

Excavations at the long cist cemetery on the Hallow Hill, St Andrews, Fife, 1975–7

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ABSTRACT

Excavations west of St Andrews were undertaken from 1975 to 1977, following the discovery of long cists in the garden of a new house on the Hallow Hill. Long cists had been discovered there in 1861, when 20 were opened. The recent excavations revealed a complex of long cists and other graves of an unenclosed burial ground of Early Christian date. Part of the cemetery was loosely organized, while elsewhere the cists were arranged in well-ordered rows. An unusual two-tier boulder-edged grave was found; no burial survived in the upper level; in the lower level an incomplete burial of a child was accompanied by Roman and other objects, a combination similar to that in a well-recorded cist uncovered in the 19th-century explorations. Other features included a cobbled road through the site, post-holes and possible structural remains, all affected by centuries of cultivation. The site has been equated on topographic and toponymic evidence with the lost Early Christian site, Eglesnamin. Radiocarbon dates for a number of cists calibrate generally to between the sixth and the ninth centuries AD. The report was completed with the aid of a grant from Historic Scotland.

INTRODUCTION

INVESTIGATIONS AT THE HALLOW HILL IN THE 19TH CENTURY

The years 1859, 1860 and 1861 saw unprecedented antiquarian activity in St Andrews. A Bronze Age cremation cemetery was uncovered in 1859 by Charles Howie (Anon 1861) at Lawhead, west of St Andrews, on the north bank of the Kinness Burn (NGR: NO 4943 1583). The following year, excavations by Robert Walker on the Kirkhill (Kirkheugh) revealed traces of the old church of St Mary of the Rock, with its extensive cemetery of medieval and earlier graves as well as long and prehistoric cists. The skulls, in particular, proved of interest to J Barnard Davies (1861, 191–9), the anatomist, who published detailed measurements of 16 skulls.

After working at Lawhead, Charles Howie, attracted by the name ‘Halyhill’ (illus 1–3), decided to investigate this site. On enquiry, he and Robert Walker learned that ‘several stone coffins, which resembled those uncovered at the Kirkhill, being of undressed stones and containing human skeletons’, had been dug upon the south side of the burn during agricultural work. For this reason they

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came to the conclusion that burials on the Halyhill were of 'the present, or Christian period' and that the hill should more correctly be designated the Hallow Hill (Anon 1861).

A limited exploration was carried out by Howie in 1861, when five long cists were found and were reported to the St Andrews Literary and Philosophical Society (Walker 1861a). Three of the skulls were donated to the Society at that time, but have since been lost. In December 1861 Walker (1861b) reported that Howie had uncovered a further 15 long cists, which he described in considerable detail. Among these was one that attracted particular attention, 1861/Cist 5, in which Roman and natural objects accompanied a child; this cist was said to be particularly deep, with four or five layers of stones over it. These artefacts were published in considerable detail (Stuart 1867, lix), and most survived until c 1931 (Hay Fleming 1931, 252), but regrettably by 1975 no trace of them could be found. These objects have acquired a particular significance now because a burial found in the recent excavations, although not a long cist, contained a similar collection of objects.

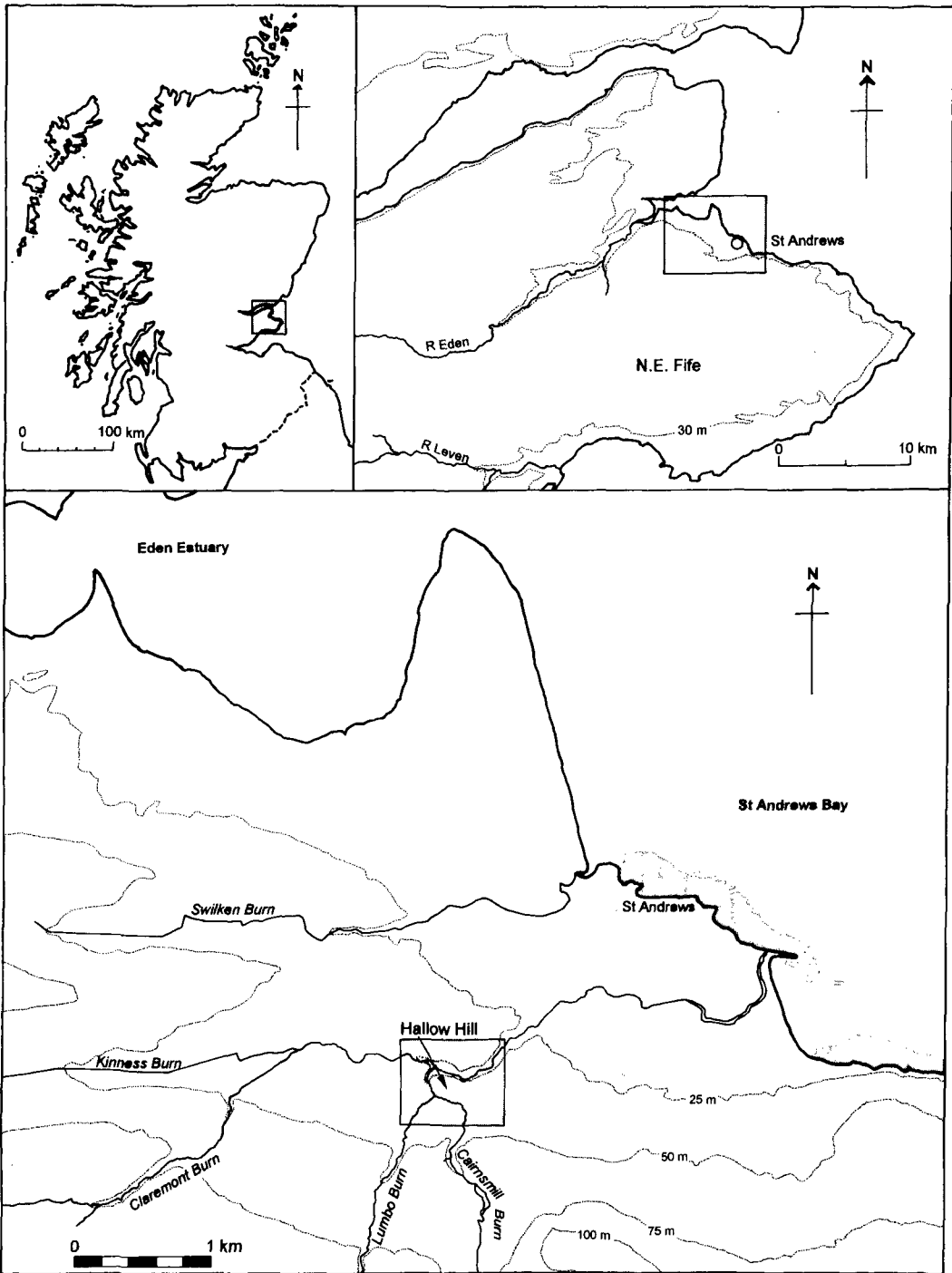
Stuart (1867, lix), reporting the long cists and the cist with the Roman artefacts, also recorded that the 20 excavated cists 'formed part of a larger number not yet examined'. However, no further archaeological activity took place at the Hallow Hill until the excavations which form the subject of the present report.

BACKGROUND TO EXCAVATIONS IN THE 1970s

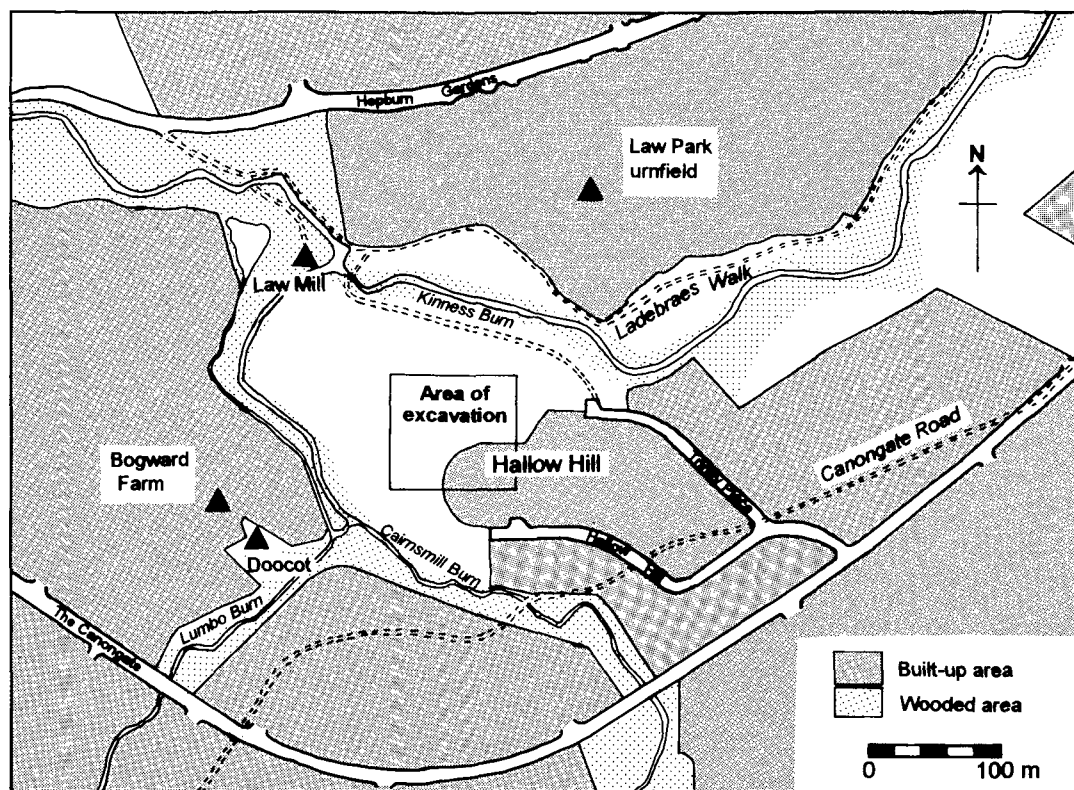
Pressure for housing in St Andrews was intense in the late 1960s, at which period considerable development to the south of the burgh took place, while in the early 1970s, as part of this expansion, a large housing estate was planned for the whole of the Hallow Hill, then in agricultural use. Public interest in the possible significance of the name was so great that the development site was reduced and the north of the area became a public park adjacent to the Lade Braes Walk. The summit of the Hallow Hill remained part of the development, although the site of the 19th-century discovery of long cists is clearly recorded on the Ordnance Survey map (1966) at NGR: NO 4940 1565, albeit that the precise site was not known (NMRS NO 41 NE8). The importance of the Hallow Hill was widely known locally because of the published reports of the long cists discovered in 1861. However, no provision was made by the various authorities for potential archaeological excavation or for recording discoveries that might be made during house-building. Extensive terracing and landscaping of 12 Hallow Hill (illus 4) had been required as a planning condition prior to construction in order to reduce the overall height of the house on the hill summit. During the course of these works many lorryloads of soil were removed entirely from the site, while a substantial amount of soil was bulldozed to form a garden terrace on the north-west and build up sloping ground on the east and south of the plot. An unknown number of long cists and other features was destroyed (JCB driver, pers comm, 1975). Later, during excavation of a trench in the east part of the garden, quantities of redeposited, broken human bones were found, and have been interpreted as coming from the terraced area, where only one cist (Cist 14) was afterwards recovered, deeply compressed by the bulldozer into the subsoil.

