

Excavation of an early church and a women's cemetery at St Ronan's medieval parish church, Iona

Jerry O'Sullivan*

with contributions by Stephen Carter, Dianne Dixon, Daphne Lorimer & Gordon Turnbull

ABSTRACT

St Ronan's was the medieval parish church of Iona. Excavation within the church recorded remains of an earlier building and graves of various dates, from the early medieval to the modern period. The sex of earlier remains could not be determined, but all of the later skeletal remains were of women or children, and records attest to the use of the site as a women's cemetery until the mid-18th century. The discussion considers the antiquity and origins of the women's cemetery and describes some possible Irish parallels.

The earliest graves were overlain by the wall remnants of a small, unicameral, stone building – probably a church – with clay-bonded and whitewashed walls. The remains of the building were incorporated into the foundations of the medieval parish church. Parallels for the fabric and treatment of the masonry are known from some other pre-Romanesque Scottish churches.

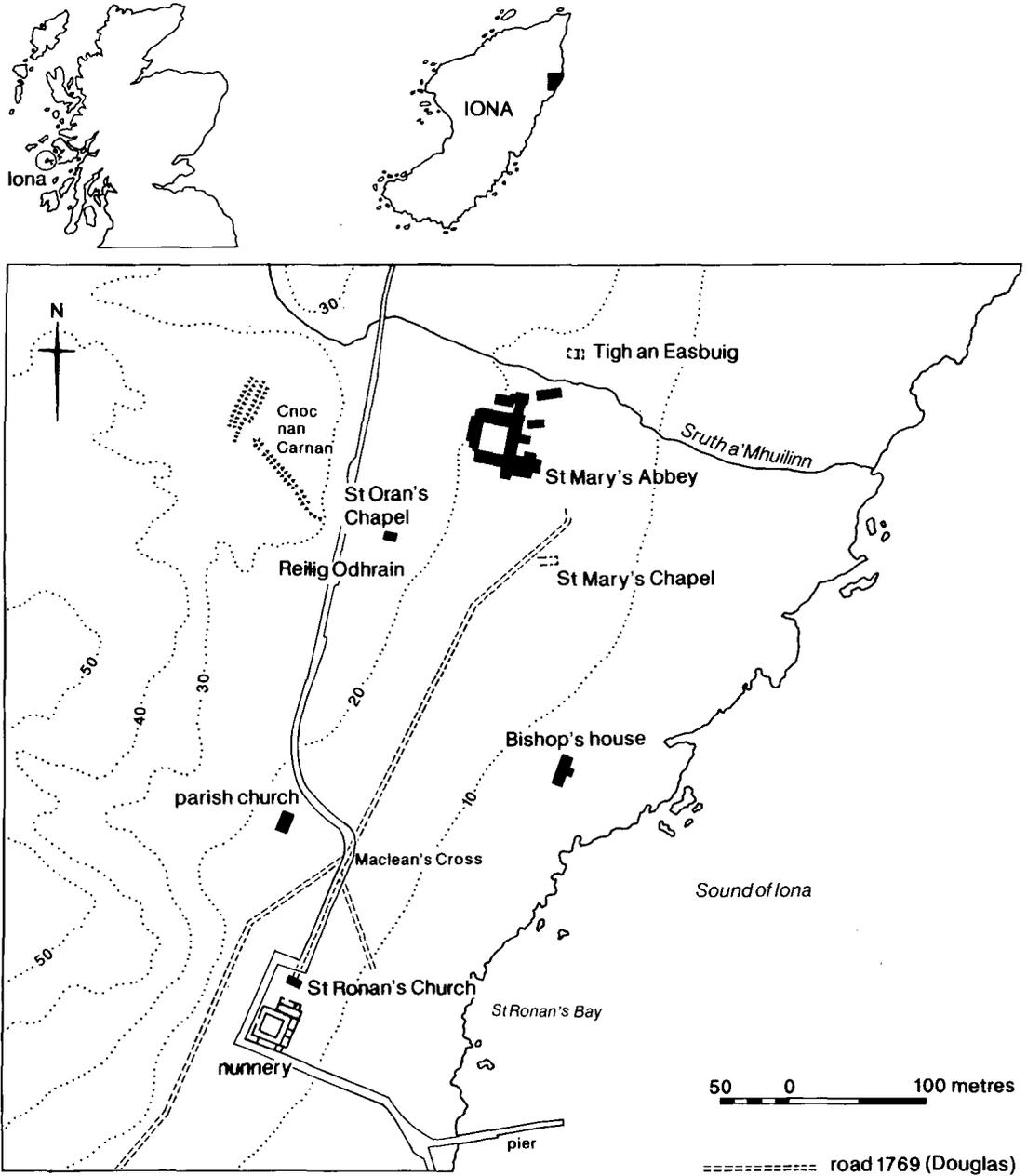
Finds from the excavation included a cross-inscribed slab, bronze and bone pins, coffin fittings and nails, fragments of decorated bronze objects and three medieval coins.

The excavation was funded by the Iona Cathedral Trust and Historic Scotland.

ST RONAN'S CHURCH

St Ronan's is located on a raised beach terrace which overlooks Iona's eastern shore. The church stands close by the north side of the Augustinian Nunnery (illus 1) and, like the Nunnery, is ascribed a late 12th- or 13th-century date (RCAHMS 1982, 251). It is believed to have been the medieval parish church of the island. It is not known how long the building remained in use, but in the 1640s attempts were made to maintain the former Abbey church for parish worship and presumably St Ronan's had become ruinous by that time. It was certainly abandoned by 1795, when it was described as 'entire but tottering' (OSA, 202). By the late 19th century, the area about the church was still remembered as one of Iona's burial grounds, though no longer used as such, and is identified by Reeves (1874, 418) as Cladh Ronain. In the 1870s, the church was

* AOC (Scotland) Ltd, The Schoolhouse, 4 Lochend Road, Leith, Edinburgh EH6 8BR



ILLUS 1 Site location map. Based upon the Ordnance Survey map © Crown copyright

consolidated during a major programme of works on Iona, and in 1922–3 the building was conserved at private expense. The present excavation was undertaken by AOC (Scotland) Ltd on behalf of the Iona Cathedral Trust in advance of the renovation of St Ronan's for use as a museum of medieval stone sculpture.

EXCAVATION RESULTS

PHASE 1: NATURAL SUBSOILS

The natural C-horizon subsoil, where it was exposed by excavation, consisted of compact, orange-brown, coarse sands. These sands are part of a raised beach terrace which had formed by about 12,500 BP (c 10,500 BC; Barber 1981, 287). A hard iron pan occurs at the current surface of the sands, where it has not been truncated by burials or other activity. The interface between the sands and the overlying B-horizon is generally abrupt and well defined. The B-horizon is a fine-grained, soft, dark, grey-brown sand with occasional rotted stones.

The recorded Ordnance Datum levels on the surface of the raised beach sands fall roughly within a range of 0.3 m (c 11.2 m to 11.5 m OD) and though the area has been considerably altered by construction and landscaping in various periods, it is apparent that there was no pronounced natural incline across the site. Thus the raised beach terrace would have presented early settlers with a level or gently sloping site, well-drained and sheltered by the rising rocky ground to the west.

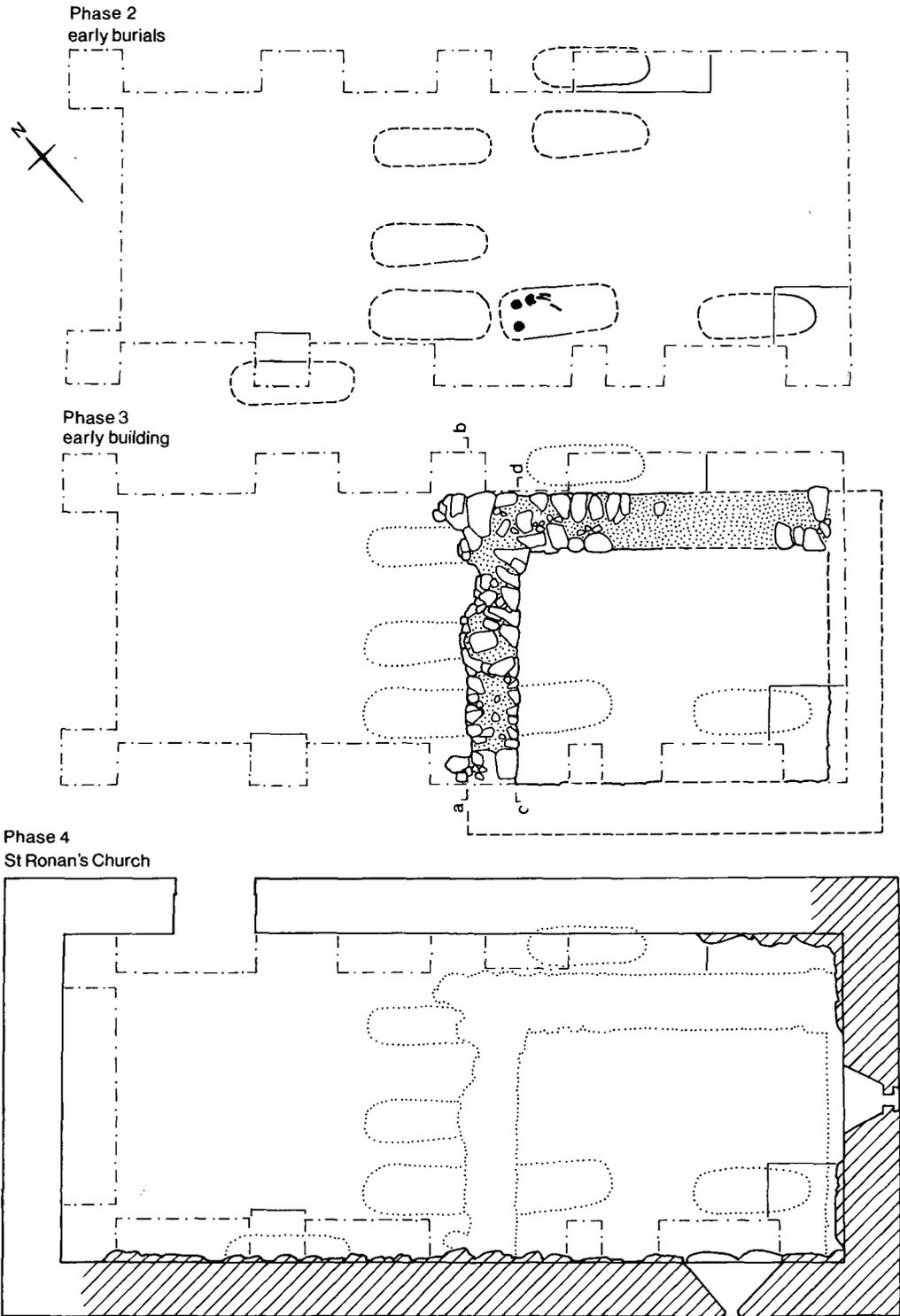
PHASE 2: EARLY BURIALS

Excavation at the earliest levels was limited to selected areas within the church. Nine early graves were identified, but doubtless others exist in unexcavated areas.

The graves were uniformly oriented, with vertical sides and regular U-shaped profiles. They were cut to depths of about 0.4 m into the sandy C-horizon (illus 2). The graves were consistently filled by dark, mottled, fine, soft sand. Unlike all the later burials, the fills contained few or no inclusions (such as mortar, midden materials or artefacts). There was no surviving evidence for coffins. Bone was present, in a very decayed condition, in only two of the graves. It appeared as occasional dark, soft fragments in the fill of grave F 2142, and as the more complete remnants of two or three extended skeletons in grave F 2147 (illus 3). This latter grave was excavated as a single feature, but may represent the conjoined or intercut graves of two or three individual burials.

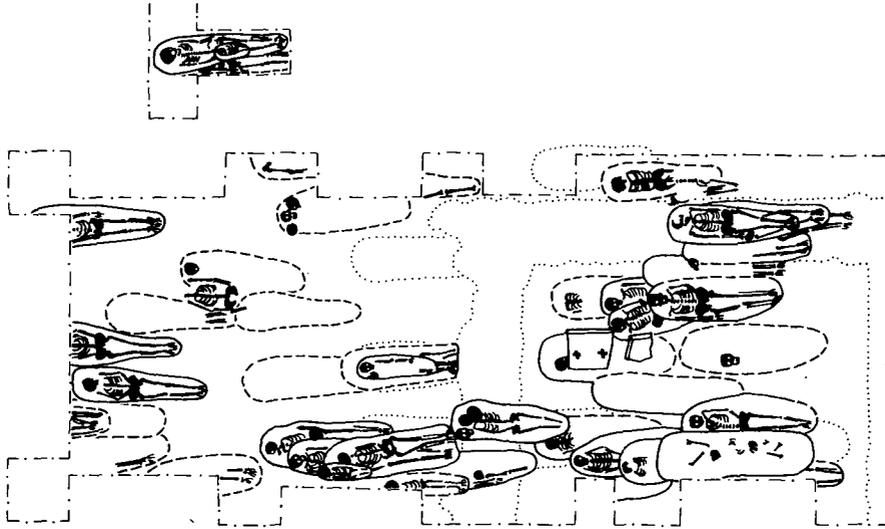
Six of the graves are stratigraphically well defined in relation to the early building of Phase 3. They underlie the building at north and west, and in four cases (F 2142, 2144, 2146 & 2170) appear to have been emptied systematically where they are traversed by its west wall. The remaining three graves are not as clearly defined in stratigraphic terms, but are attributed to this early phase because of characteristics they share with the other graves in the group: soft, dark sandy fills; absence of surviving bone; absence of other inclusions; and greater depth of grave-cut.

The results of soil analysis suggest that some of the partly exposed burials recorded in the short, narrow trench to the north of the church doorway may also belong to this early phase (illus 2). These particular grave fills were recorded in plan only, and were sampled but not emptied; therefore the suggestion cannot be corroborated on other grounds. This point is pursued in greater detail below. (See Carter, below.)

