single midden which is subsidiary to the main midden, or they may be peripheral parts of several overlapping middens which are subsidiary to the main midden.
2. In excavation pits CS 73/11 and CS 76/4 and the trench connecting these pits, small fragments of charcoal found a few millimetres below and above the top of a layer of storm-beach gravel may be indicative of a fire or fires having been lit on the storm-beach ridge

at least a short time prior to formation of the overlying occupation layers (the latter of which are interstratified with ? blown sand).

3. The fragment of flint found in excavation pit CNG 75/5 is thought to be a stray occurrence within former beach sediments rather than indicative of the presence of a former occupation layer.
4. The evidence recorded at CNG 76/1 suggests that at that site there was located a small (possibly short-term) occupation area, which was subsidiary to the main shell midden of CNG I. The latter midden is located at, and immediately around, the crest of the mound known as Caisteal nan Gillean I (fig 5), whereas CNG 76/1 lies at the base of the mound. It follows that the occupation debris at CNG 76/1 may be markedly younger than the main midden at CNG I; the crest of the mound could have been occupied when storm waters lapped the site of CNG 76/1 at the time of the (local) maximum of the Holocene marine transgression, but the site at CNG 76/1 could have been occupied only at a time following recession of the sea from the maximal position of the Holocene sea (cf Jardine 1977, 139–40).
5. On statistical grounds, the radiocarbon ages (Table 1) obtained from samples of charcoal from the sites of occupation areas at CS 76/4 (SRR-1457) and CNG 76/1 (SRR-1458a), subsidiary to the main occupation areas at Cnoc Sligeach and Caisteal nan Gillean I, are indistinguishable.
6. On statistical grounds, the radiocarbon ages obtained from fragments of charcoal and from shells of molluscs (mainly *Patella* spp) from the same occupation layer at CNG 76/1 (4750 years bp ± 180, SRR-1458a; 5890 years bp ± 70, SRR-1458b; Table 1) are distinguishable.

   On the assumption that the *determined* age of the charcoal fragments is approximately the same as the *true* age of these fragments, there are at least two possible explanations of the discrepancy between the determined ages of the fragments of charcoal and of the shells.

   (a) The *determined* age of the shells may be approximately the same as the true age of the shells (cf Jardine 1978, 187), and the true age of the shells may represent the time of formation of a shell beach at the (local) maximum of the Holocene marine transgression, whereas the age obtained from the charcoal fragments may be that of a fire lit on the (raised) beach several hundreds of years after recession of the sea from its maximal altitudinal position. No major problems are presented by this explanation.

   (b) The shells may be refuse from food consumed contemporaneously with the lighting of a fire or fires which yielded the charcoal, the radiocarbon age of the shells being 'too old'. A major problem presented by this explanation is that *determined* ages of shells of *Patella* spp from sites elsewhere on Oronsay (including site CNG 72/2) appear to be either equivalent to the *true* ages of the shells concerned or 'too young' rather than 'too old' (cf Jardine 1978, 187–93).

ACKNOWLEDGEMENTS

Mr A Morrison, University of Glasgow, encouraged us to prepare this report and read several versions of the typescript. Field investigations were undertaken in collaboraton with Dr P A Mellars (University of Sheffield; presently University of Cambridge) as part of the environmental studies that have been important additions to the major archaeological excavations on Oronsay between 1970 and 1979. Fieldwork on the raised beaches of Oronsay was generously financed by the Natural Environment Research Council and the University of Glasgow. Mrs Sheila Hall drew figs 1, 4 and 5, and Miss Alison McGhie figs 2 and 3. Lord Strathcona, the

(former) owner, and Mr Andrew Macneill, the (former) tenant of the island, kindly permitted and encouraged the undertaking of the excavations on Oronsay.

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