However, it was only when Mr Fullerton, then owner of no 12, was preparing a path across the north-east part of the garden that he discovered stones and bones, which he immediately reported to Professor W Frend of the University of Glasgow, who contacted the University of St Andrews. It was agreed that an excavation was desirable while part of the site was still accessible, because this provided an opportunity to investigate and perhaps to confirm at least some of the details recorded in 1861. In due course the author was asked to organize a small excavation in the garden, in October 1975, and was assisted by local volunteers.

Once it became clear that the project required a large, regular workforce an approach was made to the then SDD Historic Buildings and Monuments (now Historic Scotland), which could not fund



ILLUS 1 Hallow Hill: location maps. (Based on the Ordnance Survey map © Crown copyright)



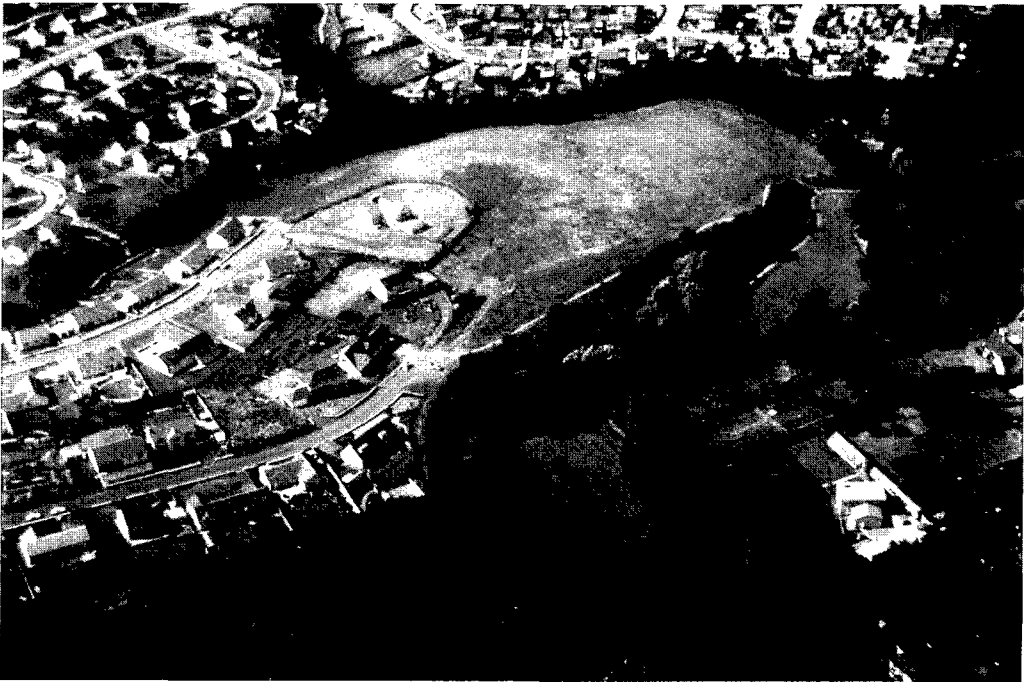
ILLUS 2 Location of the excavated area and some other sites in the vicinity of the Hallow Hill. (Based on the Ordnance Survey map © Crown copyright)

the project at that time. Support was then sought from the newly established Manpower Services Commission (MSC), which agreed to fund the project in stages during 1976–8, using local unemployed workers. In due course 145 long cists and other burials were located, as well as other features; almost all were examined. Post-excitation funding was provided for one year by MSC, linked to funding for the Fife Archaeological Index, a Sites and Monuments Record based in the University of St Andrews which the author was asked to manage at this time. Limited post-excitation preparation of the human bone was also funded by the MSC, but research, preparation of the archive, finds and report were funded by the author and specialists. The SDD, now Historic Scotland, grant-aided preparation of the illustrations for publication, the radiocarbon dates and, later, the completion of the archive and the report for publication.

When excavation had been completed and the site reinstated, two groups of cists were consolidated and left visible because of the high level of public interest in the site, but the two cists in the garden (Cists 1 & 2) were eventually filled in by the new owners of the house; seven cists were displayed in the park (illus 6).

DOCUMENTARY BACKGROUND

The history of the early church at St Andrews, *Cennrigmonaid*, is confused, in part because information on the first (ie Pictish) church is sparse and can be interpreted in various ways, as can the arrival

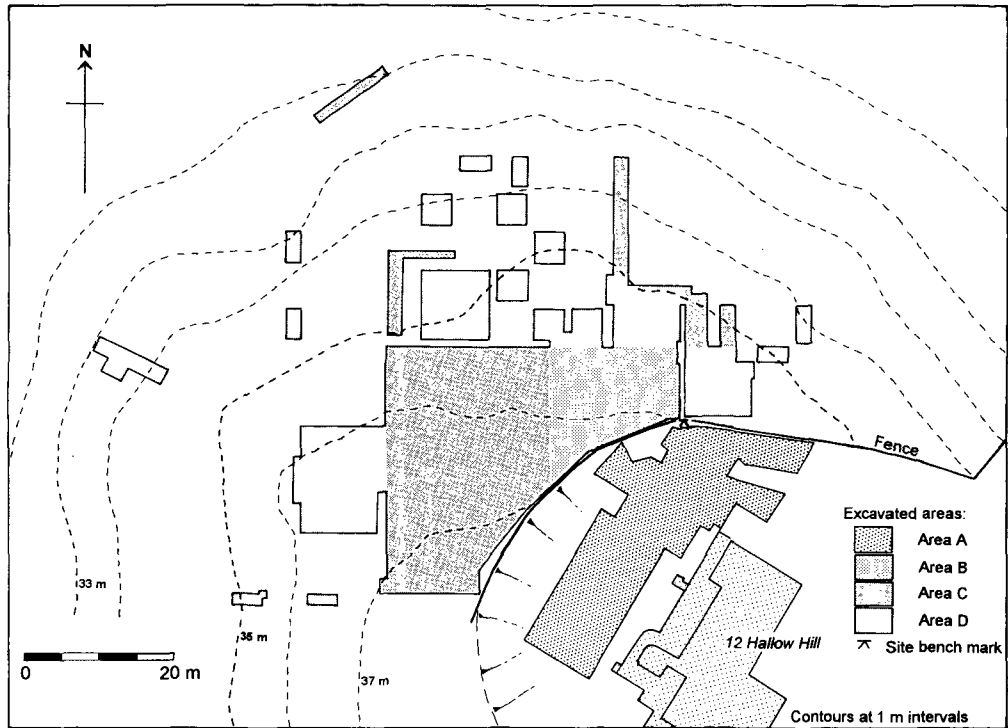


ILLUS 3 Aerial view of the Hallow Hill from north (© Z Nowak-Solinski)

of the relics of St Andrew (Anderson 1974, 1-13; 1976, 1-10). Of particular relevance is the death in AD 747 of the abbot Tuathalan of *Cennrigmonaid*, recorded in the Annals of Tigernach (Anderson 1922, 238), confirming that a monastic establishment existed at *Cennrigmonaid* before that date, having received its faith from south of the Forth as early as the sixth century (Anderson 1974, 1). A Culdee community grew up at *Cennrigmonaid* and was still flourishing when the Augustinians were introduced by David I in 1144.

Little is known of the lands and possessions of the bishopric before 1144, although it may be that their extent can be deduced from their scattered positions among later properties of the diocese. The earliest surviving record of the lands of the Priory of St Andrews is the charter of 1144 (*Liber*, 122) in which Bishop Robert confirms the endowments of the newly established Priory (Lawrie 1905, 14-16, no CLXIII). They all lie in the *Cursus Apri* ('Boar's Chase'), the original land granted by the Pictish King Angus I or Angus II to the Pictish Church several centuries earlier and granted anew by Alexander I to the new Priory. The 'Boar's Chase' comprised approximately the area of the later parishes of St Andrew and St Leonard, Denino, Cameron and Kemback. It was separately administered by the bishop from the 12th century (Anderson 1974, 5), presumably because it reflected the historic territories previously allocated to the Pictish Church.