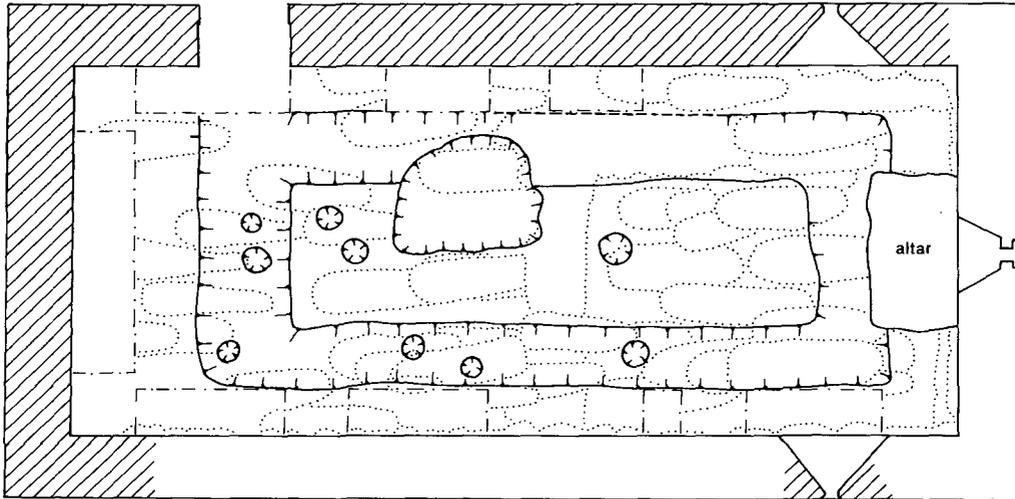


ILLUS 2 Individual phase plans

Phase 5
post-medieval burials



Phase 6
modern features

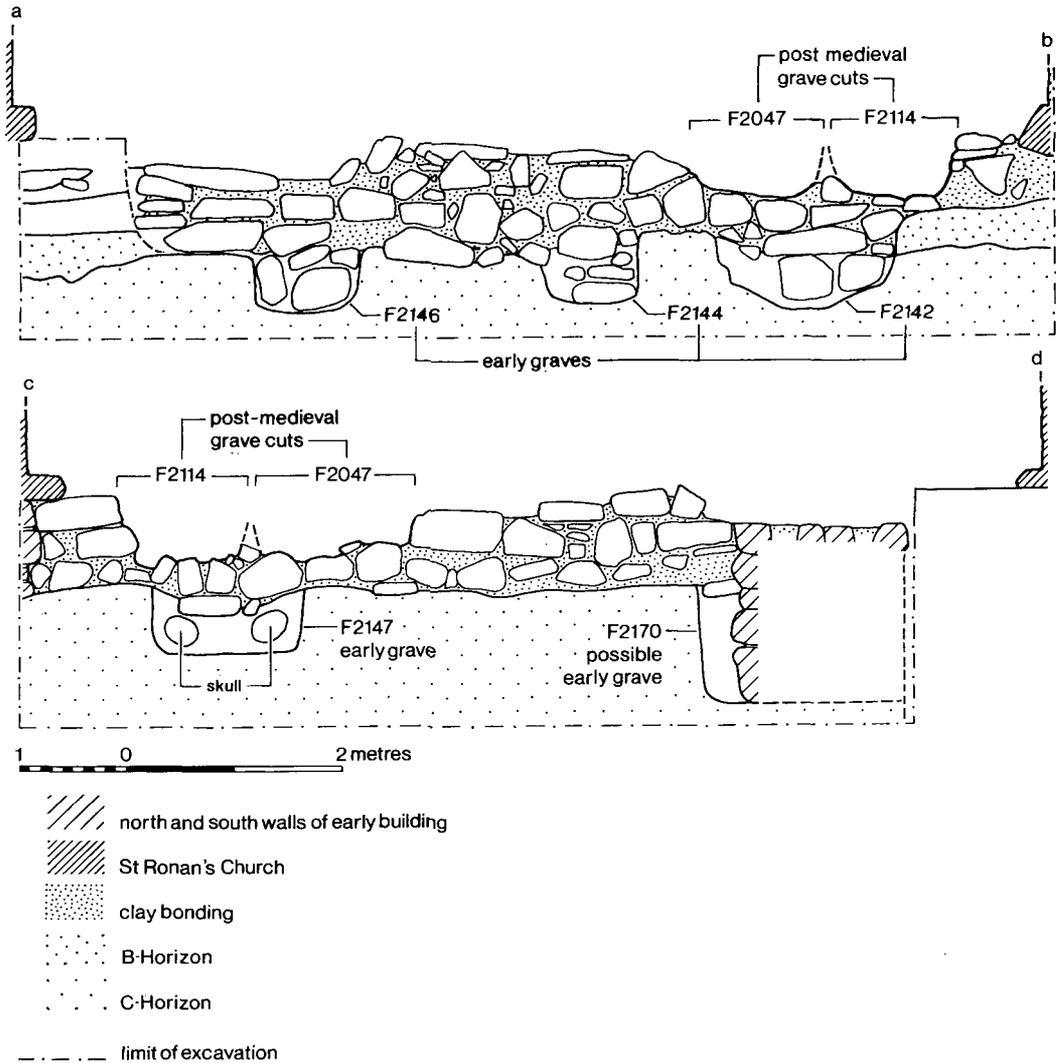


1 0 3 metres

-  clay bonding
-  conjectural
-  earlier feature
-  limit of excavation

PHASE 3: THE EARLY BUILDING

Overlying the early graves of Phase 2 and directly underlying the walls of St Ronan's Church to the south and east, excavation recorded the wall remnants of a small, rectangular, unicameral structure. The internal dimensions of the building were 4.5 m east/west by 3.3 m north/south, within walls 0.8 m thick. Traces of lime-mortar adhered to both the inner and outer wall faces, indicating that the entire building was once rendered in a white lime-based plaster. A small remnant of this plaster adhered to the upper surface of one large flat stone at the mid-point of the west wall, suggesting that this may have been the threshold to a west-facing entrance. No other evidence for an entrance was recorded. The masonry itself was of rubble construction and was not mortared, being bonded throughout with a heavily applied, plastic, clean, brown clay. Clay also formed a bedding layer beneath the walls.



ILLUS 3 Elevation drawing of the outer and inner faces of the west wall of the early building (Phase 3) with earlier graves underlying (Phase 2), and later graves (Phase 5) cutting the wall

Raggedly bonded large stones protruded at the western corners of the building (illus 2). Various interpretations for these protruding stones were considered. They are not interpreted as the remnants of *antae* as the stones do not form regular, rectilinear piers, and in the case of the example to the south-west were not keyed into the stonework of the wall proper. Neither are they considered to represent remnants of walls extending the building towards the west, as there was no other evidence for this possibility. Most likely these were simply protruding foundation stones, which, being buried, were not considered by the builders to require fair or regular facing.

One unusual feature in the construction of the building has already been noted: where the west wall traverses earlier graves, the lowest courses of the stonework extend downward directly into the grave-cuts (illus 3). This could have been accomplished only by systematically emptying the graves during construction of the building. Presumably this was done to ensure that the soft, loose, redeposited soils of the grave fills would not undermine the overlying wall. It is worth considering whether the builders were aware that these soft pockets of soil were grave fills. The physical environment of these burials is inimical to the survival of bone, and the acidity of the raised beach sands into which the graves were cut may have ensured that they were already in a state of advanced decay when the building was erected over them. However, it cannot be overlooked that in the case of at least three of these early burials, some bone fragments have survived to the present day, as described above. Therefore, at the time of the construction of the early building, some recognizably human remains may have been present when the walls were intruded into the graves. Exhumation and reburial of individuals does not seem to have been a priority, however, as only those parts of the graves traversed by the wall were evacuated.

PHASE 4: ST RONAN'S CHURCH

Regarding St Ronan's Church itself, the excavation has added little to previous knowledge of the standing remains (RCAHMS 1982, 251–2). The building is a simple rectangular structure. Its orientation is ESE, an alignment which differs by several degrees from the nearby Nunnery ranges. It measures 11.5 m by 4.7 m, within walls 0.8 m thick. The walls are of mortared, random rubble construction with sandstone dressings. Single-light, triangular-headed windows are set in the east end of the north and south walls of the building. A third, round-headed window is set in the centre of the east gable above the footings of a stone altar. In the east wall face, the stump of a bracket is located to the north of the altar and a small mural recess or aumbry to the south.

Excavation within the church exposed a foundation plinth consisting of a single course of large, flat stones. The plinth is mortar-bonded and rests directly upon the levelled wall butts of the earlier building (Phase 3) at south and east. Rubble foundations with an associated mixed fill of clay, sand and mortar were recorded elsewhere, beneath the west half of the south wall and beneath the north-west angle.

Modern renovations to the north and west walls of St Ronan's Church are described in Phase 6, below.

PHASE 5: LATER BURIALS

Numerous later burials were recorded within St Ronan's Church. Outwith the building, several graves were also recorded in the short, narrow trench excavated at the church doorway (illus 2). In all, 52 individual burials were identified. The remains of 37 individuals were excavated and submitted for analysis. These do not represent the total number of post-medieval burials at St Ronan's. A number of graves remain unexcavated within the church, particularly in the east end.

Furthermore, a large volume of redeposited bone was recorded within grave fills, and from across the interior of the church generally, and must represent numerous disturbed burials. The traditional identification of the area as Cladh Ronain, or Ronan's cemetery (Reeves 1874, 418), implies extensive use of the ruined building and its environs as a burial ground. Thus the total number of late burials associated with the church must be considered to number in hundreds at least, rather than in terms of the small sample recorded by the excavation.

Within the church, the horizontal distribution of burials shows a clear preference for the east end, in proximity to the altar (illus 2). Some bone was observed beneath the north wall of the church. The remains here are largely fragmentary and disturbed, and it must be supposed that they pre-date construction of the church. Overall, the majority of the graves are undoubtedly post-medieval, though the possibility is recognized that some disturbed medieval burials may also be represented within the building by the quantities of redeposited and disarticulated bone recorded in this phase.

The distribution of burials within the stratigraphic profile is fairly well defined. Unlike the early graves described by Phase 2, these later burials lie above the level of the compact C-horizon sand, within a general layer of turbated soil (or for convenience and brevity, 'grave-earth'), which occurs between 0.3 m and 0.8 m below the level of the church wall plinth. Individual grave-cuts were defined and excavated, but in general the fills did not differ greatly from the turbated grave-earth layer in which they lay. The composition of this layer varies locally within the church, but is broadly characterized as a medium grey-brown, sandy loam, with inclusions of mortar fragments, buff-coloured clay flecks, occasional fragments of roof slate, shellfish, butchered animal bone and occasional modern and medieval pottery sherds.

All of the recorded burials are oriented, supine, extended inhumations. In several instances the arms are folded across the pelvis, and where only one arm is in this position it is likely that the other has fallen or been disturbed.

A variety of artefacts and grave furniture occurs amongst the burials. However, in almost every case it cannot be determined whether these are residual inclusions of the grave fills, or whether they are associated with the accompanying burials.

Small, white, water-rolled pebbles, usually quartz, occur in several graves, numbering as many as 15 in one case. These appear to be randomly distributed about the burials, and their significance is obscure.

Nails occur as inclusions in a variety of disturbed grave-earth contexts, and specifically in 12 of the individual grave fills. These were not formally disposed about the burials, but may none the less represent coffins, either of the accompanying burial or of earlier, disturbed burials. In only one example did recognizable fragments of the coffin itself survive, but here the nails were represented only by an arc of ferrous stains about the skull.

Elsewhere, coffins are unlikely to have been used. Even allowing for the effects of settlement and internal erosion within a grave, the rounded west (head) ends and tapering east (foot) ends of several grave-cuts are simply too narrow and irregular to have accommodated a coffin. Here, burial shrouds alone may have sufficed. Excavation recovered three bronze pins and three of carved and polished bone. These are interpreted as shroud pins. However, only one of these, a bone pin, derives from an individual grave fill, and again it is not certain whether it can be attributed to the accompanying burial.

PHASE 6: MODERN REBUILDING AND REPAIR

Twice in the modern period works have been carried out on St Ronan's Church. The first restoration was commissioned by the 8th Duke of Argyll and was conducted by the Edinburgh architect R Rowand Anderson in the 1870s. These works consolidated the building by

reconstructing the south-west angle and part of the west wall adjoining it, as well as restoring the triangular-headed window in the west end of the south wall (RCAHMS 1982, 251).

A second restoration was undertaken in the 1920s by private subscription. These latter works provided for the reconstruction of the remainder of the west wall, the north-west wall angle and adjacent doorway, as well as for the replication of the triangular-headed window in the north wall (RCAHMS 1982, 251). The building was roofed with clear glass. The interior was spread with washed gravel, within which a walkway of paving flags set in concrete made a circuit of the building.

It is proposed here that the altar, in its present form, dates to one or other of these renovations. It is raised on a concrete foundation and has fresh modern pointing. In stratigraphic terms, it overlies late burials (illus 2), and is post-dated only by the modern gravel floor layer.

Several small post-pits are recorded within the church (illus 2). These occur at a relatively late level, being sealed only by the modern floor. Modern ceramic sherds occur in two of the fills. The pits themselves are clearly modern features, and probably represent temporary works or scaffolding used either in the reconstruction of the walls or the installation of the glass roof.

A single large pit located near the centre of the church (illus 2) contained a cache of disturbed bone as well as a large granite boulder over 1 m across. Both this large pit and the smaller post-pits may date to either episode of restoration.

ARTEFACTS

In all, 488 finds records were allocated during the excavation. These recorded human and animal bone, fish and shellfish remains, selected mortar and slate fragments, small amounts of slag and several flint flakes. A complete catalogue of these finds is deposited with the archived excavation records in the National Monuments Record of Scotland. The number of manufactured objects recovered is a small proportion of the total number of finds and these objects are described below.