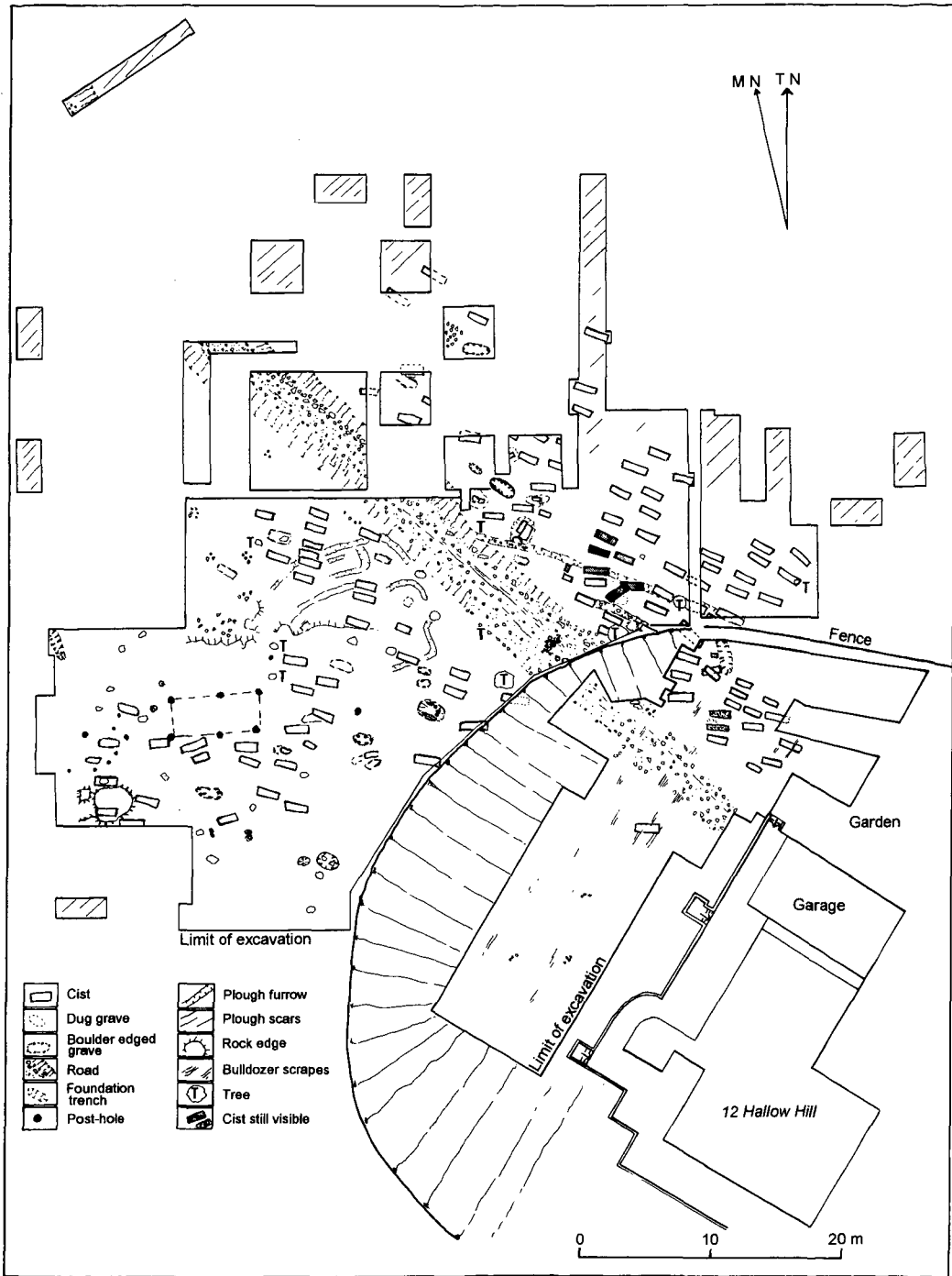
Eglesnamin, an important 'lost' early ecclesiastical site, is listed within the *Cursus Apri* along with many other territories, including several no longer identifiable on the ground (illus 7). Table 1 shows the early place names (of variable spelling) of these first land grants, all listed in five significant charters relating to the Priory lands. The first three include the place name *Eglesnamin*, but it is not recorded in later lists of those same lands. *Eglesnamin* occurs in Bishop Robert's charter, dated c 1144, (*Liber* 122); it is referred to in 1183 (*Liber*, 56), when Pope Lucius II repeats the list in full. It is still listed c 1220 (BL Harley no 4628), but by James II's charter of 1480 (Reg Mag Sig no1444)



ILLUS 4 Contour plan of the Hallow Hill showing the extent of the excavated areas

the list has been modified and there is no reference to *Eglesnamin*. Nor does the name occur in the presentation charter of the archbishopric by Charles II to Archbishop James Sharp in 1661 (Lyon 1838, 2, 383).

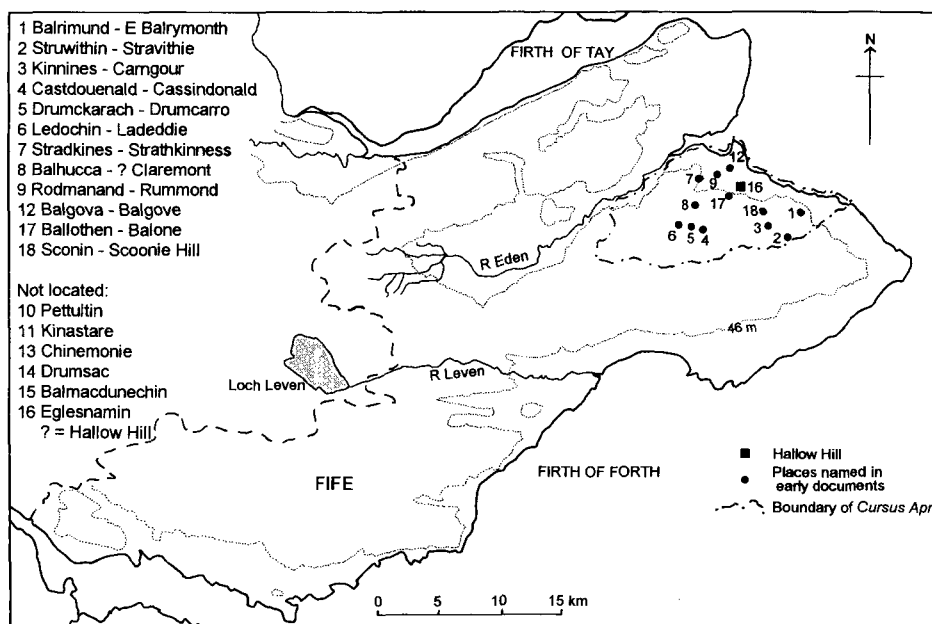
Many of the names on the charter list are still identifiable. Since they appear in general relationship to one another in groups, as they were given to the church, it is possible to establish the approximate location of several of the 'lost' names. The modern place names are used below for simplicity, except for unidentified places. The identified names in the *Cursus Apri* listed in the Charter of 1144 (illus 7) are Easter Balrymont on the east, Stravithie to the south, Cargour to the north-west, Cassindonald, Drumcarrow and Ladeddie to the west, Strathkinness to the north-east, Claremont to the south-west and Balgove to the north, all easily located in the present Ordnance Survey map (1979). *Rothmanand* (? Rummond) and *Pettultin* have not been identified; *Kinastare* has been identified as Northbank. *Pettultin* might be expected in the vicinity of *Rothmanand*/Rummond and *Kinastare*/Northbank, although there is no supporting modern place name in that vicinity. However, *Pettultin* could be Rathelpie, known to have been east of Strathtyrum. Balgove is close to Strathtyrum. *Chinemonie* and *Drumsac* have not been found, but they are listed before *Balemacdunichin*/Balmungo and could be in the east of the area. *Eglesnamin*, Balone and Sconie, are listed together and *Eglesnamin* has been the subject of considerable debate because of its meaning. Balone and Sconie still exist and *Eglesnamin* is assumed to be nearby. *Ballothen* is listed next to *Eglesnamin* and is usually identified as Balone (modern Bogward), WSW of the Hallow Hill (illus 2). Bogward Farm, formerly known as 'Baloneward', demolished without record to make way for new housing



ILLUS 5 Hallow Hill: major features in the excavated areas



ILLUS 6 The group of cists which is still visible in the Hallow Hill Park



ILLUS 7 The *Cursus Apris* and lands belonging to the Priory of St Andrews in 1144 (after Anderson, unpublished)

TABLE 1

Places named in significant charters relating to the Priory of St Andrew between 1144 (the oldest surviving charter) and the mid-17th century (after Anderson, unpublished).

Charter Date	SA 122 1144	SA56 1183	BM HARL 1220	Reg Mag Sig 1480	Sharp 1661
1	Balrimund	Barrimuned	Ballerimuned	Balymont, E & W	Balymont, E & W
2	Struithin	Struithin	Struhythin	Stravethy	Stravithie
3	Kinninis>> Cargour		Kynninis	Cargour	
4	Castouenald	Castouinald	Castouenald		Cassindonald
5	Drumcarach	Drunkarakin	Druckerrach	Drumcarach	Drumcare
6	Ledochin	Ledochin	Ledouchon	Lawdeddie	
7	Stradkinnes	Stradkines	Strathkynnes Martin & S Melserog	Strakynnes	Strakinnes
8	Balhucca		Ballehucke	?Claremonthe	?Claremont
9	Rodmanand	Rodhmuned	Radmuneth		
10	Pettultin	Pettultin	Pentalcin		
11	Kinastare?	Kinastre	Kinestair		?Northbank
12	Balgova		?Ballegone		Balgoff
13	Chinemonie	Kinamone	Kinnemone	?Kylmonane	
14	Drumsac	Drumsach	Drunnsset		
15	Balemacdunechin ?Balmungo	Balemachdunekin	Ballemo(c)dunegin	?Balmane	
16	Eglesnamin	Egglesnamin	Egglesnamin		
17	Ballothen	Ballothen	?Balle mohob	Ballochin	Balon
18	Sconin		Sconin	Scuny	

in 1968, was situated immediately west of both the Cairnsmill Burn and of the Hallow Hill. Some antiquity for that site is indicated by the presence of a beehive doocot of 15th-century type, which implies a wealthy estate in the vicinity from an early date, but it is difficult to establish whether this was secular or ecclesiastical in origin. A title of 1598 mentions stone walls and 'some little parts of a cemetery or garden called chapelyaird of Ballone' (Reg Mag Sig no 765), obviously a ruin by that time. This is the only reference to a chapel at Balone. Significantly it was not included in the Priory lands until a late date and therefore cannot be *Eglesnamin*.