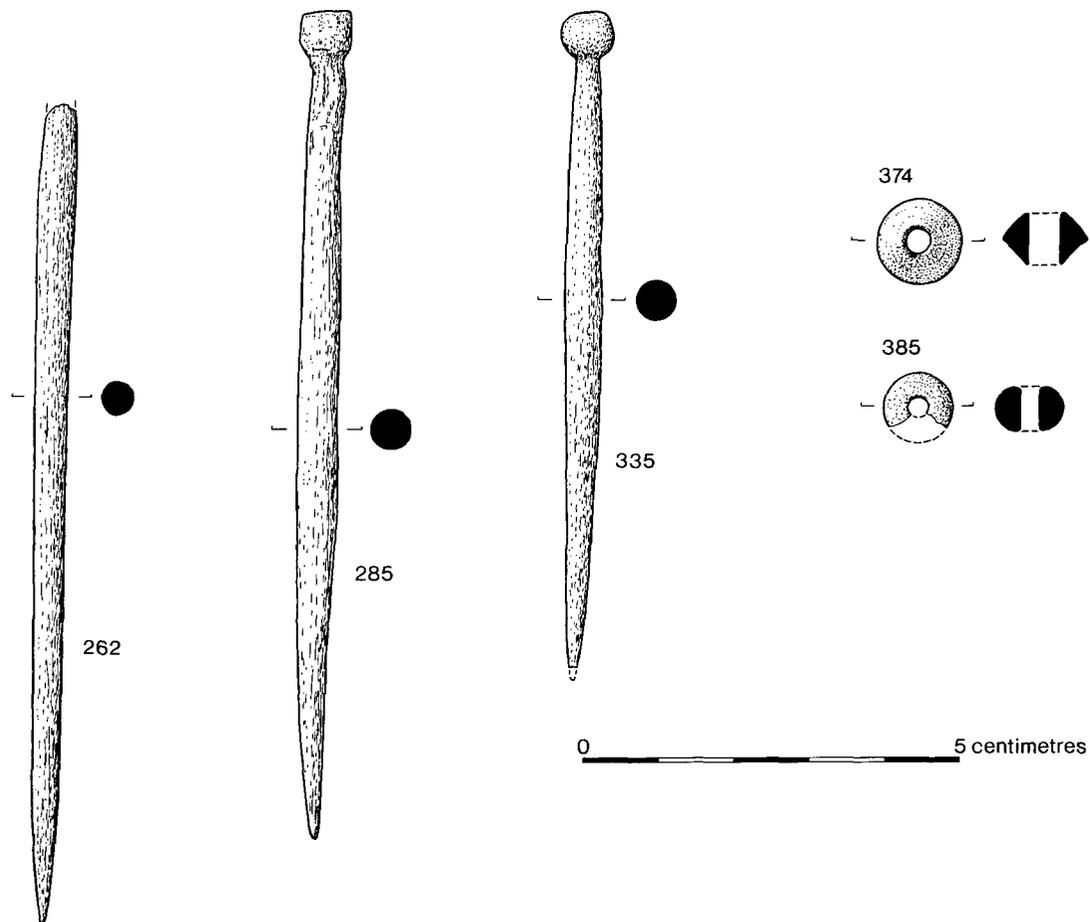
In general, the contexts from which finds were recovered must be regarded as unsatisfactory. The majority derive from later (Phase 5) grave fills or associated spits of grave earth. The remainder derive from later disturbed layers or fills, associated with the successive renovations of the building (Phase 6). Artefacts recovered from these contexts are most likely to occur as residuals of earlier activity or as inclusions in re-deposited soils from outwith the church. No artefacts may be directly associated with the earliest graves (Phase 2) or with the early building (Phase 3).

NON-CERAMIC ARTEFACTS

Jerry O'Sullivan

Glass

- 216 Miscellaneous (five) fragments of modern or early modern glass: (a) two base fragments from a single white/clear vessel; (b) a thick green rim fragment; (c) a green bottle mouth and (d) a nondescript green fragment.
- 374 A small, dark blue glass bead, circular, with a central perforation and sharply bevelled surface. Diam 12 mm. (illus 4)
- 385 A small, perforated glass bead in colourless semi-opaque glass. Diam 9 mm. (illus 4)



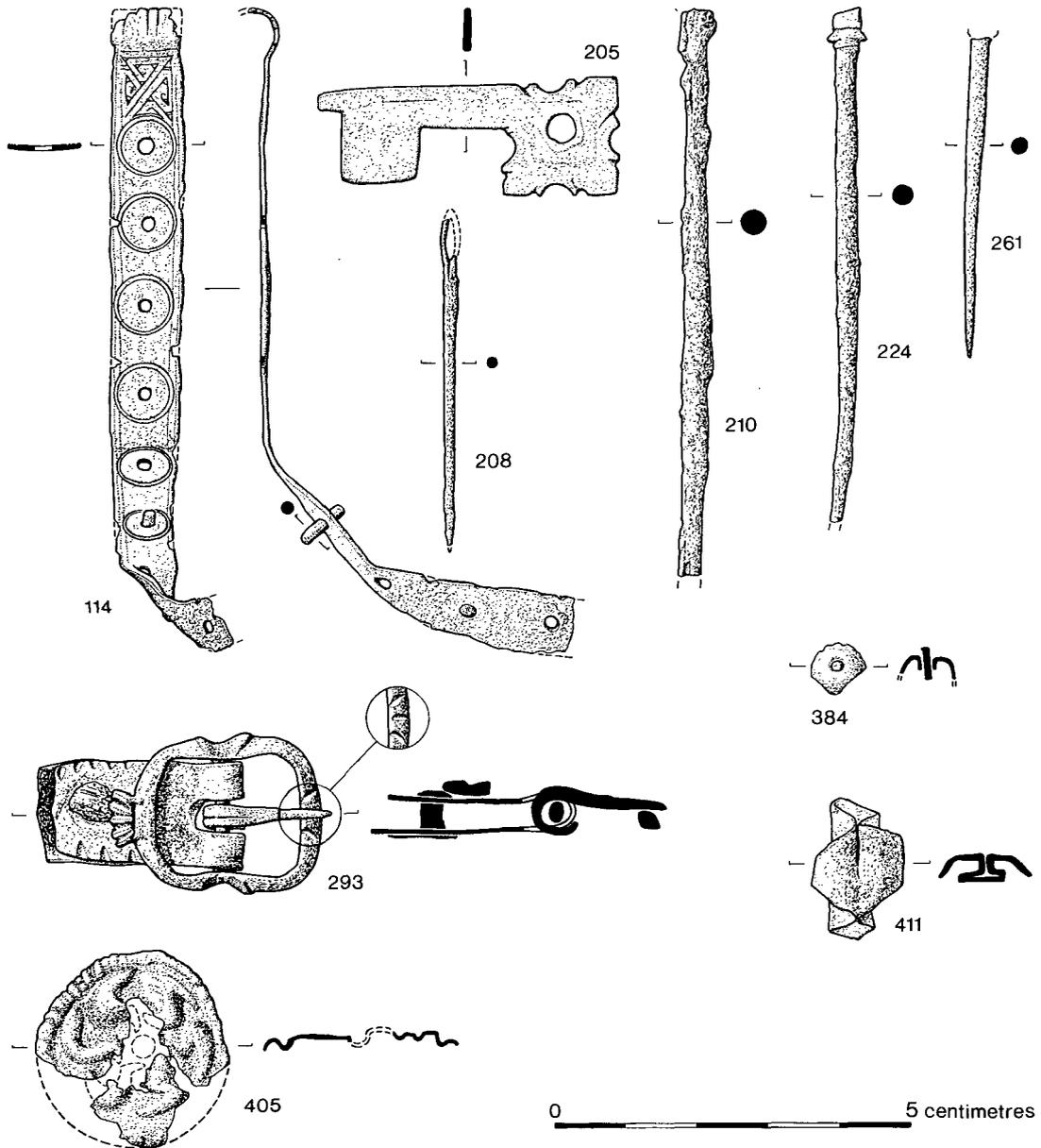
ILLUS 4 Bone and glass objects

Bone pins

- 262 Incomplete bone pin. The head is missing, but much of the shank survives. The pin is circular in section and is highly polished. L 108 mm; Diam 5 mm. (illus 4)
- 285 Complete bone pin. The head is plain. The shank is circular in section and is highly polished. L 110 mm; Diam 6 mm. (illus 4)
- 335 Complete bone pin. The head is plain. The shank is circular in section and is highly polished. L 86 mm; Diam 7 mm. (illus 4)

Bronze

- 314 A thin band or strip of bronze, perforated with nine circular holes. Three bronze rivets survive and are fitted in the holes. One side of the strip has an incised decoration of double-circles about the rivet



ILLUS 5 Bronze objects

holes, a border of plain lines and a panel of key-patterned fretwork. Possibly a fragment of binding from a box or stave-built vessel. L 90 mm; W 10 mm; T 1 mm. (illus 5)

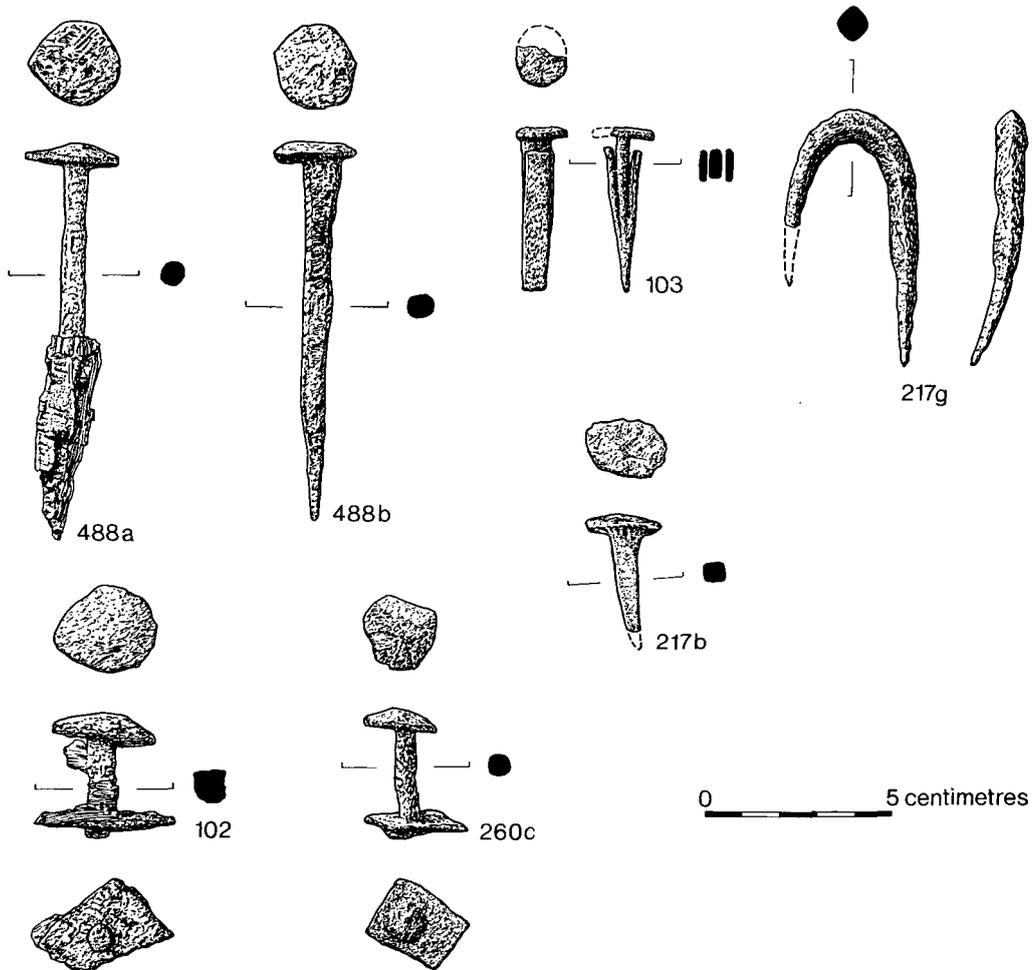
205 A key-shaped plate or fitting with a circular hole which is surrounded by a slightly raised rim. L 42 mm; W 16 mm; T 1 mm. (illus 5)

- 208 Needle. Part of the eye is broken off, but otherwise the needle is complete. This bronze sewing needle is essentially no different in form to modern examples in other metals and the type has enjoyed a long currency from the medieval period to the present day. L 50 mm; Diam 1 mm. (illus 5)
- 210 An incomplete pin. The point of the shank is missing and the head is disfigured by severe corrosion. It appears to have been rectangular and without decoration. L 80 mm; Diam 2 mm. (illus 5)
- 224 An incomplete pin. The tip of the shank is missing, but the head is complete. The head is a plain, square shape over a simple collar. L 72 mm; head L 4 mm; W 4 mm; T 2 mm. (illus 5)
- 261 Pin fragment. Only the shank survives. L 45 mm. (illus 5)
- 293 Buckle. The buckle is decorated with small incisions at one side and with a protruding, fluted rosette at the other. Remnants of a strap or belt in some organic material (probably leather) are held in place by an iron rivet. L 39 mm; W 22 mm. (illus 5)
- 297 A small fragment of bronze plate with simple incised decoration. L 51 mm; W 13 mm.
- 384 A small dome-shaped stud with a bronze rivet through the centre. Diam 7 mm. (illus 5)
- 397 A small, amorphous lump of green copper-alloy slag or molten metal. W 15 mm.
- 405 Incomplete disc or boss in eight fragments. The boss has a repoussé pattern of six arms (a double triskel) within a raised border at the rim. Diam 26 mm; T 8 mm. (illus 5)
- 411 A small, folded piece of bronze plate. Apparently complete. This is possibly a simple clasp or a rolled rivet from some wooden or leather artefact. L 20 mm; W 13 mm. (illus 5)

Iron

Seventy-nine records were made for iron objects recovered during the excavation and the subsequent sieving of bulk soil samples. Most are nails, nail fragments or rivets, though the assemblage also includes several iron straps and a fragment of a barrel padlock spring. A selected sample of the iron objects is described here.

- 102 Clench nail or rivet. Wood remains are preserved by iron corrosion products. The head and plate are parallel and occur perpendicular to the shank. Head: 25.5 mm by 23 mm, sub-ovoid. Plate: 35 mm by 27 mm, rhomboidal with a prominent shank stub. Shank L 23 mm; T 6 mm. (illus 6)
- 103 Barrel padlock spring fragment. The head is fragmentary (Diam 13 mm) and is attached to a rectangular shank (L 41 mm; T 8 mm by 2 mm). There are plates (L 37 mm; T 8 mm by 1.5 mm) welded to each side of the shank, and these splay out towards the head. (illus 6)
- 217 A collection of iron objects recovered from a superficial soil spit included three nails, a nail shank, rivet, blade fragment and U-staple.
- (a) Nail. Head 21 mm by 15 mm, sub-ovoid. Shank L 37.5 mm; Diam 6 mm by 8 mm, tapering to 2.5 mm by 2.5 mm.
- (b) Nail. Head 20 mm by 15 mm, sub-ovoid. Shank L 29 mm; Diam 8 mm by 6 mm, tapering to 2 mm by 1 mm. (illus 6)



ILLUS 6 Miscellaneous iron objects

(c) Nail. Head 14 mm × 11 mm, sub-ovoid. Shank L 40 mm; Diam 6 mm by 4 mm, rectangular section.

(d) Nail shank. L 78 mm; Diam 5 mm by 5 mm; tapering to 3 mm by 3 mm, square section.

(e) Rivet. The head and plate are parallel and are perpendicular to the shank. The head is broken, Diam 22 mm by ? Plate 22 mm × 18 mm, rectangular and domed, with rounded corners. Shank L 20 mm; Diam 6 mm, round section.

(f) Blade fragment. The fragment is badly worn and its original dimensions cannot be determined. L 48 mm; T (max) 2 mm.

(g) U-staple. The staple is incomplete, but may have consisted originally of a bar, square in section, tapering to points at either end. One point survives. L (max) 70 mm; W 37 mm; Diam 1 mm by 1 mm. (illus 6)

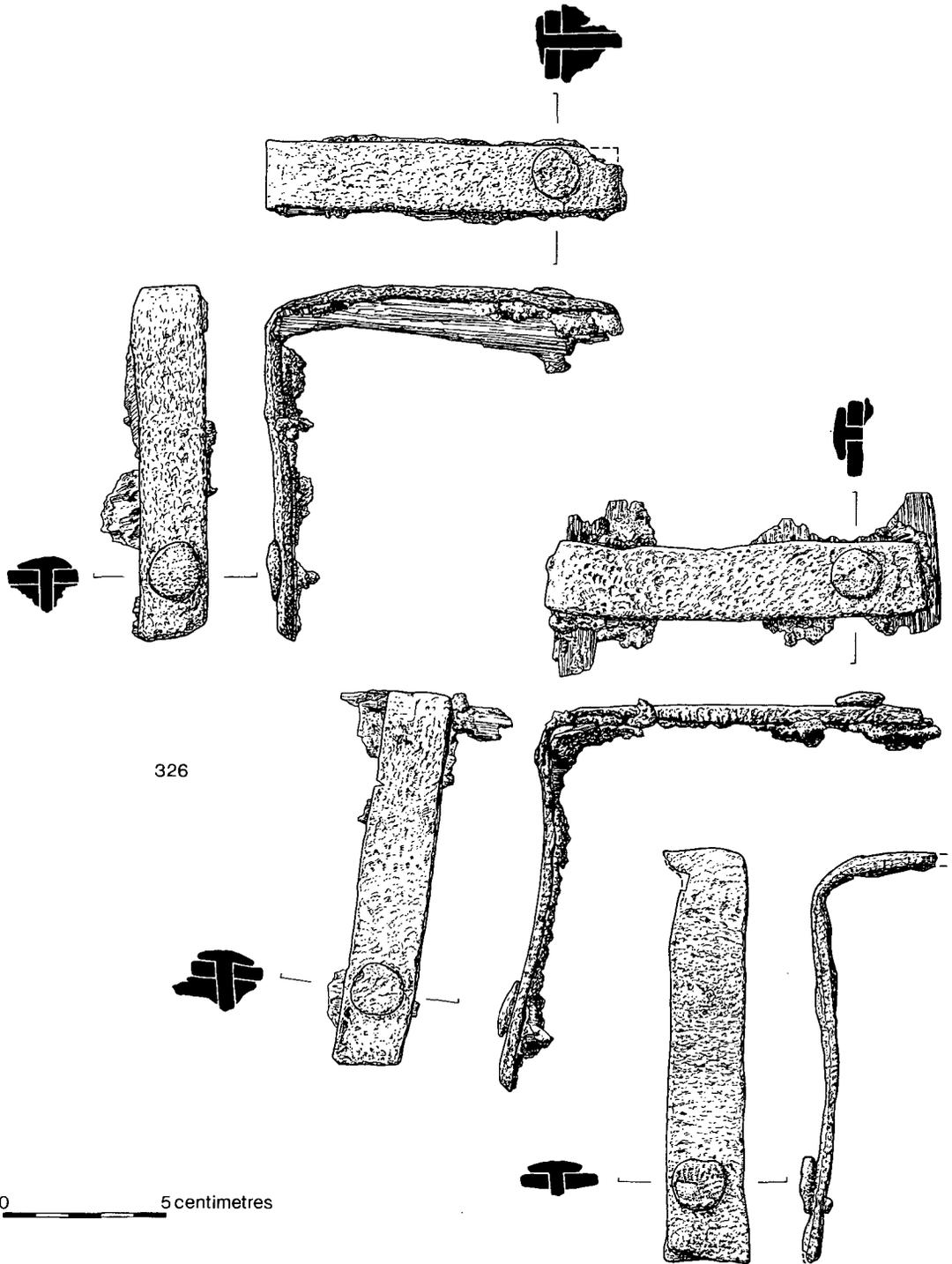
- 260 A nail, nail fragment, rivet and bar were recovered from a spit of grave earth at the east end of the church.
- (a) Nail. Wood remains preserved in iron corrosion products cover the shank. Head 19 mm by 17 mm, sub-ovoid. Shank L 26 mm to the break; Diam 6 mm by 6 mm, square section.
- (b) Nail shank fragment. L 49 mm to the tip; Diam 6 mm, round section.
- (c) Iron rivet. The head and plate were probably parallel originally, though the shank is now bent. Head 21 mm by 18 mm, irregular in shape and possibly damaged. Plate 21 mm by 18 mm, rectangular and domed. Shank L 26 mm; Diam 6 mm, round section.
- (d) Iron bar. The bar has a roughly rectangular section. It is bent and has breaks at both ends. L 65 mm; Diam 6 mm by 3 mm.
- 326 Three iron straps. The objects are heavily corroded and appear to have no surviving metal core. Wood remains, preserved in iron corrosion products, adhere to the fittings, as do concreted sand and gravel. The straps are bent at right angles. Perforations in the ends are pierced by nails with sub-ovoid heads and possibly rectangular sections. Sample dimensions of one strap are L 230 mm; T 4 mm; W 24 mm. Heads of the nails vary from 16 mm to 19 mm in diameter. The shafts are poorly preserved and incomplete. The best preserved measures L 20 mm, Diam 3 mm at the break. Although they were recovered from various disturbed contexts, the straps are likely to be coffin fittings. Alternatively they may be strap-brackets for structural timbers. (Illus 7)
- 488 (a) Nail. Wood remains preserved in iron corrosion products cover the lower shank. Head 24 mm by 22 mm, sub-circular. Shank L 98 mm; Diam 6 mm, round section. (illus 6)
- (b) Nail. Head 22 mm by 21 mm, sub-ovoid. Shank L 94 mm; Diam 9 mm by 8 mm, square section, tapering to point. (illus 6)

Stone

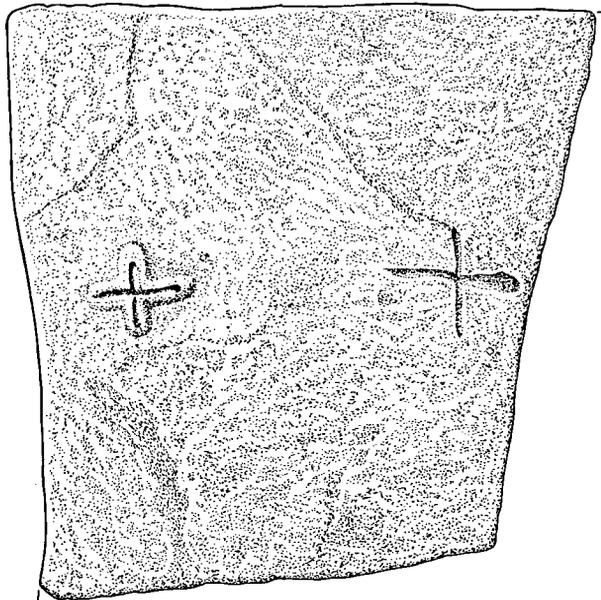
- 209 Cross inscribed stone. A large, rectilinear, sandstone slab. There are no tool marks visible along its edges, but the regular shape of the slab may be attributed to design. Two crosses on one face of the slab are centred on its long axis. One of these is a simple incised cross. The other is incised upon a natural prominence in the face of the slab which has been peck-dressed to form a raised border about the cross. The stone may be an incomplete fragment of a larger slab which had further crosses. Possibly a grave slab or part of the mensal slab of a medieval altar. L 0.65 m; W 0.62 m; T 40–50 mm. (illus 8)
- 364 A small stone with shallow and weathered fluting on three faces was recorded as a possible architectural fragment although it is more likely that the apparent fluting is a natural erosion feature. L 95 mm; T 58 mm. (illus 8)

Coins

- 292 Hiberno-Norse coin, silver issue. Probably Phase 3 (c 1035–55). It is buckled and features only moderate wear. Diam 17 mm by 16.5 mm; Wt 0.52 g.
- 226 James IV bullion penny, second issue, possibly Type IV (c 1500–10). The coin has uneven striking. It is bent and worn, with slight corrosion. Diam 14.5 mm by 15.5 mm; Wt 0.6 g.
- 458 Counterfeit James IV bullion penny, second issue, Type IV. There is some surface corrosion and moderate wear. Diam 13.5 mm by 12 mm; Wt 0.41 g.

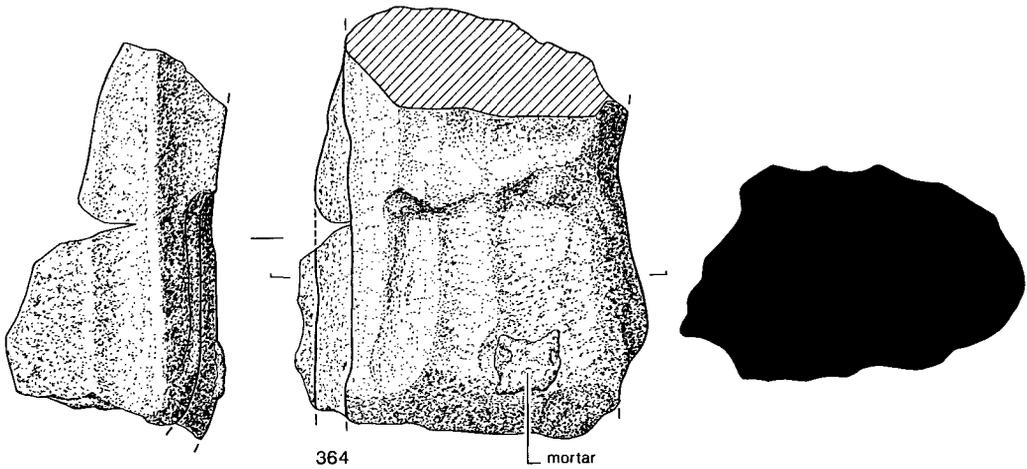


ILLUS 7 Iron brackets



5 0 20 centimetres

209



0 5 centimetres

ILLUS 8 Stone objects

POTTERY

Gordon A Turnbull

A complete pottery catalogue appears in microfiche and is presented here in summary. The pottery assemblage consists of 32 sherds. Only seven sherds weigh more than 10 g and amongst the earlier pottery types, only a single rim sherd and four base sherds were present. All sherds were retrieved from contexts ascribed to post-medieval burials (Phase 5) and modern building works (Phase 6). Both phases may have involved considerable disturbance to earlier stratigraphy. This is reflected in the assemblage itself, as it is very mixed and features sherds of up to 600 years age difference from the same archaeological contexts.

Four basic fabric types are present, described here as Fabric A, B C and D.

Fabric	No of Sherds	Description
A	9	White earthenware; 19th to 20th century.
B	2	Red earthenware; 19th to 20th century.
C	15	A medium to coarse, uneven, buff to pink fabric containing frequent angular quartz and mica grits, reducing to a mid- to very dark grey; some examples are unglazed, but others have an uneven light green glaze; late 13th to 16th century.
D	6	A coarse to very coarse, uneven, mid brown to grey sandy fabric containing frequent angular quartz and large mica grits; probably Craggan Ware.

Fabric C resembles the fabric described as Fabric G from excavations in Ayr High Street (Lindsay 1985, 210), which was observed to be similar to white gritty wares found on the east coast of Scotland (Crowdey 1986, 39–41). The thinner walled sherds of this fabric, some of which bear a light green glaze, are likely to date to the 13th or 14th century, but the thicker examples bearing a darker green glaze may be 15th or 16th century in date. The sherds are generally too small to be informative as far as form is concerned, but a small number of cooking-pot bases were noted, some of which show signs of exposure to fire. It is likely that the vessels represented by the other Fabric C sherds were also of a domestic nature.

Fabric D seems to be of the broad Hebridean type known as Craggan Ware. All show signs of charring. One example bears a simple decoration on the outer surface consisting of repeated short vertical incisions below a single, or possibly double, lateral incised line. Other sherds have slightly marked outer surfaces. (These do not appear to be grass markings.) An examination of this fabric with the naked eye compares favourably with the petrological examination of locally produced sherds from Dun Cul Bhuirg on the west coast of the island (Collins 1980, 224). It also appears to resemble the fabric of a (probably) locally produced pottery which was recovered during excavations at the Benedictine Abbey, described as Fabric 1 by Lane & Campbell (1988, 208). Although coarse in appearance, this type of fabric withstands heat very well and is likely to have been deliberately chosen for cooking vessels (*ibid*).

The dating of pottery from the Inner and Outer Hebrides is problematical, partly because of

the small database but also because of the recurring use in different periods of similar clay sources and simple technology (Ritchie & Lane 1980, 218). Craggan Ware has been found in late Iron Age contexts, but the type is believed to persist in use until the 19th century (Turner & Dunbar 1970, 185). The incised decoration of this ware is unhelpful in dating terms, since this decoration also appears to occur in a number of different periods (Ritchie & Lane 1980, 218). The present examples derive from soils which were redeposited in the post-medieval period and therefore it can only be said that they seem to be of the Craggan Ware tradition; they were probably locally made and are likely to pre-date the latest use of the site as a burial ground in the 18th century.

SOIL SAMPLES ANALYSIS

Stephen Carter

ANALYTICAL METHODS

All samples were subjected to four analyses, using soil in a field-moist condition. The pH was determined in a 1:2.5 soil:distilled water mixture. Loss-on-ignition used about 10 g of oven-dry soil ignited to 400°C for four hours. Determination of phosphate used a spot test for easily available phosphate (Hamond 1983). Samples were rated on a three-point scale using the time taken for a blue colour to develop following the addition of the two reagents to the sample. The scale was high (0–30 seconds), medium (30–90 seconds) and low (more than 90 seconds). Calcium carbonate content was assessed semi-quantitatively using a simple field test and the samples assigned to the following classes (based on Hodgson 1976, 57):

Test rating	CaCO ₃ (%)	Description
0	0.1	Non-calcareous
1	0.1-1	Non to very slightly calcareous
2	1-5	Slightly calcareous
3	5-10	Calcareous
4	10+	Very calcareous

RESULTS

A complete set of soil analysis results is presented in microfiche (fiche, Table 3), but may be summarized here as follows. The pH values are all alkaline with a unimodal distribution about pH 8.1 and a range of 7.5 to 8.6. There is a small group of exceptional values that lie outside this range (pH 8.9 to 9.1). Weight loss on ignition of the samples is low with a maximum of 7.3 % and most values less than 3 %. All of the samples gave high ratings in the spot phosphate test, indicating that any variations in phosphate concentration are undetectable by this method. The calcium carbonate test gave a wide range of results with all possible ratings present.