Following *Ballothen* in the 1144 charter (*Liber 122*), *Eglesnamin* is of singular importance, not only because it is one of the 'unlocated' names from the charter list, but because of the meaning of the word. For a considerable time scholars located *Eglesnamin* in the general vicinity of *Cennrigmonaid*. However, although *Cennrigmonaid* is the focus of the history of the early church in St Andrews, it is unsatisfactory as the location of *Eglesnamin*, since the charter of 1144 (*Liber 122*) was issued at St Andrews and lists places being confirmed to the Priory of St Andrews. Both Anderson (pers comm, 1976) and Barrow (pers comm, 1976), however, had independently equated *Eglesnamin* with the Hallow Hill, partly because of the long cists found in the 19th century, partly because of its location and partly also because of the topography of the site, on sloping ground surrounded by water (illus 2). This is typical of many Early Christian sites, such as Old Melrose for example (Thomas 1971, 36, fig 11). Clearly *Eglesnamin* was located on the Priory lands, but was unlikely to be within the Priory precinct itself. *Eglesnamin*, *Ballothen* (Balone), *Sconin* (Sconie) and the majority of the other places listed in 1144 all lie well inland. As *Eglesnamin* is listed next to *Ballothen* and *Sconin* it should be sought in their vicinity. The area known today as the Hallow Hill is close to *Ballothen* (Balone) and *Sconin* (Sconie) and, on topographical grounds, has been identified as a suitable location for the place

called *Eglesnamin*. *Eglesnamin*/Hallow Hill is nearer to *Cennrigmonaid* than any of the others on the list of endowments (illus 7).

Radiocarbon dates support the suggestion that the long cist cemetery on the Hallow Hill had ceased to be used during the ninth century (Table 2) and so by the 11th century *Eglesnamin* was possibly already an ancient name, no longer in general usage. However, it was still used in Priory charters, probably for legal reasons, because it identified a recognizable piece of land. Unlike all the others, however, it was not a farm or small estate and it had no alternative designation in the 12th and 13th centuries. After 1220 *Eglesnamin* does not occur again; it is omitted in 1480 and from succeeding charters. No clearly anglicized name can be identified as a replacement until 1555 (Calendar no 325), when the area at the west end of the Priory lands, now being disposed in feufarm, is referred to for the first time as *allhalla*.

SIGNIFICANCE OF THE PLACE NAME *EGLESNAMIN*

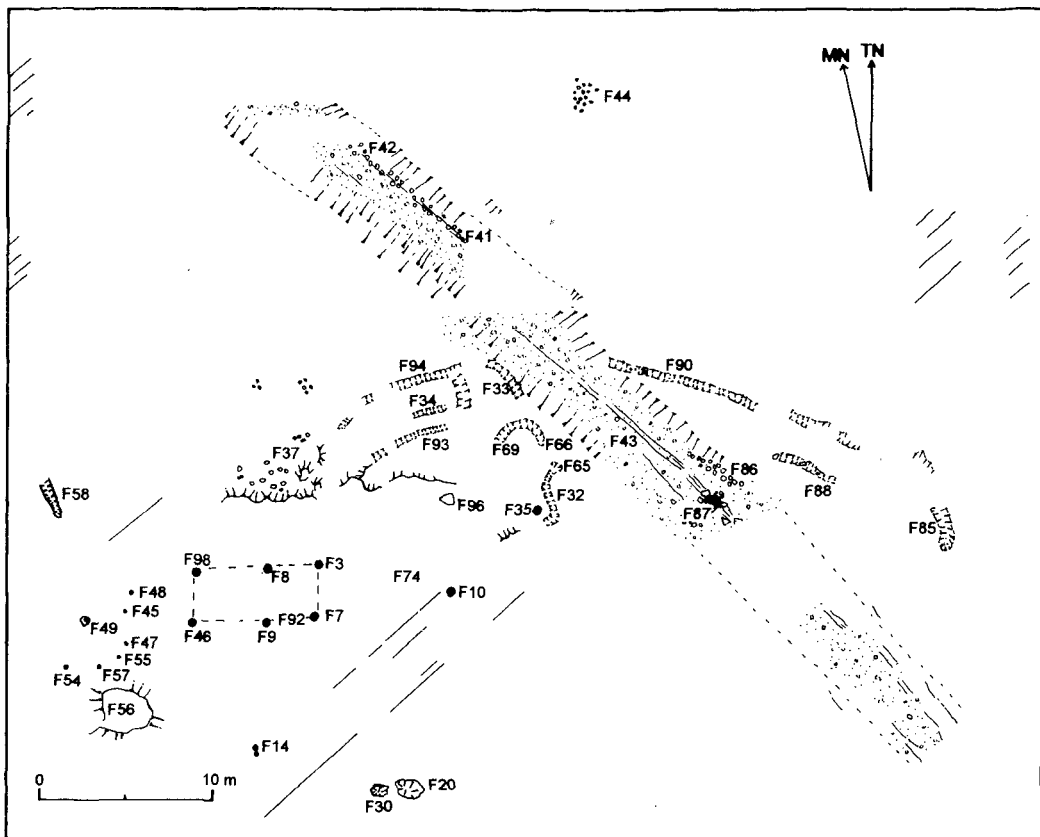
The name *Eglesnamin* is composed of two elements: *egles-* and *-namin*. *Egles* derives from Brittonic *eglwys*, from the Latin *ecclesia*, a Christian community or a church (Nicolaisen 1976, 172). The term is usually taken to indicate a group of Christians or a place where there was a meeting place for religious activities in late Roman or sub-Roman times (Thomas 1980, 262–5). Later it came to mean a church.

Cameron (1968, 89), in an early discussion of *Eccles-* names in England with a postscript note on Scotland, observed that a majority of such sites were close to rivers, rarely by the sea, and that many were close to Roman roads or sites. The Hallow Hill lies well inland, is near a river, and there are Roman artefacts from the site, although there are no known Roman sites in the immediate vicinity. A road, possibly of prehistoric origin, runs through the long cist cemetery and could still have been in use at the period when the cemetery was founded (illus 8).

The second element of *Eglesnamin*, *-namin*, derives from the Brittonic *nemed* for a holy place, or from *namin* or *mannin* for *St Náemhán* or for saints (Barrow 1983, 8). *Eglesnamin* might, therefore, refer to ‘church of the holy man’ or ‘holy meeting place of the saint’. ‘*-Namin* could be interpreted as a derivation of ‘nemeton’, a shrine, in which case perhaps *Eglesnamin* could be ‘church of (or by) the old shrine’, a holy place or *nemed* in pre-Christian times, which became a focus for burials and later developed into an unenclosed Early Christian burial ground. This would have been an appropriate environment for an early *egles-* site. Although no certain remains of a church were uncovered in the recent excavations, a group of substantial post-holes (F92) was excavated, and their existence implies a structure within the long cist cemetery (illus 8).

As the focus of the church moved to St Andrews (*Cennrigmonaid*), the name *Eglesnamin* would have fallen into disuse, if it had not already done so. This could, perhaps, have happened because *Eglesnamin* no longer had a specific function, and retained its name only for legal purposes, such as land identification. This situation could pertain if *Eglesnamin* were so ancient that only the name survived to indicate the location of a former ecclesiastical site. Barrow (1973, 64) observed that a majority of lost *Eccles* names can no longer be identified on the ground and no longer referred to actual functioning places of worship when they were first included in legal documents. If the Hallow Hill long cist cemetery belonged to an Early Christian British or Pictish community, as the early name *Eglesnamin* implies, its antiquity could have contributed to its loss of status long before Bishop Robert began to establish Augustinian rule in the 12th century.

During the 13th century there is no further mention of *Eglesnamin*; nor is an alternative name used in 1480 (Reg Mag Sig no 1444) or in 1661 (Lyon 1838, 383). Professor Barrow (pers comm 1976) has suggested that the change from *Eglesnamin* to ‘allhallow’ might have been a deliberate



ILLUS 8 Non-burial features, including post-holes of the rectilinear structure F92, the road, and plough marks

transliteration, in an attempt to increase the use of English. This would also have helped to lessen any remaining local reverence for the site, a powerful ally in the effort of the Church to encourage the 'correct' Augustinian rather than the ancient, non-conformist Pictish or Culdee adherence. Another possibility is that an anglicized name was given to make sure the location was fully recognized legally when made over to secular control in 1555.

In summary the historical and place-name evidence suggests that the Hallow Hill was a holy place; a suggestion corroborated by the existence of the long cist cemetery. Moreover, there is no other site within the *Cursus Apri* in the correct topographical relationship with neighbouring sites, and with so many known elements appropriate to an early church, which could be identified with the site of *Eglesnamin*.

THE HALLOW HILL AND THE PRIORY ACRES

In 1555 the Priory Acres were disposed in feufarm for the first time by the Commendator and Convent of St Andrew to Patrick Learmonth of Dairsie, Provost, and those who had previously held tacks from the abbey (Calendar no 325). *Eglesnamin* does not appear in this document, but for the first time the name *allhallahill* is used for the west part of the Priory lands, adjacent to Baloneward.

This reference highlights that all these lands in the 'schaddis' or arable lands of the Priory had been cultivated for a long period. It was expressly stated in the rules of the feu for the *allhallahill* that it was 'to be sewn with corn without any impediment by the bigging of houssis, orcheardis, yardis, millis or dovcattis upon any part thairof' (Calendar no 325). The use of *allhallahill* is interesting, implying that there was, in fact, a record or memory of the burial ground, if not of the *Egles-*. Recorded in the charters and successively in later Priory tacks as Alhallowhill (1648), the Hallahill (1656), Hallahill (1685), Hallhallowhill (1722) and the Halyhill (1861), it became the Hallow Hill only after the 19th-century excavations.

It is clear from the teinds (tithe) records that there had been little post-Reformation change in land management of the Priory Acres before the 19th century, although there was considerable fragmentation of rig ownership (Gimson 1979). Nor was there any change in the duration of tacks, often only three years. As a result, agricultural practices on the Hallow Hill and in several other areas remained unchanged for centuries, probably from long before the Reformation. A plan of the Priory Acres, surveyed in 1846 and drawn up in 1893 (Duncan 1893), shows the tenantry in 1846 of all the cultivated lands owned by the Priory, including the Hallow Hill promontory, which is not named. However, at a more recent date, 'Hallow Hill' has been scrawled across four rigs held by St Mary's College and the United Colleges, between the Canongate and the Kinness Burn.