DISCUSSION

St Ronan's Church is situated on the main late glacial raised beach which consists of sands and gravels. The soil developed on the raised beach has been mapped as a freely draining podzol (Soil Survey of Scotland soil map, Island of Mull sheet) and it is the lower horizons of this soil that are assigned to Phase 1 (above).

The chemical characteristics of the eight Phase 1 samples are not those of podzol B and C horizons; the expected results would be low pH (c 4–5), low easily extractable phosphate and no

calcium carbonate. The results obtained can be explained as the result of leaching of calcium and phosphate from human bone and mortar in overlying deposits.

The results from Phase 2 (early burials) are similar to those from Phase 1. The poor preservation of bone in the Phase 2 graves does not reflect the present high pH of the sediments which is suitable for the preservation of bone. This indicates that the raising of the soil pH from its naturally low levels occurred after Phase 2.

The Phase 2 results may be compared with the Phase 5 samples from inside the church which come from later graves containing well-preserved bones. The pH of the Phase 5 samples is in the same range as those from Phase 2, but the better bone preservation demonstrates that the pH of the Phase 5 soils was already high at the time of burial.

The Phase 5 results from within the church differ from those for samples from the short trench excavated outside the church in terms of calcium carbonate content, although pH is only slightly lower on the outside. This difference is caused by the abundant mortar in the sediments within the church. Outside the church, the grave fills (with pH values no lower than 7.5) have variable bone preservation. For example, F 1017 (pH 7.9) contained a well-preserved skeleton, F 1013 (pH 8.1) contained a very badly decayed skeleton and F 1015 (pH 7.8) contained flecks of bone. It seems likely that some of the graves in this area pre-date the rise in pH identified within the church and therefore could be reassigned to Phase 2 rather than Phase 5. The limited stratigraphic relationships between graves do not contradict this interpretation.

Five samples gave pH readings above the range of the other samples. These came from sediments in four different Phases (3, 5, 6 and 7). Four of the samples come from a section face recorded beneath the rebuilt altar of the medieval church and the high pH may be caused by leaching of bases from its concrete foundation. The fifth sample is of clay from the wall core of the early building (Phase 3). The higher cation exchange capacity of this material is probably responsible for the exceptional pH result.

CONCLUSIONS

The construction of lime-rendered and mortared buildings and the burial of numerous human corpses have radically altered the chemistry of the sediments on this site. Poor bone preservation in the Phase 2 graves indicates that the soil was still in its natural acidic state at that time, but by the time that the post-medieval burials began, the sediments had become alkaline and generally calcareous. Variability in the preservation of bone in graves outside the church suggests that some may belong to the earlier (Phase 2) period of burial, though this cannot be stratigraphically demonstrated.

MORTAR ANALYSIS

Dianne Dixon

THE SAMPLES

Five samples were taken directly from the walls and foundation plinth of St Ronan's Church and four from the wall remnants of the earlier building. The remaining 16 samples are of mortar fragments recovered as finds from excavated archaeological contexts within the church (grave fills, modern pit fills or soil spits). The aims of sampling and analysis were to identify the number of mortar types present, to characterize their constituents and, if possible, to suggest sources for the raw materials.

SAMPLE PREPARATION

Soil was washed from the samples in gently running water. Washing revealed that the samples included a large variety of gravel grains and, furthermore, that several samples, particularly those collected from Phase 5 grave fills, contained pieces of more than one type of mortar. It was apparent, therefore, that thin section examination of selected samples would be unlikely to prove representative of the assemblage as a whole, and might not be a useful means of differentiating mortar types. This method was eschewed in favour of surface examination of all the samples. To this end, further surface detail was exposed by the localized use of dilute hydrochloric acid to remove carbonate, which dissolved the lime matrix more quickly than shelly inclusions.

MORTAR TYPE

A complete inventory of the results of analysis appears in microfiche, but may be summarized here as follows. The mortar samples could be separated into two basic groups.

Type A mortar samples are buff coloured, of porous appearance and disintegrate easily, forming rounded lumps. These samples are essentially composed of thin-walled, white shell fragments, finely comminuted (less than 1 mm) and bound together with lime. The composition varies from pure shell in a lime matrix to more heterogenous mixtures which can include up to 20% lime clots and/or gravel grains and/or coarse pieces of dark, thick shell.

Type B samples are gravel-bearing (grains of over 2 mm) and are more coherent, forming more angular lumps. The gravel content is high, but variable, though never less than about 50%. The rounded, brightly coloured (red, pink, green, grey, black) rock and mineral grains are accompanied by variable amounts of similar sized, eroded fragments of white shell debris, plus variable amounts of coarse, usually dark, thick-walled shell fragments. The individuality of these gravel mortars reflects the natural variation of beach deposits: even where gravel is collected from the same part of a beach, each mix would inevitably be slightly different.

A significant Type B variant includes broken stems of a calcareous alga within coarse shelly debris but is only represented in a few samples.

SAMPLE CONTEXT

The four samples taken from the walls of the Phase 3 early building (Samples 208, 209, 210 & 213) are all Type A. Mixed to a smooth paste of shell, lime and water, this mortar was likely to have been applied as a plaster rather than a limewash, smoothing minor irregularities in the masonry and filling gaps between the stones. Where it came into contact with the bonding clay, some mixing occurred, muddying the lime plaster a little. The smoothed surfaces show bubbles formed during application.

Three samples (Samples 202, 203, 204) from the walls and foundations of St Ronan's Church (Phase 4) are of Type B. These samples were taken at the south wall face 1.5 m above the plinth, at the south wall foundation plinth, and at the east window. However, one sample which was attributed to this phase (Sample 207) is Type A, and a second (Sample 205) is characterized as a Type AB hybrid. The first was taken at the foundation plinth of the east wall in the south-east angle, and the second at the foundation plinth in the south wall, near the south-west angle. These samples may represent either residual mortar from the earlier building, or may even represent an earlier phase of construction or maintenance of St Ronan's Church, which has been generally obscured by repeated re-pointing of the walls and other later work.

The remaining samples were principally recovered from late grave fills and include both mortar types.

CONSTITUENTS AND SOURCES

The Type A mortars are simple mixtures of lime and finely comminuted shell. Almost certainly, the source of the shell was an unvegetated area of fine, well-sorted wind-blown sands, known as the Silver Sands, which occurs near the exposed north-west coast of Iona, 2 km west of the site. Collection techniques will have determined what proportion of fine sand was incorporated.

The gravels of Type B mortars show great consistency in the overall range of minerals and rocks represented, though individual abundances vary widely. Eroded shell fragments of similar grain-size (2 mm), mainly white, complete the beach-gravels. The major components of the gravel are quartz and feldspar (red and pink), epidote (green) and amphibolite (black), with black and green meta-igneous rock, dark brown biotite clumps and some quartz-mica (grey). These components are mineralogically consistent with having derived from the Lewisian gneisses which compose the western three-quarters of Iona. This structurally complex belt of ancient, much metamorphosed rocks includes amphibolites, anorthosite and marbles and is shot through with pink pigmatite (quartzo-fespathic) veins, numerous green epidote veins and a suite of lamphrophyric dykes. The eastern coastal strip is composed of younger Torridonian rocks, conglomerates, grits and flagstones, thermally metamorphosed in places to slates and hornfelses.

The probability of a source for these gravels on western Iona is confirmed by a brief survey of accessible beaches on Iona and on the adjacent Ross of Mull. The survey established that gravel has not accumulated on any of the beaches protected from the Atlantic. Large and small beaches on the east coast of Iona and on the Ross of Mull are composed of uniformly fine sand, which merges up the beach with machair, the vegetation there growing on similarly fine sand. In contrast, Iona's wide West Bay (Camas Cuil an tSaimh), facing directly onto the ocean, has a vast accumulation of coarse cobbles and smaller but adequate quantities of gravel which matches that used for the mortar.

The Type B algal variant contains some sand grains, but is composed mainly of fine white shell, some fragmented, others almost complete, mixed with the broken stems of a nullipore alga, *Lithothamnion calcareum*. Several gleaming white beaches composed largely of this are found in some Hebridean bays exposed to the Atlantic, among which is Port Ban, a semi-protected small bay located in the same area as Iona's large West Bay. This proved to be composed entirely of shell debris. Although no *Lithothamnion* remains were found, they are known to have occurred in the recent past.

The lime was most probably imported. An easily accessible, excellent source material, the Triassic cornstones, concretionary calcareous sandstones, outcrop conveniently at Inch Kenneth and the adjacent Gribun coast, and 'might be burnt for local use' (Bailey & Anderson 1925). The presence of a small calcite nodule in Sample 234, and the silicified chalk in Sample 267, tend to support this hypothesis.

HUMAN BONES

Daphne Home Lorimer

The following is a summary of a more comprehensive report which appears in microfiche and consists of individual skeletal reports, tables and an extended discussion. For ease of cross-reference, the record numbers of individual skeletons are retained in the summary in some instances.

THE BONE ASSEMBLAGE

The skeletal remains from St Ronan's Church come from two distinct phases. The early medieval phase (Phase 2) is represented by only a few bone fragments. The post-medieval phase (Phase 5) is

represented largely by skeletons which are friable and fragmented and, in many cases, severely truncated by later graves. The later grave fills were contaminated by intrusive bone fragments. Although there were bones from 28 identifiable articulated adult skeletons as well as from four juveniles and five infants, the skeletons were so disturbed that a minimum number count only produced a maximum of 18 adults, using various markers.

Unless otherwise stated, sex was determined using the criteria given by Bass (1987) and Stewart (1978). Age was determined from attrition of the teeth (Brothwell 1981), morphological changes in the symphysis pubis (Krogman & Iscan 1986) and the auricular surface of the ilium (Lovejoy *et al* 1985). Stature was calculated from the length of the long bones, using the standard regression formulae of Trotter and Gleser given by Brothwell (1981). Where no entire long bone was available, the length was calculated from segments, using the formulae given by Krogman & Iscan (1986), although it is recognized that the standard error was compounded and the results only approximate. *Gray's Anatomy* (1977 edition) was used for general anatomical reference and Downer (1975) for teeth.

SEX

All the skeletons were gracile and of the 26 individuals where the principal sex markers were available (in particular the sigmoid notch of the ilium) all were probably female. Four were of indeterminate sex and although three of these were possibly female, one of them (No. 299) was equivocal. Here, the normal sex markers were missing and the few available were contradictory, which might be an indication of occupation rather than sex.

Using the technique developed by Schutkowski (1993), an attempt was made to sex the infants using the dimorphism of the symphysis mentis and gonial angle of the mandible and the pelvis. The supra-orbital margins were also used (Acsádi & Nemeskér 1970). One infant skeleton did not include the relevant portions and of the others, only one infant was considered possibly female and the others possibly male.

The sex bias in this assemblage accorded with the findings of Calvin Wells (1981), who drew attention to the notable preponderance of female skeletons in the burials at nearby Martyr's Bay. Wells considered it a possible reflection of the sex bias in the population as a whole, but in the present case, the women's burials at St Ronan's, adjacent to the Augustinian Nunnery, have invited comparison with some early Irish ecclesiastical sites which featured separate women's churches or women's cemeteries. (See Discussion and interpretation, below.)

AGE

Excluding five adult skeletons of no known age, and using the mean age of each group (Table 1), the average age at death of the entire population was about 30 years, six months. One quarter were under the age of eight at death, over half of which (55%) were infants of one and two years old, and the others juveniles between four and eight years old. No foetal or neonatal burials were identified and the older juvenile group (8–18 years) was also unrepresented. Calvin Wells (1981) noted the absence of infant and juvenile remains from Martyr's Bay (only one juvenile humerus being found), so that the presence of women and young children, only, in the St Ronan's Cemetery may be a reflection of the selective use of burial grounds on Iona.

The sample was small for comparison with other sites, but the mortality rate was compatible with the high percentage of deaths in the 0–5 year age-group from the post-medieval population of a cemetery in Ensay, in the Sound of Harris (Miles 1989). The rate, however, appeared higher than that from medieval populations in Aberdeen and Linlithgow (Cross & Bruce 1989).

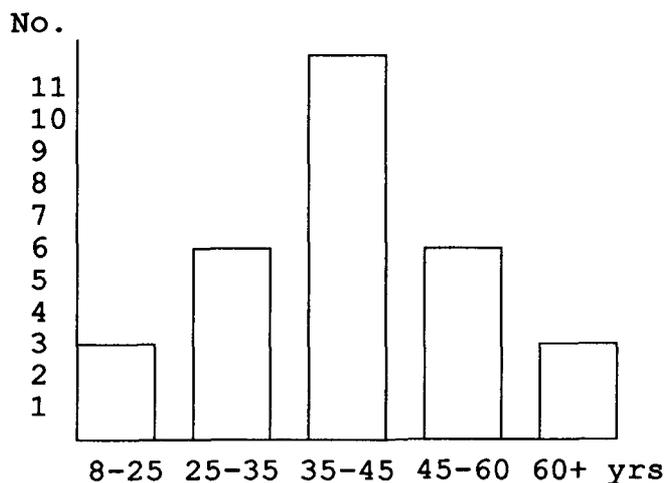
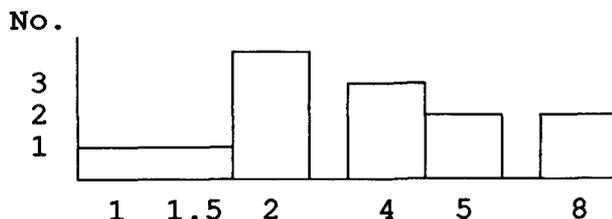


TABLE 1 Age at death: infants and juveniles (top); adults (bottom)

Those individuals who survived to sub-adulthood (over 18 years of age) had an average age at death of over 40, the majority dying between 35 and 45, while some survived into the sixth and a few into the seventh decades. Miles (1989) quotes Sinclair (1825, 110) as saying that the Highlands and Islands of Scotland were notable for their longevity once the hazards of childhood were over.

STATURE

The people appeared to be of short stature, the average height being about 156.2 cm, the range extending from 142 cm to 165 cm (Table 2).

These figures were comparable with those from remains at Martyr's Bay (Wells 1981), post-medieval Ensay (Miles 1989) and medieval Linlithgow (Cross & Bruce 1989), but appeared to be less than figures from medieval Aberdeen (*ibid*). In post-medieval Iona, the population appears to have been short. It is tentatively suggested that evidence of iron deficiency anaemia and systemic disturbance in early childhood, combined with the extreme shortness of stature at the lower end of the range, indicate a skeletal response to dietary and other environmental deficiencies among some of the population in the early part of life.

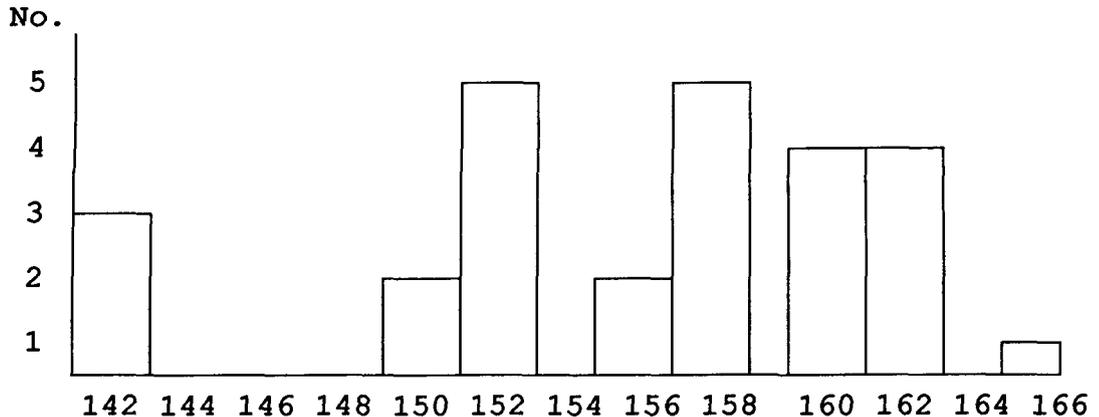


TABLE 2 Height (in cm)

CRANIAL SHAPE

Only six skulls were sufficiently whole to enable the cranial index to be taken with any degree of accuracy. Of these, four were mesocranic or average in shape, while one was long (*dolichocranic*) and the other round (*brachyocranic*). They appeared to be average in height. Tentative measurements on the other, damaged skulls tended to be mesocranic and were compatible with Calvin Wells' results from Martyr's Bay (1981).

LOWER LIMB SHAPE

It is significant that all but one of the adult femora present were flattened in an antero-posterior direction at the upper end of the shaft (*fiche*: Table 4; *illus* 10). This condition, *platymeria*, is rare today, but was relatively common among previous populations. Its cause is uncertain. It has variously been ascribed to squatting and to extra strain on the femur during childhood, but is now considered to be of possible dietary significance, a lack of calcium causing the bone to take up a flattened shape to compensate for lack of sufficient bone material for muscle attachment.

Five of the femora were bowed antero-posteriorly, compensation being made by a strong development of a bony pilaster at the *linea aspera*. The gluteal ridge appeared very strongly marked and in one example a *hypertrochanteric fossa* was present. The recorded index of pilasterism (*fiche*: Table 5) indicates stronger development of the *linea aspera*, in general, in the right femora. Pilasterism is considered a bone response to long periods of standing, and its incidence among the native male Americans from Georgia has been associated with fishing (Oettinger 1930). Possible causes in the female population of Iona are discussed in a later section of the report.

Platycnemia, or medio-lateral flattening of the tibia (giving a triangular cross-section) was found on only two right tibiae and three left (*fiche*: Table 6), and on both sides in only one individual. Six right tibiae and five left were mesocnemic or average in shape, but four right and four left were very rounded or eurycnemic. Calvin Wells (1981) commented on the lack of *platycnemia* among the population of Martyr's Bay.

NON-METRICAL VARIATIONS

The traits recorded were those used by Berry & Berry (1967) for the skull and Finnegan (1978) for the post-cranial bones. The sample was too small for a determination of population distance. Of chief interest in the

skeletons from St Ronan's were those variations considered likely to have an environmental origin: the Wormian ossicles in the lambdoid suture and metopism of the frontal bone (which are thought to be associated with childhood stress), cribra orbitalia and the high percentage of squatting facets in the tibiae, which indicate acute dorsi-flexion of the foot (Bacon 1990).

Torus mandibularis (a bony growth along the superior lingual border) was found in three of the 16 lower jaws or parts of jaws. Wells (1981) found torus mandibularis present in every mandible or fragment of mandible from Martyr's Bay. Of the three affected jaws from St Ronan's Cemetery, only two cases were found in individuals in their fourth decade, one in the group between 25 and 35 years, and none in the juvenile and infant mandibles. This follows the general pattern of age-regression quoted by Ossenberg (1981, 13). In her synthesis of the condition, she found it increased markedly in frequency in the peoples of the far north. It was found in 34% of the mandibles from a Viking cemetery in Deerness, Orkney (Brothwell, pers comm), and in 66% among a medieval population in Upper Scalloway, Shetland (Lorimer, in press). The aetiology is obscure but it has been suggested that, like the auditory torus, it is not genetic, but acquired through external factors. In summation of the theories, Ossenberg (1981) suggested that the underlying factor was masticatory stress, but that there was an indirect genetic influence on the production of the torus through formation of teeth and jaws and thus, on occlusion.

DEVELOPMENTAL ANOMALIES

Developmental anomalies were few and consisted of a lumbarized first segment of the sacrum in one individual and dental hypodontia in three individuals. Hypodontia is considered an expression of size, so that either the tooth can be smaller than normal or, where the tooth-germ itself is too small, may never develop.

SCARS OF PREGNANCY

Pregnancy and parturition cause stretching of the ligaments and tearing of their attachments to the bony articular surfaces of the pelvis at the symphysis pubis and the sacro-iliac joints. The sacro-iliac joint, however, is normally a mobile joint, so that scarring in the pre-auricular sulcus must be treated as suspect evidence of pregnancy. In two, or possibly three of the skeletons, scarring in the region of the symphysis pubis may indicate one or more pregnancies.

CHILDHOOD MORTALITY AND DISEASE

Stress, or periods of metabolic insult to growing bone, leave a number of skeletal features or 'markers' on the adult skeleton which can give some indication of the health of a population during childhood.

Porotic cribra orbitalia (sieve-like perforations of the orbit) were found in two juveniles and five adults. The more generalized lesion, porotic hyperostosis, was not found (although the parietal bones in two individuals did appear thicker than normal). Cribra orbitalia is considered to be indicative, in northern latitudes, of an iron-deficiency anaemia occurring during the first five years of life. Iron deficiency frequently accompanied weaning, when it seemed to be associated with the development of the body's defence mechanism (Stuart-Macadam 1989, 214). Experience of extra stress factors before the immune system stabilized, such as gastroenteritis or parasitic infection, could precipitate the anaemia.

Harris's lines, indicating temporarily arrested growth of long bones in childhood, were found in seven adults and in two juveniles. In particular, it was noted that Skeleton No 356 not only had repeated lines of arrested growth, but cribra orbitalia, as well. It is suggested tentatively that this might indicate an annual occurrence of an illness which precipitated the anaemia and, since the child had died between four and a half and five and a half years of age, ultimately caused death.

Evidence of systemic disturbance was also given by the interruption of the formation of the enamel on the teeth, or enamel hypoplasia, in five individuals. In Skeleton 362, in particular, the presence of cribra orbitalia together with enamel hypoplasia indicated a disturbance which occurred during the first year of life.

This might possibly have triggered an iron deficiency anaemia, although the child had lived to be four years of age.

Further evidence of juvenile stress was found in the presence of Wormian bones (small ossicles in the cranial sutures) which were present in seven skulls. It has been suggested that Wormian bones are associated with *cribra orbitalia* and in three skulls *cribra orbitalia* were also present. The aetiology is obscure, but it has been suggested that it is due to stress on the lambdoid suture during late foetal or early post-natal bone growth and is associated with the development of the cranial base, especially the basi-occiput (Bennett 1965, 259).

As has been mentioned previously, the stunted stature of the individuals at the lower end of the height scale probably indicates chronically poor diet and, since three of these skeletons had lines of arrested growth, frequent infection during the growth period.

FRACTURES

Traits were recorded in several individuals which resulted from healed breaks, fractures, sprains or ligament tears. The history of Skeleton 376 is especially noteworthy. In this individual, a healed fracture was found on the left femur with gross shortening (4 cm) of the leg. There was evidence of infection of the bone in the form of cloaca, indicating a probable compound fracture. Gross osteoarthritis was present in the left knee joint, and it was possible that evidence of a healed fracture of the tibia was masked by the hypertrophic bone growth. Despite the shortening of the leg, there was no evidence of scoliosis of the spine, but there did appear to be slight wasting of the left tibia, so it was possible that the injured leg was never weight-bearing. It is suggested that the arthritis was the result, rather than the cause of the fracture. There was a healed fracture of the right radius with slight dorsal displacement of the lower end and a possible healed fracture of the left radius, though the alignment was practically perfect. These fractures of the wrist are typically the result of an individual's tripping and putting out the hands to break the fall. The considerable incapacity suffered by this individual over a long period of time suggests caring by the community or people within the community.

OTHER TRAUMAS

Osteoarthritis and degenerative joint disease as well as evidence of lesions of the intervertebral discs (Schmorle's nodes) were identified in several individuals. Most degenerative changes occurred in later life, and were observed in individuals in their fifth, sixth or seventh decades. Osteoporotic and osteophytic traits were observed in only two individuals in their twenties and thirties.

OTHER DISEASES

Osteochondritis dissecans was found in the femur, acetabulum and calcaneum of three skeletons. In one individual, a small button-like osteoma was present on the left femur, but the tumour was benign, and of no particular significance in life. Reactive bone tissue on one sternum and one fibulae is suggestive of an overlying skin infection.

ORAL HEALTH

Teeth were only found in association with 14 adult skeletons and only 267 were retrieved, many being loose and many more being lost post mortem. Attrition was considerable on all teeth. Caries was found in 12 teeth from eight skeletons and calculus on the lingual side of all extant teeth from six others. Reactive bone in the molar regions of three, and in the second premolar region of one, of the lower jaws indicated periodontal disease. Recession of the entire alveolar margin in one skeleton and round all the third molars in the other without any bone reaction, could, possibly, have been due to continuing root growth.

THE PATTERN OF ACTIVITY-INDUCED BONE-CHANGES

Evidence of exceptional use of particular muscles can be provided by marked development of their points of attachment (enthesopathies) and by the presence of certain non-metrical traits. It is noted, however, that the changes themselves cannot easily be attributed to a particular activity.

In the individuals from St Ronan's, the most interesting group of changes occurred in the five bowed femora with pilaster development, with greater development recorded on the right side. Indeed, the changes in all five may have been due to the same activity or industry. It is suggested for Skeleton 336 that the changes found on all the bones of the lower right limb were due to the use of a treadle loom. However, this activity may not account for all the changes found in Skeleton 241, where the pelvis and upper limb were available. The development of Allen's fossa on the femur has been attributed to running or walking downhill (Angel 1964a). Changes at the ankle (Chesterman 1983) and development of the attachments of the biceps and Brachialis anticus in the arm (Gray 1977, 388) have been attributed to habitual rock-climbing. Similar changes were found in the lower limbs of Skeletons 243 and 328.

Other bony changes were found in Skeletons 315 and 321 at the hip (Poirier's facet and exostoses in the hyertrochanteric fossae), knee (Charles's facet on the femur and rounded posterior border of the medial condyle) and ankle (squatting facets). These are thought to be produced by squatting or very low seating (Kennedy 1989, 47–8). Alternatively, they could result from kneeling. Other changes, in the right tibia of Skeleton 272 and the great toe of Skeleton 321, suggest kneeling with bare feet (Ubelaker 1979). Similar changes appeared in Skeletons 276 and 342a, but in both cases additional changes were present which suggested that the individuals may have sat cross-legged.

Marked changes at the points of muscle attachment were also seen in the upper limbs. In Skeleton 276, especially, changes suggested considerable circumduction and adduction of the left arm. In Skeleton 286 the attachments for the ligaments of the intermetacarpal joints were strongly marked, particularly on the first and fifth.

CONCLUSIONS

The fragmentary remains from the early medieval graves (Phase 2) do not allow a general comment. The post-medieval assemblage (Phase 5) appears to represent the burials of women, infants and young children, only. They were small of stature and gracile of bone and appeared, from the development of muscle attachments (enthesopathies), disc lesions and evidence of trauma, to have led a fairly active life. Morphological changes indicated that they were habitually in a squatting position, while changes at the first metatarsal-phalangeal joints of two individuals indicated that some, at least, went barefoot. The amount of infant and juvenile mortality appears compatible with other contemporary communities and, once adult, life expectancy appears to have been relatively high. There was some evidence of iron-deficiency anaemia and of systemic disturbance during childhood, but apart from fractures, evidence of disc lesions and two individuals with osteoarthritis, gross pathology was absent on the bones. There was no evidence of tuberculosis, leprosy or syphilis. Degenerative Joint Disease (DJD) was minor and mostly found among the older age-groups.

DISCUSSION AND INTERPRETATION

THE EARLY BURIALS (PHASE 2)

Nine partly excavated graves represent the earliest recorded use of the site. They appear to have been part of an organized cemetery: the graves are parallel, well spaced and generally do not intercut (illus 2). (It has been noted that though grave cut F 2147 was excavated as a single feature, it may represent the conjoined or intercut graves of two or three individual burials.) Although they

appear organized, the small number of burials is unrevealing about the scale and form of the cemetery in this earliest phase. It cannot be said how far it extended, whether it was enclosed, or whether it featured other structures in the unexcavated areas outwith St Ronan's Church.

The burials are extended, oriented, inhumations, and are laid in simple dug graves without surviving grave goods. They are probably Christian, therefore, although this is not unequivocally the case, and the alternative must also be considered. Pre-Christian settlement on Iona, in various periods, is well attested (Ritchie & Lane 1980; Barber 1981; RCAHMS 1982). In Britain, generally, the early church sites where pre-Christian burials have occurred are sufficiently numerous for Thomas (1971b, 58) to have argued that the sequence may represent continuity rather than coincidence. In Wales, James (1992, 101) has suggested the widespread development of Christian burial practices within Iron Age and Romano-British traditions, and in Ireland, O'Brien (1992, 133) has suggested that the use of pagan cemeteries and burial grounds may have persisted locally until as late as the seventh or eighth century.