All the records from 1555 to the late 19th century confirm that there was no building on the Hallow Hill in this period; in fact this was specifically prohibited in the feu disposition, as noted above. This has a bearing on the interpretation of features uncovered during the excavation. Although this condition was imposed primarily in order to ensure that the land was kept in arable agriculture, the prohibition could have been because of known ecclesiastical significance. However, by the late 19th century a boundary fence had been erected on the east side of Rig 168, then the property of St Mary's College. By the time of the recent excavations this fence had been removed, but the excavation uncovered remains of the rig boundary, with substantial field-clearance boulders, over an ancient cobbled road.

No university documents mention boundaries or roads in the area and early maps, such as Blaeu (1654) and Ainslie (1775), depict Balone prominently but do not mark the Hallow Hill or a road across it. It is probable, therefore, that the road was omitted from early charters because it had long been forgotten, but that it was perpetuated as a rig within the medieval field system, eventually being recorded by Duncan (1893). Ordnance Survey field workers visited for the first time in 1956 and reported that there were no visible traces of the long cist cemetery site (NMRS NO 41 NE8). On the Ordnance Survey 6-inch map of 1966, however, the top of the Hallow Hill is clearly marked, *long cists found*.

GEOLOGY, TOPOGRAPHY AND SOILS

The Hallow Hill (illus 1) is a low promontory to the west of St Andrews, 2.4 km (1.5 miles) from the coast, at NGR: NO 494 156 and at 39 m OD. The area has a generally south-eastern aspect, sloping gradually eastwards towards the sea at St Andrews Bay, although the Hallow Hill itself has a north-western aspect. The Hallow Hill promontory lies at the confluence of the Cairnsmill and Kinness burns from where the ground rises gently, although on the west it is steeper. To the south and south-east of the Hallow Hill the ground continues to rise steadily towards Wester Balrymonth Hill.

The valley of the Kinness Burn generally comprises sand and gravel littoral deposits of late glacial date, which accumulated against the dolerite ridge that outcrops at the highest part of the Hallow Hill, so that soil conditions differ substantially from one part of the site to another (Forsyth &

Chisholm 1977, 36). Clay was present in pockets, mainly near the higher parts of the site. Erosion and cultivation have removed all but a thin covering of soil over the dolerite, where the shallow soil survived to only 0.2 m, while on the north and west-facing slopes above the Kinness Burn, where preservation was best, a considerable depth of soil, up to 0.7 m deep, has been deposited. Modern soil loss has been estimated at from 0.5 m to 0.8 m in places, according to the evidence of 1861, when the covers of the cists were said to have been (0.6 m) below the surface. The site had been given over to arable agriculture from an early date, perhaps from before the 12th century until 1974.

The Hallow Hill was strategically located at a point where three significant early routes converged to follow the Kinness Burn to the sea at St Andrews Bay. Although there is no archaeological evidence for the antiquity of these routes, there is evidence from the excavation that the branch road across the Hallow Hill was in existence before the development of the long cist cemetery.

THE EXCAVATION, 1975-7

The aim of this excavation was to establish the limits of the cemetery, record all cists and other features uncovered, to identify the cists opened in the 19th century and to conduct a limited sampling programme for post-excavation analyses.

All cists and other features were fully recorded, including cist construction. In some cases other details were studied, for example the packing in the corners, while in several cases cists were partly dismantled in order to record a cross-section, as in Cist 128. Soil samples for pollen analysis were collected routinely from specific locations in undisturbed cists, while samples were collected at several locations for phosphate analysis. In the event, no funding was available for the latter analysis to be undertaken, but the samples have been stored in St Andrews University Geography Department, for possible study and future curation.

THE CONDITION OF THE SITE

Extensive and long-term agricultural damage to the deposits was revealed over the greater part of the site, including plough scars and furrows which ran diagonally from south-west to north-east across the site, and furrows could also be seen on the deeper sands and gravels on the north-east (illus 8). Damage varied from a cracked cover stone (Cist 112) to almost total destruction (Cist 83). Broken and displaced cist stones were frequent. Pits and post-holes differed greatly in depth, because of truncation by agricultural activity and the erosion of soil. The cists and other features had been dug into both rock and sand and gravel. Undisturbed cists were found where they had been deeply buried under hillwash and ploughsoil as shown in Section B-B¹ (illus 9). In these well-preserved examples the tops of the cists were at the base of the soil, level with the top of the subsoil or dug into the subsoil. Many cists had been plough damaged or bulldozed, while others survived only as faint traces. It is possible that many of the dug-graves were, in fact, destroyed long cists. However, even with so much damage, useful archaeological information was obtained in almost every case, although lack of skeletal remains in many cists and graves has resulted in the overall assessment of the human population being less than could have been achieved in other circumstances.

THE CEMETERY

Of the 145 burials uncovered at the Hallow Hill, 122 were in long cists, 10 in dug-graves and 13 in boulder-edged graves. 29 of these were badly damaged and 10 others were inaccessible as they lay largely beyond the edges of the excavation trenches. Only one cist, Cist 48, contained two indi-

viduals, in sequential deposits, while the two-tier Cist 54 originally had held two individuals, one which had disappeared from the upper level and a child in the lower deposit.

Definitions of long cists, as in Thomas (1971, 49) or Alcock & Alcock (1992, 129), have been simplified to suit the conditions at the Hallow Hill. In particular, no distinction has been drawn between long cists with or without a cover. Long cists were found with covers in every stage from total preservation (as in Cist 145) with a single cover stone or many, through a few cover stones surviving *in situ* (as in Cist 2), to complete loss (as in Cist 60). Accordingly, at the Hallow Hill, the term 'lintel grave' has not been used and 'long cist' has been used for all graves constructed of sand-stone slabs.

Dug-graves have been treated separately, in so far as they did not include any sandstone edging. However, in the excavator's view it is possible that at least some such graves at the Hallow Hill could be the result of centuries of agricultural damage to long cists, as for example Grave 47 (illus 10), although others were unlikely ever to have been cists, such as Dug-Grave 105; perhaps they were for wooden coffins, of which there is now no evidence.

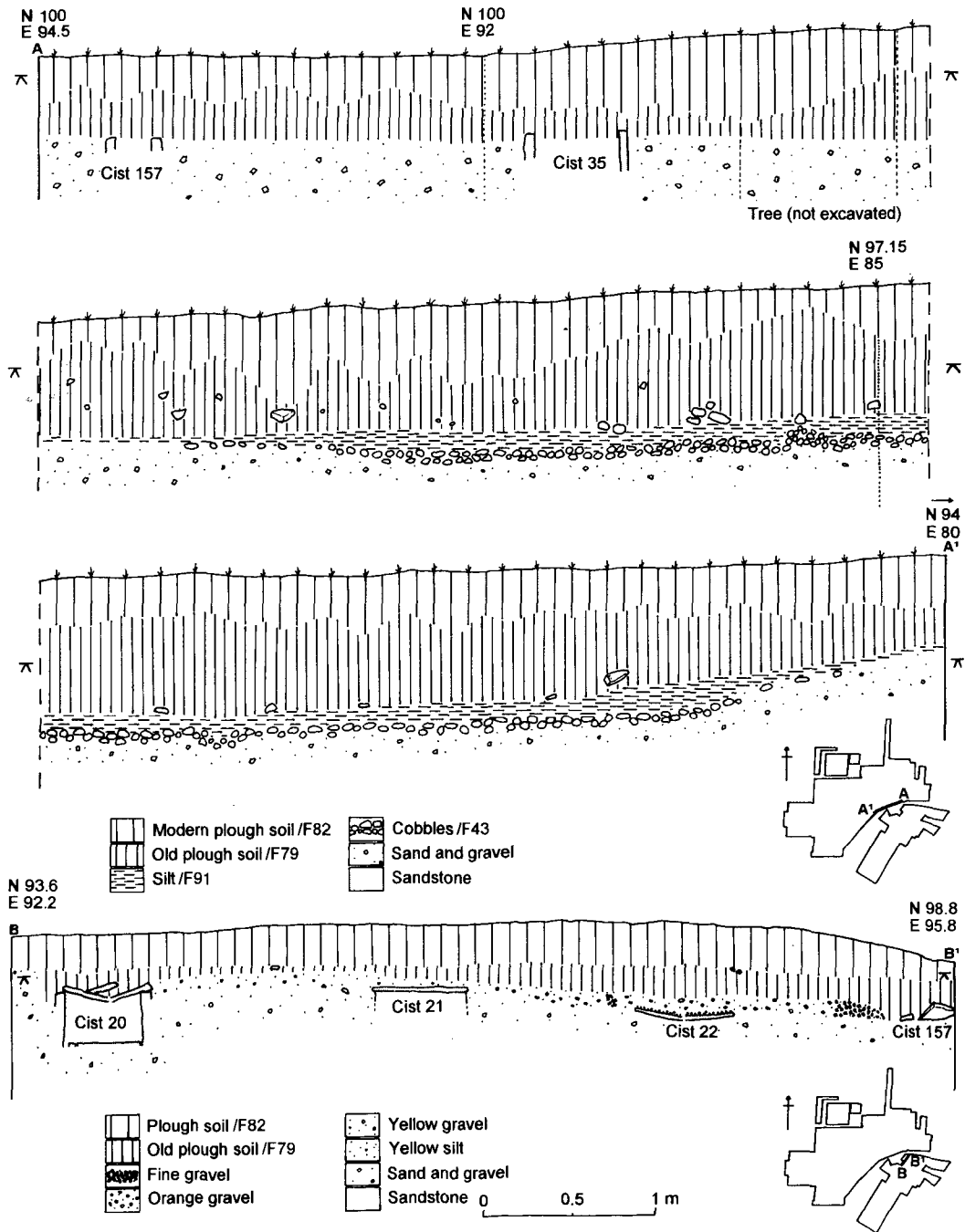
In the final category, that of boulder-edged grave, small boulders rather than sandstone slabs were used in the construction, and the grave was sub-rectangular rather than rectangular, as in Boulder-edged Grave 129. Only Grave 96 (illus 10) was built of more than a single layer of boulders, but this difference could be the result of agricultural erosion of other graves, rather than a constructional trait of Grave 96.

The soils in the graves and cists were extremely variable, as was the parent material. A brown sandy clay loam was frequently encountered, although the preserved cultivated soil was black, as in the undisturbed parts of Area A. On the north-east of the hill there was coarse orange sand and gravel. The cist fillings reflected this diversity, with black soil in disturbed cists such as Cist 20, fine brown soil, as in Cist 125, and coarse sand and gravel, as in Cist 113. The fill of Cist 78, although grey and sandy, perhaps due in part to the mud-stone of the cist cover slab, was clay-like near the skeleton. Similarly there was sticky clay near the skeleton in Cist 122, assumed to be the result of tissue decay.

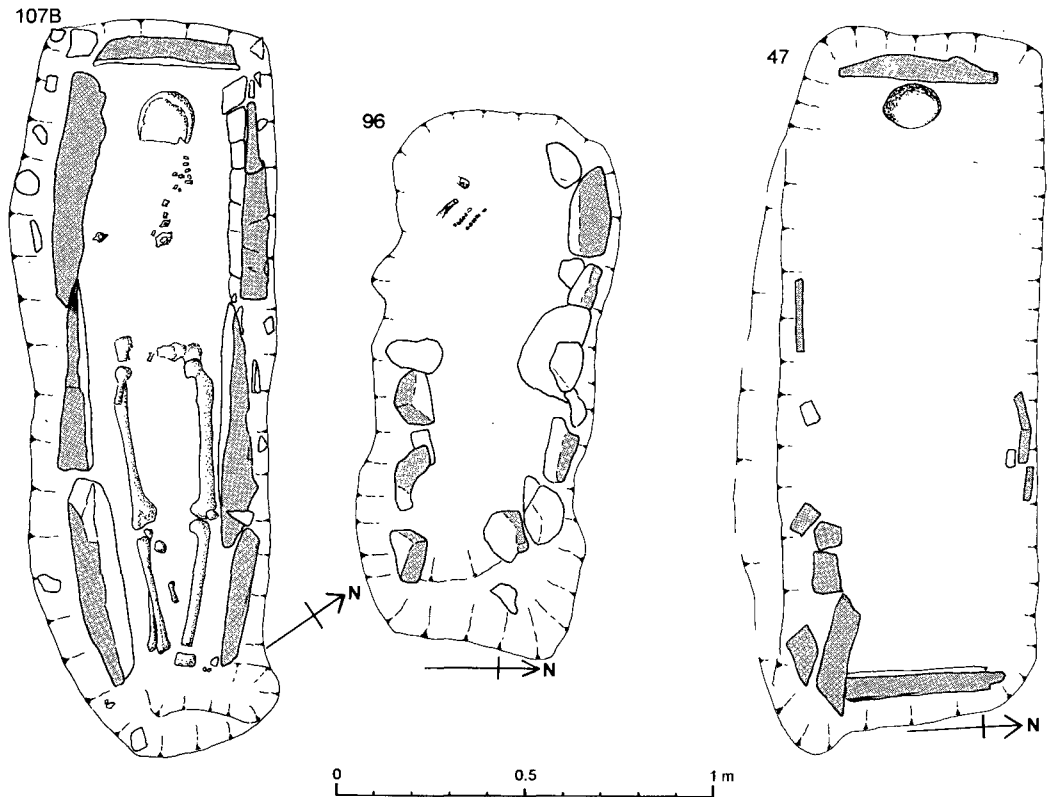
All 20 cists opened in the 19th century were identified, and could be recognized by the confused state of the bones mixed with fragments of cover-stones, in a hard-packed fill, including miscellaneous intrusive bones.

Two types of undisturbed cist were recognized: those deliberately filled with soil at the time of burial and those into which soil had filtered over many years. In the first group, when the cover stones had been recorded and removed soil was found right up to, and over, the edge stones, as for example in Cists 21, 22, 111, 112 and 151. Many undisturbed cists appeared to have had at least some packing in the corners, making it difficult for soil to filter in subsequently and thus pointing to deliberate filling. Not all cists had been deliberately filled, however. In Cists 67 and 117 flakes of stone from the underside of the cover had fallen directly onto the bones, while the cover sat directly on the skeleton in the shallow cist, Cist 78, which barely held the remains of the child buried in it.

An interesting phenomenon noted in several undisturbed, soil-filled cists was the amount of internal, natural disturbance, presumably by worm and small animal action. Hand and foot bones were often found distributed throughout the grave filling; in one case, Cist 113, a toe bone had become wedged between the side stones and another was found below the base when the cist was dismantled. Small animal holes were occasionally found, as in Cist 25, while rodent remains were discovered in Cist 107B and in Cist 14. A larger animal must have gained access to Cist 112, as the left ankle and foot had been severed and dragged up the side of the cist, where it became wedged above the level of the cist floor (illus 11). There is rarely a means of establishing the date of such animal activity.



ILLUS 9 Section A-A1 showing the depth of silt and ploughsoil over the early road; and Section B-B1, showing the level of the buried cists in the soil profile



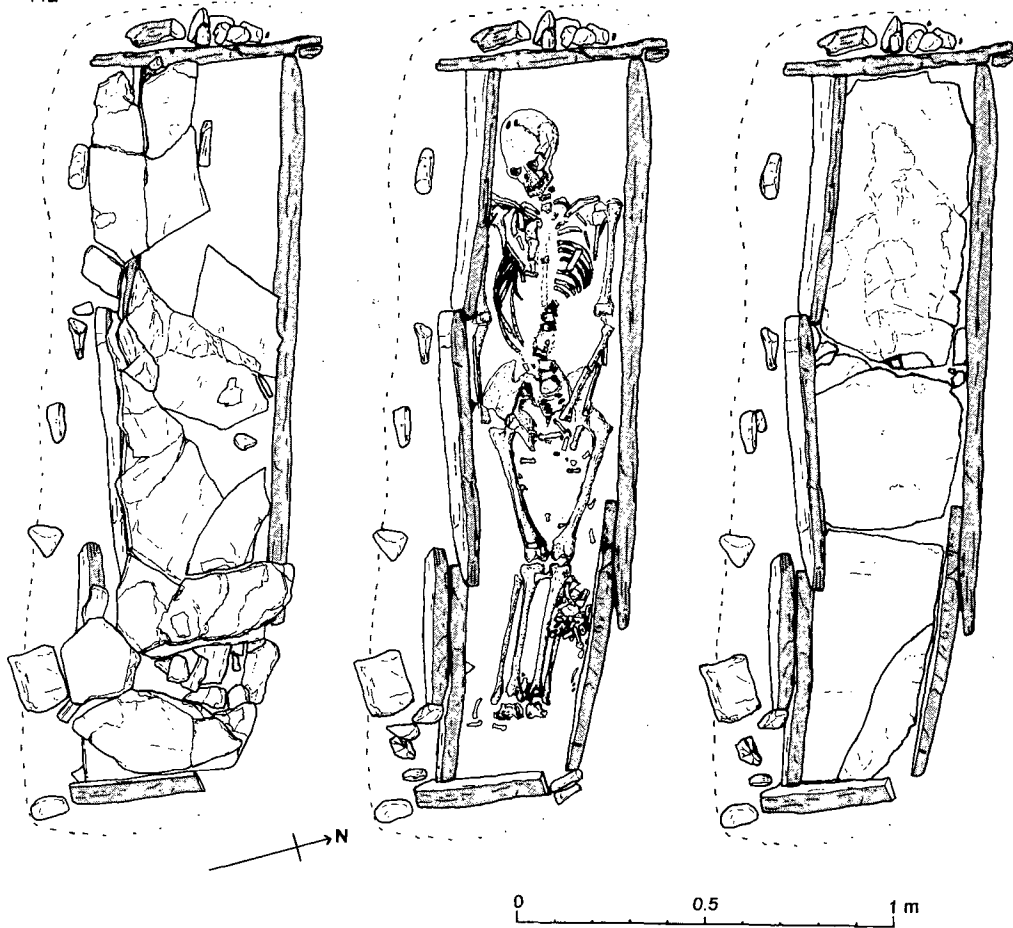
ILLUS 10 Cist 107B, one of the earliest; the damage was caused by modern tree-planting. Boulder-edged graves 96 and 97; Grave 47 could originally have been a cist

In Cist 48, which contained two skeletons deposited at different dates, Burial 48/1 probably had completely decayed before insertion of the second burial, Burial 48/2, face downwards. This had forced the bones of the upper part of burial 48/1 towards the east end of the cist and the lower jaw, for example, was found below the right femur, while the pelvis was also displaced.

The dug- and boulder-edged graves were located mainly on the south-west of the site (illus 12), while the long cists were distributed throughout the cemetery, and were most numerous on the north and east. The majority of cists and graves were well spaced, often in groups and rows, with only a small number of inter-cut examples (illus 13). Most burials were aligned in a general east/west or south-east/north-west direction, with only a small number aligned NNE/SSW (illus 15). Where evidence survived, all burials had the head at the west end of the grave except for Cist 54 and Dug-Grave 119, where it was at the south-east.

As noted by Walker (1861b), there was a high proportion of children and immatures among the burials, a feature also identified by Dorothy Lunt in her report on remains excavated in the 1970s (below). Examples include Cist 28 (illus 14), which was disturbed, with only a few bones surviving, and Boulder-edged Grave 118 (illus 14), which was empty, but which could only have held a small child. The distribution of all burials by sex, with their cist numbers is shown on plan (illus 12), as are the many cists and graves which were either empty or too damaged to provide such information.