No close dates may be attributed to the early burials. If they are indeed Christian, they may date to as early as the period of primary monastic settlement on Iona in the mid-sixth century. The burials stratigraphically underlie a building (Phase 3) which, it will be suggested, could have been built at any time between the eighth and 12th centuries. Therefore it may only be said on present evidence that this early phase in the use of the cemetery probably dates to some period between the mid-6th and 12th centuries.

Radiocarbon dating would have identified a narrower probable date range, but assessment of the bones by the Physics Department of the University of Arizona found insufficient surviving bone collagen for a date to be determined.

THE EARLY BUILDING (PHASE 3)

The cemetery was almost certainly a place of Christian burial when a small, rectangular, stone building – probably a church – was built within it. The interpretation of this building as a church is based on several considerations. It is a rectangular, oriented building, sited in an area reserved for organized burials. The construction of the later parish church directly over the earlier wall butts would have perpetuated the presence of a church on the site. Erection of a church within a pre-existing burial ground is a familiar sequence in the archaeological record of early medieval cemeteries, and conforms to the classic model described by Thomas (1971a, 111) whereby a Christian cemetery becomes 'developed'.

One possible model for the evolution and appearance of the early church and cemetery at St Ronan's is Cladh an Disirt, a burial ground lying some distance to the north of the Abbey (illus 1). Here, a curvilinear embankment, 30–40 m in diameter, enclosed a small rectilinear building which is interpreted as a church 'probably of twelfth century or later date' (RCAHMS 1982, 243). The name of the site, literally 'the hermitage burial ground', indicates an origin in the Early Christian period for the burial ground itself, if not for the building within it.

The construction date of the early church at St Ronan's cannot be closely defined. The building post-dates probable Christian burials and pre-dates construction of the medieval parish church. The period between these horizons may span the 600 years or more between the Columban settlement of Iona in the mid-sixth century and the construction of St Ronan's in the 12th or 13th century.

The walls of the building were rendered in lime-mortar. It is possible that lime was being produced industrially on Iona at a relatively early date. Reece (1981, 15) excavated industrial features north-west of the Abbey which he interpreted as the remains of a sixth- or early seventh-

century lime-burning clamp. (These features were dated on the basis of overlying sediments which contained a sherd of African red-slip ware.) In discussing these features, Reece (1973) preferred to assume that lime was being produced for agricultural use rather than for building mortar. This may well have been the case. In general there is little evidence that Irish church builders elected to employ lime-based building media before the mid-eighth century.

On documentary evidence, Irish pre-Romanesque mortared stone churches are generally assigned dates between the eighth and 12th centuries. A recent programme of radiocarbon dating of mortar samples from 20 early Irish churches recorded a broadly similar range of dates (Berger 1992). Within this range, the simplicity of any building need not imply an especially early date. Harbison (1982; 624) has remarked of early Irish stone churches that 'single-chamber churches lacking *antae* and any form of decoration are undatable'. If it is accepted that the present building is the product of an Irish monastic milieu, then any construction date in this 400 year span is possible.

The comparison with Irish mortared stone churches is not an exact one: the walls of the present building are indeed mortar-rendered, but the masonry is bonded in clay. These details of the building fabric widen the scope of inquiry into the date and antecedents of the building.

Clay-bonded masonry is a medium which some authorities have in the past attributed specifically to early Irish church builders (Cramp 1969, 58; Radford 1962a, 167). However, the instances recorded from Irish sites are fewer than has been supposed, and this medium might even be described as relatively rare in Ireland. The building at Nendrum which Lawlor (1925, 108) interpreted as a 'school' was clay-bonded, but Lawlor commented that the technique was unfamiliar to him and identified a church at Raholp, County Down (Biggar 1917), as the only other example of which he knew. Waterman (1967) recorded a clay-bonded church at Derry, County Down. There is an unpublished example excavated by Liam de Paor at Iniscaltra, County Clare, and a recently excavated example on the island of Skeam West, County Cork (Clare Cotter, pers comm.). Admittedly, clay-bonding would erode rapidly from an abandoned church, potentially resulting in the ultimate collapse of the building, and more examples of clay-bonded Irish churches may have existed than are currently recorded. In general, however, churches in mortared stone seem to have been more prevalent.

Lime-mortar wall render or plaster is also scarce in the record of early Irish churches. In a note on the subject to Radford (1951, 39), Leask offered St Luke's Church at Killaloe, County Clare, as one of the few pre-12th century examples where plaster survived, but surmised that these examples may represent a larger number where it had simply weathered away. Gallarus, County Kerry, may be one such example. Here, Leask notes that lime is absent as a structural medium but appears vestigially 'filling the internal joints here and there' (1955, vol 1, 22). More recent excavations have not added further examples to the record.

In general then, in some details of the building fabric, the early church at St Ronan's does not conform to the dominant Irish traditions of building in stone. In fact, it is in south-west Scotland, and not in Ireland, that one may identify immediate parallels for the fabric and treatment of the building. Small, unicameral churches, with clay-bonded masonry and lime-mortar rendered wall surfaces, have been recorded on Ardwall Island, Kirkcudbright (Thomas 1967), and at Whithorn in Galloway (Radford, 1957). A similar building technique was recorded at a church on St Ninian's Point, Bute (Aitken 1955), although here clay supplied the wall-render as well as the bonding agent. Less precise parallels may be found elsewhere in Scotland. A small church at the Hirsell, in the Borders, had walls of earth and stone with lime mortar pointing (Cramp 1985). On the Brough of Deerness, stone walls with a core of rubble chips and earth were raised on a bedding layer of clay, with mortar applied to the floor and walls at a later date (Morris & Emery 1987, 322).

The various dates attributed to these buildings range from the seventh to the 11th or 12th century. The date of the small, clay-bonded and lime-mortar rendered church which was recorded at Whithorn by Radford (1950) is still unresolved: Thomas (1985, 281) believes the building may date to a period of Irish influence in the early seventh century, though admits it may be of later, Northumbrian construction, but Hill (1990, 20) suggests an eighth- or ninth-century date on the basis of its alignment with other, Northumbrian, buildings. The small church on Ardwall Island was dated to no earlier than around c AD 700 by Thomas (1967), again, with suggested Irish influence. Radford (1955, 76) thought the church on St Ninian's Point to have been in use between the sixth or seventh and the ninth century. Morris and Emery attributed the construction of the chapel on the Brough of Deerness to a Norse community in the 11th or 12th century. Cramp (1985, 54) has described the building at the Hirsell as a proprietary church, possibly built in the 10th century.

More locally, some unexcavated examples of clay-bonded churches may also be cited. The *Inventories* of the Royal Commission record the remains of numerous small, oblong structures in enclosed burial grounds in the Western Highlands and Islands. These are generally assumed to have been pre-12th-century proto-parochial churches. Most are grassed-over, drystone or mortared structures, but clay-bonded examples are not exceptional and are found at Cill Bhride, Kintyre (RCAHMS 1971, 107), Ballachau, Lorn (RCAHMS 1975, 117) and Bruichladdich, Islay (RCAHMS 1984, 158), amongst others.

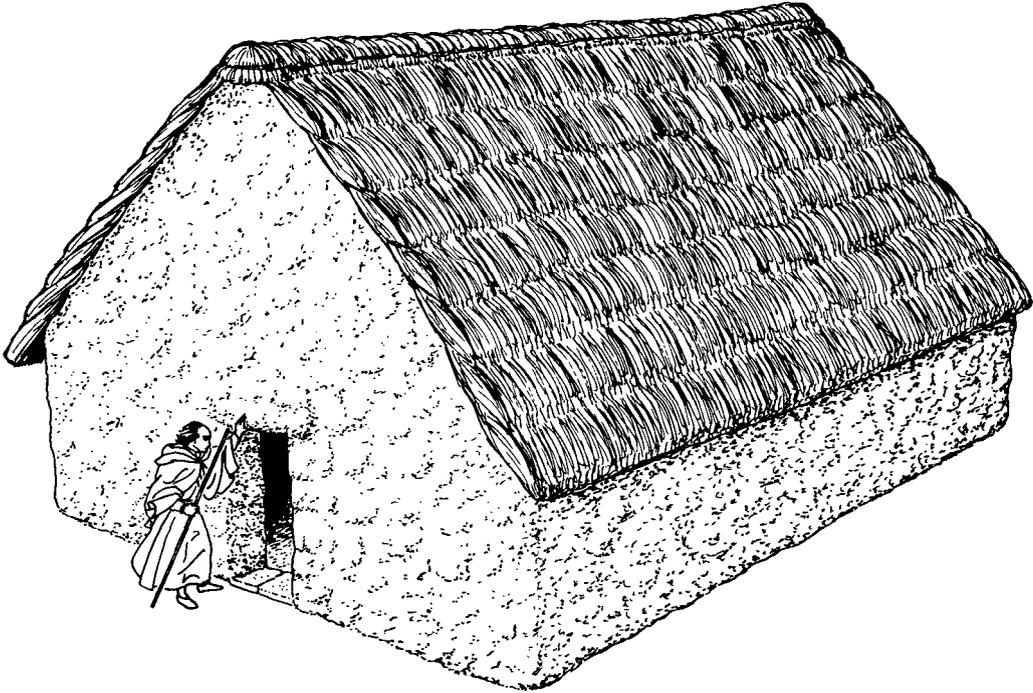
THE EARLY BUILDING (PHASE 3): RECONSTRUCTION

The reconstruction drawing offered here (illus 9) represents a high degree of conjecture. The concrete evidence of the excavated remains is slight, and consists only of the reduced wall remnants. No evidence was recovered for flooring, door or window details, internal furnishings, roof materials or roof embellishment (such as carved finials). None the less, Leask's (1955) extensive survey of early Irish churches provides some guide to the likely character of a simple, rectangular, stone church of this scale and proportions.

There will almost certainly have been a window in the east gable. A second small window may have been located in the south wall but it is unlikely that there were any others. A west-facing doorway has been suggested (see Excavation results, above) and unsurprisingly the most common early Irish form is flat-headed, spanned by a flat lintel.

Some early Irish churches have stood to remarkable heights in proportion to their diminutive ground plans and have characteristically steep roof pitches. Leask (1955, 53) relates this to the steep slope appropriate to the use of wood shingles or, in stone-roofed examples, the need to reduce lateral thrust against the walls. St Columb's House at Kells, County Meath, rose to about 11.7 m over a floor area of 5.85 m by 4.74 m. The tiny church of St Benen on Aranmore Island, County Galway, stands to over 5 m over a floor area of 3.4 m by 2.1 m. The walls of these buildings were scarcely more massive than those of the early building at St Ronan's, and diminish gradually above ground level. However, these are mortared buildings. In the present instance, it is suggested that the clay-bonded, rubble walls of the present building were unlikely to have been raised to any great height and may have stood no higher than 1.5 m to 2 m at the wall-head (Note 1). With correspondingly low gables, an apex at about 4.5–5 m is suggested. The roof pitch, therefore, cannot have been steep and, in the absence of evidence for a slate roof, thatch, effective against precipitation at 45 or 50 degrees (Reynolds 1979, 33), is suggested as a more probable roof material.

Despite the suggested simplicity of appearance and design, the church would have been a conspicuous building none the less, distinguished by the coating of white lime plaster on its walls.



ILLUS 9 Reconstruction drawing of the early church (Phase 3)

ST RONAN'S PARISH CHURCH (PHASE 4)

St Ronan's medieval parish church was dedicated to a saint whose history is now obscure. MacKinlay (1914, 43) quotes Skene's opinion that the Ronan commemorated by several Scottish church dedications was an abbot of Kingarth in Bute whose death is recorded in AD 737. In any case, the saint was evidently widely venerated, and other dedications to St Ronan occurred at chapels on the island of North Rona; in Kilchoman parish, Islay; in Eoroby, on the island of Lewis; and at Kilmaron chapel in Cupar parish, Fife. Place-names such as Kilmaronock in Dumbartonshire and Kilmaronag at Loch Etive, Argyll, also commemorate the saint (Mackinlay 1914, 43–4).

On Iona, St Ronan's medieval parish church was erected directly over the wall remnants of the earlier church (illus 2 & 3), which may have been systematically levelled to make way for the larger building. The church has already been described in some detail. In plan and general construction it is typical of the 12th/13th-century parish churches in the area, and there is no reason to believe that it is not of the same general date. Only four of these churches now survive in the 13 parishes in the area of Iona, Mull, Tyree, Coll and North Argyll (RCAHMS 1980). Together with some other chapels of medieval date and quasi-parochial status, these comprise a fairly uniform architectural group. All were originally oblong, unicameral buildings in mortared rubble masonry, embellished by sandstone dressings from Carsaig or Innimore on the southern coast of Mull. Openings vary in detail, but a favoured entrance location is towards the west end of the north wall. Windows occur in the east gable, and are frequently opposed in the long walls towards the

east end of the church. As in the present case, the east gable window most often consists of a deeply splayed, single light. The triangular-headed windows in the north and south walls are distinctive features favoured by Irish masons. This form is also found in the north chapel of the Nunnery church. In orientation, the building differs by several degrees from the adjacent Nunnery church. This is attributed to its having been built directly upon the wall remnants of the early (Phase 2) building.

Documentary references to the church and to its rectors are sparse, and have been summarized by the Royal Commission as follows:

The earliest historical record of the parish church of Iona appears in 1372, when Pope Gregory XI presented Mactyr, Son of John the Judge (Mactyr Johannis Judicis) to fill the vacancy caused by the death some years earlier of the previous rector, Dominic Son of Kenneth. Although the parsonage, valued at less than ten merks sterling annually, was apparently independent at this time, in 1561 'the parsonage of Tempill-Ronaige' was listed as one of the churches that belonged to Iona Abbey, and as having been exempted from paying the customary third to the bishop of the Isles. Fingonn MacMillan was Dean of Mull and minister of Iona in 1573, and although in 1615 the vicarage was again held by the minister of Soroby, Tiree, the island had its own minister in the 1630s.....From 1662 to 1829 there was no resident minister. (RCAHMS 1982, 251)

It is not known whether the building was maintained in use for any length of time after the Reformation, or indeed how long Catholic observance persisted on Iona. One of the Irish Franciscan missionaries active in the Western Isles in 1625 could make only three converts on Iona in his brief visit there (RCAHMS 1982, 149) and the church may simply have become defunct after the demise of a Catholic clergy. In 1641 a royal grant was made to maintain the Abbey church for parish worship, and by that time St Ronan's Church must certainly have been abandoned.