112

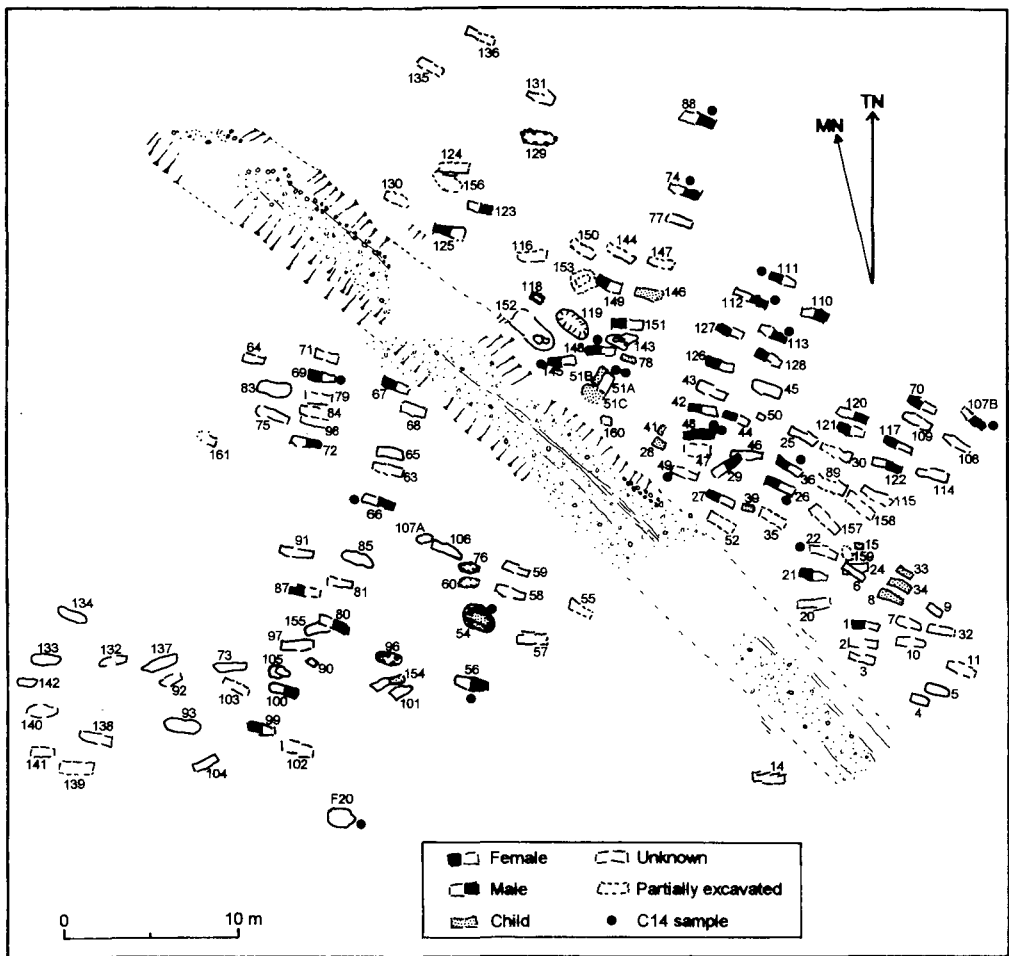


ILLUS 11 Three stages in the excavation of Cist 112: at left, the cover stone is damaged but entire; at centre, the skeleton has been exposed by excavation (note animal disturbance of small bones and trephine holes in the skull); at right, the base of the empty cist is exposed

LONG CIST CONSTRUCTION

The cists were constructed of undressed sandstone slabs and, where the evidence survived, it was clear that most slabs had been carefully selected. They were mainly of yellow Carboniferous sandstone, including one in Cist 69 where the east end stone may have been selected because of a fossil plant. Red sandstone was frequently used, including several examples of dark red ripple-sandstone, (eg Cist 21). Only occasionally was the softer, white sandstone used (eg Cist 2). Mud-stone was found in one or two examples (eg Cist 78).

The construction sequence generally appears to have been as follows. The west end stone and north-west side stone were put in place first, the south-west side stone was next, then the remaining side stones and last of all the east end stone, as in Cist 48. The neat cut and lack of packing stones at the west end emphasized this method of construction. The east stones were less carefully chosen and did not always fit neatly, (eg Cist 27). Similarly, the best base stones were placed at the west



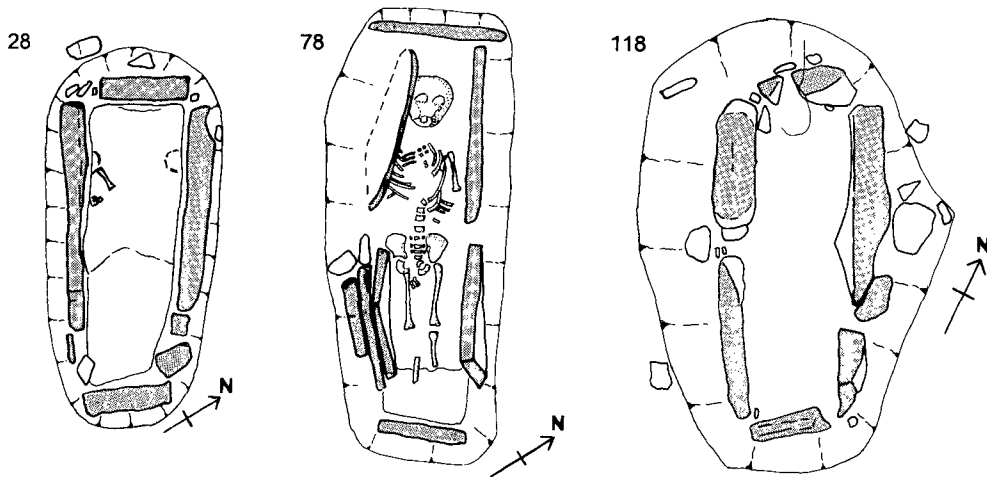
ILLUS 12 Plan of all cists/graves showing sex (where known) and locations of radiocarbon dating samples

end, while in some examples poor quality stones were used to pave the east end, and a small number of cists lacked a stone base (eg Cist 29). In several cases the base stone could be seen to have been put in place initially, since the side and end stones overlay the base (eg Cist 87). Packing stones were required in some cases to infill an overlarge cut or generally to provide support for the side stones.

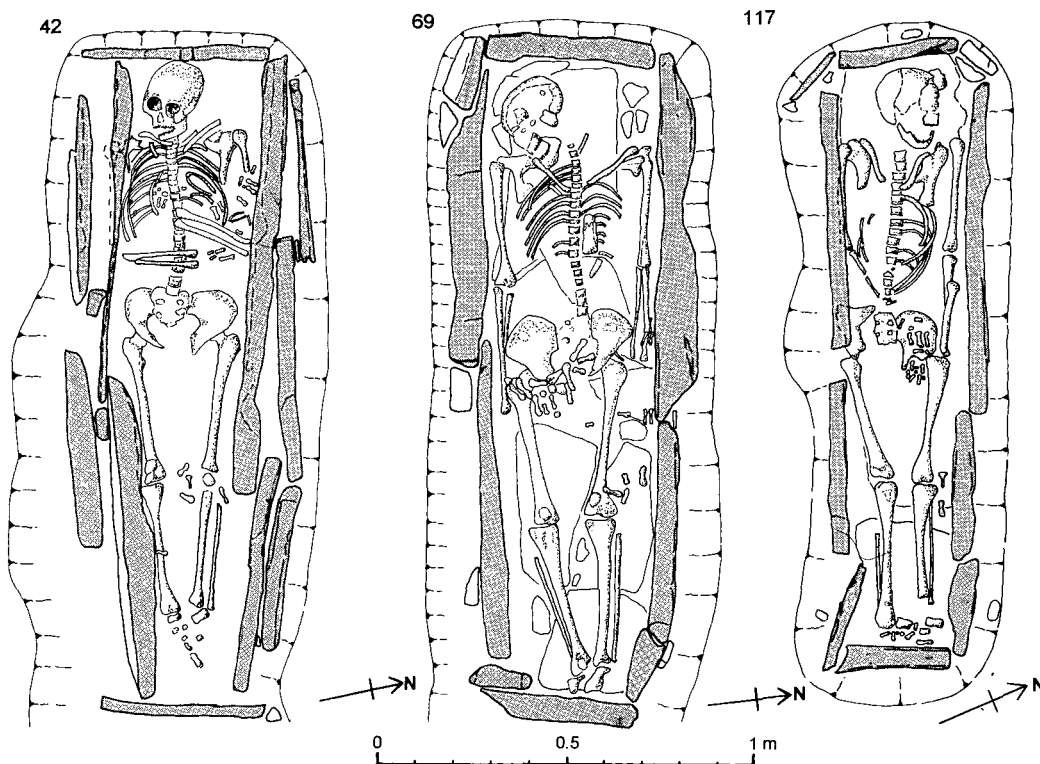
The long cists were by no means all alike. They averaged between 1.3 m and 1.8 m long by between 0.4 m and 0.6 m wide; they were approximately 0.3 m deep internally and most had clearly defined grave cuts (eg Cist 42 illus 15). The cist cover normally comprised three slabs (Cist 42), or five slabs (Cist 111), but there were variants with one, (eg Cist 151, illus 16) or two stones (Cist 21), while several had more than five cover stones (eg Cist 26). The cists had one stone at the east and west ends, and the majority had two or three stones on each side (eg Cists 25 & 26). A small number had a double line of side stones, (eg Cist 42, illus 15), and some had packing stones, usually



ILLUS 13 Part of the road in the course of excavation, with several cists in the background, including the intercutting Cists 29 and 46



ILLUS 14 Children's cists 28, 78 and 118



ILLUS 15 Examples of cist construction include Cist 42 (double side stones), Cist 69 (heavy stones) and Cist 117 (a smaller cist)