LATER BURIALS (PHASE 5)

The numerous graves within St Ronan's Church, recorded by the present phase, represent the use of the abandoned church for burials in the post-medieval or early modern period. It is clear, for instance, from the preference for burial sites close to the altar (illus 2) that as a group, the recorded burials could not have pre-dated the building. Although a medieval cemetery may have extended on all sides of the church, it is not known whether burials were interred within the building itself before it became defunct and ruinous in the 16th or 17th century. Furthermore, several sources describe the use of the environs of the Nunnery as a women's burial ground until the mid- or late 18th century (RCAHMS 1982, 150). Therefore the assemblage of skeletal remains which is described above (see Human Bones, Lorimer) may reasonably be interpreted as representing the female population of the island between c AD 1600 and 1800. As it is a matter of common sense that in a limited space, the surviving or undisturbed burials will be those which were last interred, the assemblage has a probable bias towards the latter end of this period.

The graves themselves are uninformative about the identity and status of the individuals they contained. No grave markers were recovered. As described above, evidence for coffins in the form of nails or wood remnants was present in only a small number of graves and, elsewhere, the bodies must be assumed to have been laid in shrouds.

White, beach-rolled, quartz pebbles occurred in several graves. This appears to have been a common feature of burials throughout the Atlantic provinces, and is a practice which has evidently had a long currency. O'Kelly (1958, 93) counted no less than 6800 pebbles from grave fills and other contexts in the early ecclesiastical settlement on Church Island, County Kerry. At Whithorn, quartz pebbles are recorded from medieval graves where coins and cattle teeth are also deposited

with the dead (Hill 1987, 21). Stevenson (1987) discusses the deposition of pebbles and coins by petitioners at Orcadian chapels in the 17th and 18th century, and in both Ireland (O'Kelly 1958, 94) and Scotland (RCAHMS 1971, 103) the habit of using pebbles as counters or prayer beads persisted locally at holy wells and other pilgrim sites until the present century. Given this wide time span, it is reasonable to suppose that the same significance was not attached to the stones in all places at all times. One Inverary fisherman is recorded to have confessed that though it was a custom in Inverary to place white stones on the graves of friends 'he did not know if it was done in other districts, and did not think it was done with any definite meaning' (Lebour 1914, 125).

Amongst the incidental inclusions in grave-fills, building debris, in the form of mortar-flecked stones or mortar and clay fragments, is attributed to both the demolished early building and potentially to the gradual collapse of St Ronan's Church itself during this period.

The presence in the grave-fills of shellfish, butchered animal bone and miscellaneous pottery sherds invites a less obvious interpretation. A probable explanation of these inclusions is that they represent midden-laden soils from the vicinity of the Nunnery which were deliberately introduced to the church in the post-medieval period to increase the soil volume or burial capacity of the church interior. This would obviously have raised the internal ground level to some degree. However, the ground surface beneath the modern gravel floor was found to be relatively low, or approximately level with the base of the foundation plinth of the church wall. It can only be supposed that a volume of soil was removed again when the interior of the church was reduced and levelled by one or other of the modern episodes of restoration. Some graves will certainly have been disturbed in this process. The bone cache in the large central pit most likely derives from this or from a similar disturbance.

THE WOMEN'S CEMETERY

The salient feature of the Phase 5 skeletal assemblage is that it represents the exclusive use of Cladh Ronain for burials of women and a few young children (see Human Bones, Lorimer, above). Samuel Johnson (1773) assumed that this practice derived from a local veneration of the Nunnery ruins: 'The cemetery of the Nunnery, was, till very lately, regarded with such reverence that none but women were buried in it.' However, there is evidence that the practice may have been of wider currency and of greater antiquity than Johnson could have guessed.

In Ireland, Hamlin & Foley (1983) describe segregated burial in the townland of Carrickmore, County Tyrone, where tradition and place-name evidence identify a women's burial enclosure, Reilig na mBan, a kilometre distant from the parish church and cemetery. The authors expand from this example to describe the limited evidence for other forms of early cemetery segregation on the basis of social status and circumstances of death. There is no evidence for any specifically early date for Reilig na mBan in Carrickmore, but the authors point to several early Irish monastic sites where 'there is a church dedicated to St Mary or associated with women at some distance from the main monastery, sometimes with an attached graveyard' (Hamlin & Foley 1983, 44). A few of the examples cited are Inishmurray, County Sligo, where Teampull na mBan and the women's graveyard lie outside the monastic enclosure; Glendalough, County Wicklow, where St Mary's Church occupies its own graveyard west of the main monastic confluence; and Clonmacnoise, County Offaly, where a causeway leads east from the monastic enclosure towards the 'Nun's Church'. Hamlin & Foley conclude that 'the practice of separate worship, and possibly separate burial, for women, does at some Irish ecclesiastical sites go back to the pre-Norman period' (Hamlin & Foley 1983, 44).

Iona is amongst the examples cited by Hamlin and Foley (Note 2). Here, the Augustinian

Nunnery, dedicated to St Mary, lies some distance south of Reilig Odhrain, a cemetery of the primary monastic settlement (Barber 1981, 364). It is possible that, on Iona, the exclusive use of the Nunnery environs for women's burials is, as Johnson assumed, a relatively recent tradition, which venerated the memory of the deceased Augustinian convent. However, in the light of parallels from early medieval Irish sites, the alternative interpretation seems at least as likely: the Nunnery may originally have been granted the site of a pre-existing church and cemetery to perpetuate its established use for women's worship and burial (Note 3). In the 200-year period of its seventh- and eighth-century *floruit*, the monastic settlement of Iona may have been extensive, populous and complex. Adomnan records that in his own lifetime, one of Columba's posthumous miracles was witnessed on the saint's feast day by 'not merely one or two witnesses as the law requires, but hundreds who can bear testimony' (Reeves 1874, 109). An early women's cemetery may have received the remains of women from a secular or monastic tenant population, or even the remains of clerics' wives.

From this tenuous background evidence, it would appear that segregated burial on Iona in the Early Modern period may derive from practices established during the island's occupation by an Irish monastic community in the early medieval period. However, the practice of segregating cemeteries according to sex or other criteria was not confined to the early Irish church and evidently occurs across a wide chronological and geographical range.

From Bede's account of the East Saxon double house at Barking, in Essex, Cramp (1976, 206) inferred that segregated burial of monks and nuns was the norm there, and discovered more direct evidence of segregation at Wearmouth, where the excavated human remains indicated the existence of both a monastic and a lay cemetery (1976, 231). At Whithorn in Galloway, a cemetery for children and infants was discovered to the east of the Northumbrian church and burial chapel, leading Hill to surmise that 'the exclusive use of a specific area for the burial of pre-teenage children argues for rigorously organised burial practices and male and female burial areas probably lay elsewhere in the vicinity' (Hill 1992, 14). Even in the medieval period a degree of segregation between male burials and female or infant burials persisted at Whithorn, specific areas within a single cemetery 'being earmarked for different groups of the population' (Hill 1987, 23). A similar pattern was recorded in the Jewish cemetery of medieval York, which, although it did not have clearly segregated areas of burial, did feature areas of concentrated male or infant burials (Lilley 1992, 64).

Farther afield, I am grateful to Dr Roberta Gilchrist (pers comm) for the advice that excavations have attested to segregated burial of men and women on medieval or early medieval sites in several countries. For instance, at Sissach, in Switzerland, burial within the proprietary church was a female privilege, prompting the speculation that a second church was favoured for male burial (Burnell 1992, 39). In Sweden, Loddekoping is one of a number of medieval parish burial grounds where male burials were confined to the south and female burials to the north of the parish church (Cinthio & Boldsen 1983).

The most recent parallels are more local, however. Segregated burial in the 17th century is recorded on the small Hebridean island of Taransay, where Martin Martin (1698) described separate burial grounds for the local men at the church of St Keith and for women at the neighbouring church of St Tarran. On Inishmurray, County Sligo (above), segregated burial grounds at neighbouring churches persisted in use until the evacuation of the island in the present century.

Unfortunately, none of the earlier graves excavated at the present site (Phase 2) produced identifiable remains. Ultimately, the use of the cemetery at St Ronan's as a women's burial ground in the early medieval period remains a hypothesis which will be resolved only if intact, early skeletal remains are recovered by further excavations on the site.

CHURCH AND CEMETERY IN THE CHANGING LANDSCAPE

The record of the excavated features on the site has described successive phases with clear stratigraphic boundaries. In reality, however, the site may have been in continuous use as a burial ground from the Early Christian period until the 18th century. Despite this supposed general continuity, the organization, use and status of both church and cemetery will have been subject to change.

Several models offer either implicit or explicit explanations for the siting of pre-12th-century churches and burial grounds: the church established in an early 'developed cemetery' (Thomas 1971a, 111); the church as a place of mediation on unstable or hostile boundaries (O Riain 1972, 19); the monastic church, established near the primary cemetery of the community (Fanning 1982, 150) or more specifically near the founder's grave or shrine (Thomas 1973, 9; MacDonald 1984, 77); the eremitic church and cemetery as satellite or remote outpost of a larger monastery (Radford 1955, 75); or the proprietary church, maintained by a specific lay community or family (Ó Corráin 1981, 339). Some of these elements may combine over time as the status and function of a particular site evolves, and a few are apparent in the changing history of the present site.

In its earliest phase, the cemetery at St Ronan's appears to have been a satellite to the main monastic settlement and its primary cemetery at Reilig Odhrain. Reeves (1874, 418) collected the traditional names of nine burial grounds on Iona (Note 4). It is not proposed that all of these burial grounds are of equal antiquity, or even that their original use is accurately represented by more recent local tradition. But it is possible that tradition has faithfully recorded an early medieval practice of consigning the dead to a variety of burial grounds of different status or significance, and at different locations on the island.

The erection of a small church within the cemetery may have served an immediate and specific purpose. Thomas-Edwards (1992, 69) identifies the three pastoral obligations of the early Irish church as 'baptism, communion and what is called literally "singing of what is not seen", namely singing of psalms and other prayers on behalf of the dead'. There is no evidence that the present building was a mortuary chapel in the sense that it was built to house any individual venerated remains, but its situation within an established cemetery invites the interpretation that both funeral liturgies and commemorative or intercessory prayers were read in the early church at St Ronan's.

Together with other early churches on Iona, this building may have been an important focal point in a complex liturgical landscape. In his topographical review of Anglo-Saxon minsters, Blair suggests that:

some minster enclosures were merely the nuclei of diffuse constellations, or even extended lines of churches and other related monuments. Groups of this kind might include holy wells, cemeteries and other older ritual sites, as well as chapels of specialized function such as hermitages or retreat houses....In topographical, ritual and sometimes legal terms, an important minster extended far out beyond its vallum into the territory around' (Blair 1992, 257).

This description transfers readily to several early Irish monastic sites which are elaborated by multiple churches of different size and status, such as Glendalough in County Wicklow and Clonmacnoise in County Offaly, and seems especially pertinent to Iona, with its outlying churches, not only at St Ronan's, but also at Oran's Chapel, at the ruined St Mary's Church, and at Cladh an Disirt.

The reorganization of the site by the erection of St Ronan's parish church in the 12th or 13th century seems to indicate a completely new chapter in its use and status. It is not clear why this particular site was preferred for parish worship. It is possible that the institutional intimacy

between parishioners, pilgrims and the Augustinian house may have been a more important factor here than the pre-existence on the site of a small church and cemetery (Note 5).

In the post-Reformation period, the decay of the parish church and the crowded disorganization of burials within it are commensurate with a community which went for long periods without the services of an organized church, and which was without a resident minister between 1662 and 1829 (RCAHMS 1982, 251).

APPENDIX: THE IONA CATHEDRAL TRUST

The island of Iona contains some of the most important sites of the Early Christian to Late Medieval periods in Scotland. The scene of the first consecration of a coronation, and a home to craftsmen and scholars (some of whom may have worked on the Book of Kells, and who certainly created the fine high crosses still on the island), this cluster of sites is of European and world-wide significance.

Ironically, one of the threats during this century has been the series of archaeological excavations undertaken piecemeal, often at short notice, in advance of planned developments. The Iona Cathedral Trust, which has responsibility for the fabric of the surviving buildings, has now embarked upon a long-term plan for the conservation and preservation of the remains on the island, taking into account the archaeological deposits with which they are associated. As part of this process, AOC (Scotland) Ltd has been commissioned to draw together a database of excavations and explorations on Iona, particularly in the area of the abbey and nunnery, and we would be grateful for any information that Fellows can supply in this matter.

Mr Crichton Lang, Chief Executive of Iona Abbey Limited (the Management Company of the Iona Cathedral Trust), who is charged with finding the necessary funds, would be grateful to receive any donations from Fellows wishing to support this important effort. *Donations should be sent directly to him at: Iona Abbey Limited, Woodside Cottage, Ardler, Blairgowrie, Perthshire PH12 8SX.*

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NOTES

- 1 Barns, peel towers and even churches constructed in clay or clay-bonded stone have been recorded in medieval and early modern contexts in Scotland (Fenton & Walker 1981, 76–85) and therefore a taller, more steeply roofed reconstruction of the early church cannot be eliminated from consideration.
- 2 Elsewhere, Hamlin (1987) has suggested that the cemetery excavated by Reece (1981) at Port nam Mairtir corresponds to the pattern of segregation first discussed in Hamlin & Foley (1984). Here, dozens of uncoffined burials were packed into sandy rock gullies near the island's east shore. The majority of the remains were of adult females (Wells 1981). The date and status of this cemetery is unresolved, though one tentative interpretation is that it was a burial ground of the Augustinians (Wells 1981, 86).
- 3 Cowan & Easson (1976, 151) dismiss out of hand the possibility that there may have been an earlier

nunnery on the island, based on a reference in the *Book of Clanranald* to Iona's Black Nuns or Benedictines.

- 4 As well as Cladh Ronain, the traditional burial grounds identified by Reeves (1874, 418) were Cill Channich (Kenneth's Cemetery), Cladh an Disirt (the Hermit's Cemetery), Cladh nan Druineach (variously the Artisan's or the Druid's Cemetery), Cladh na Meirghe (for unbaptised infants), Cill mo Neachdain (for murderers and the unbaptised), Reilig Odhrain (Oran's cemetery) and two unnamed sites, by St Martin's Cross and at Port nam Mairtir.
- 5 The revenues of the parish church were apparently held by the Benedictine Abbey (Cowan 1980, 26).

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