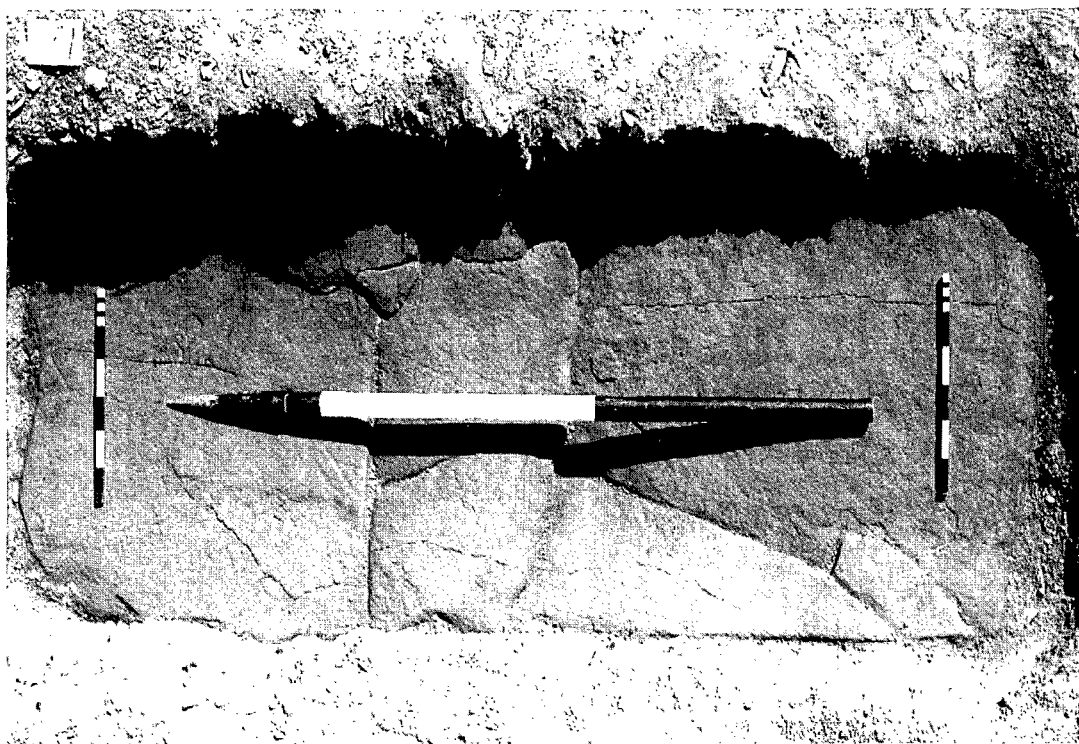
on one side (eg Cist 1). The cists were rectangular, or coffin-shaped, tapering at the east end (eg Cist 27).

Several were noticeably smaller than the norm and have been identified as children's graves (Cists 118 & 28); the latter contained the fragmentary remains of a child of under two years, while one extremely small cist, Cist 15, held a foetus, unusual in being placed in its own small, perfectly constructed cist.

Where preservation was good it could be shown that the usual practice was to dig the grave and line it. After the individual's remains had been put in place and covered with soil, the cover stones were set directly onto the top edges of the sides and ends so that the top of the cover would be approximately level with the surface of the subsoil, as in Cist 21. The few undamaged cists provided additional constructional information, in particular about the original position of the cover stones. First a stone was placed across the centre, with a stone on either side, and then two further stones were placed, overlapping the spaces between the lower stones. This pattern was extended where more than five stones were required.

DUG-GRAVES

Dug-graves resembled the cists in form and dimensions, being between 1.3 m and 1.7 m in length and approximately 0.5 m wide. Most were extremely shallow, but some were better preserved and



ILLUS 16 Cist 151 with a single cover stone, broken by the passage of tractor wheels

deeper. The majority of dug-graves were on the south of the site, cut into the bedrock, a rotted dolerite.

BOULDER-EDGED GRAVES

Boulder-edged graves were not common, but they were widely scattered across the site. They resembled the dug-graves in dimensions and alignment but were boulder-lined. One example, Grave 96 (illus 10), had at least two courses of edging on the north side, but elsewhere there was only a single course. Like the dug-graves they were difficult to identify and some could have been destroyed cists; in most cases it was the absence of sandstone fragments and the presence of small boulders apparently in the dolerite, that led to identification. When examined the boulders proved to be at the edge of the grave, pressed against the bed-rock, while surviving fragments of burial confirmed that they were graves.

OTHER BURIALS

Three other graves were found: Cist 51B, a small and extremely deep cist, which had been disturbed (illus 17); Cist 54, a large grave, partly stone-lined and containing the remains of a child accompanied by several artefacts (illus 18), and Grave 119, a pit-grave, in which the skeletal structure of the burial had been destroyed, although the form was recognizable. These three were unlike each other or the

normal long cists, being of different construction and alignment. They are described in detail below (see THE BURIALS).

OTHER POSSIBLE GRAVES/PITS

During excavation it was considered that two pits – F30 and F20 – could have been graves, but the evidence is unclear and, alternatively, they could have been large pits. F30 was an oval pit, 0.8 m east/west by 0.55 m north/south and cut 0.2 m deep into the subsoil. The fill was fine black soil, with occasional flecks of charcoal. There were no stones, artefacts or bones. (Soil samples were collected, but have not been examined). F20 (illus 19) was sub-rectangular and proved to have been severely disturbed, (1.3 m east/west, 0.9 m north/south and 0.56 m deep into the subsoil). Its upper fill, of fine black soil with charcoal, included several small pieces of sandstone; this overlay a mixed fill of brown clay and black soil, with several disturbed bones and many stones (c 0.2 m by 0.15 m); a clay step had been left on the north side. A concentration of large stones (up to 0.50 m by 0.2 m) in black soil was found at the base (illus 19). Charcoal from the black soil, although too small to identify to species, provided a radiocarbon date substantially earlier than for any other feature on the site (GU-1855: 170 cal BC to AD 120, two sigma; Table 2.) The bones proved to be animal, not human, however, and so this may not have been a burial. This feature is unlike all others on the Hallow Hill and is difficult to interpret. Although its specific purpose is not known, it may have played an important role in the pre-Christian use of the site.

ORIENTATION

The long cists and other graves were generally oriented east/west, but there was a considerable spread towards north-east and south-east (illus 20). Cists 51A/B were aligned NE/SW, while Cist 54 and dug-grave 119 were SE/NW. Although there is variation across the site it is within a restricted field and clearly the intention was, generally, for all the burials to be aligned east/west. The slight deviation in the orientation of any one long cist could have been due to a number of factors, such as location within the site or to the loss of row, group or other markers.

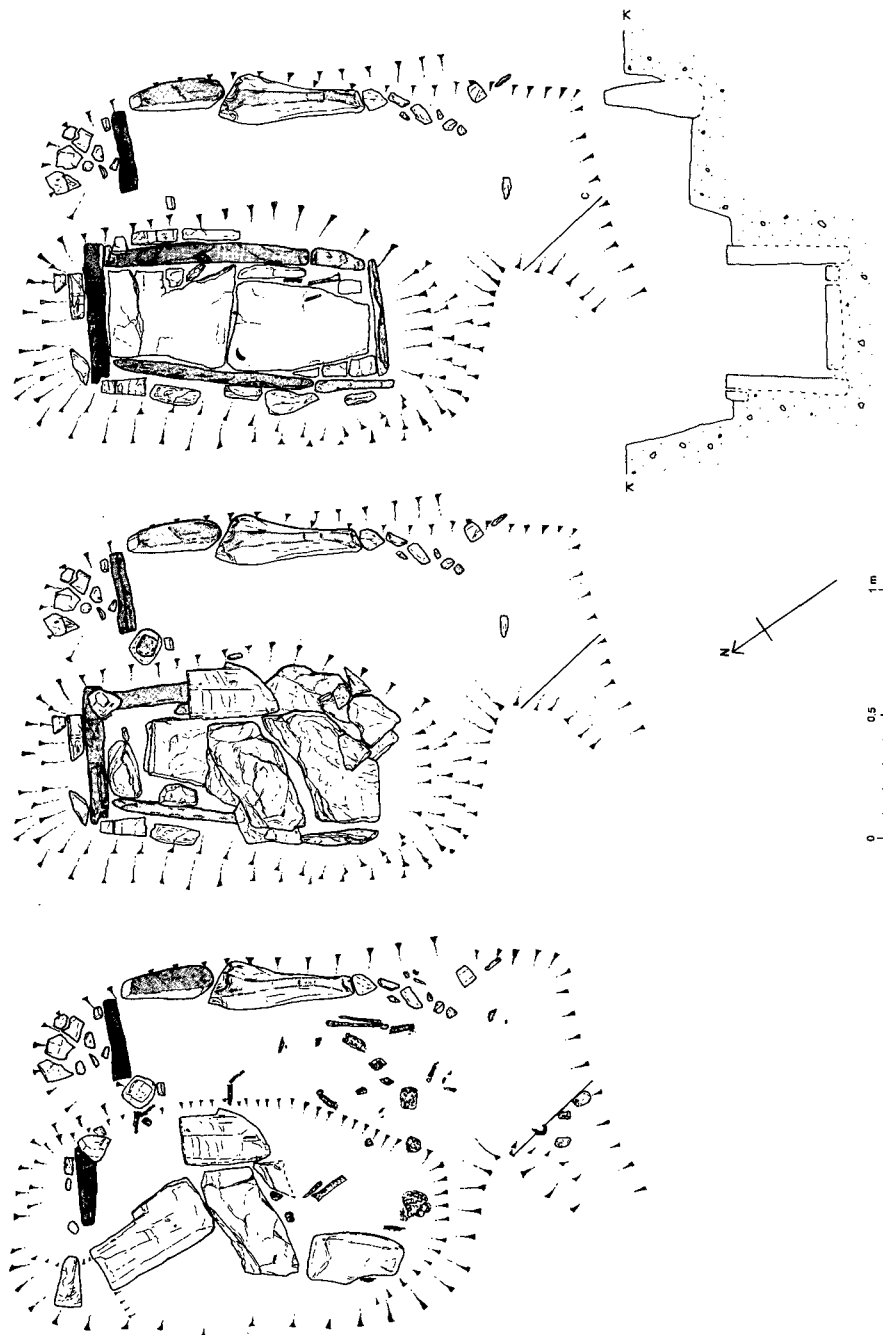
THE BURIALS

The following are descriptions of a representative selection of the 145 cists and other burials which were recorded during the excavation.

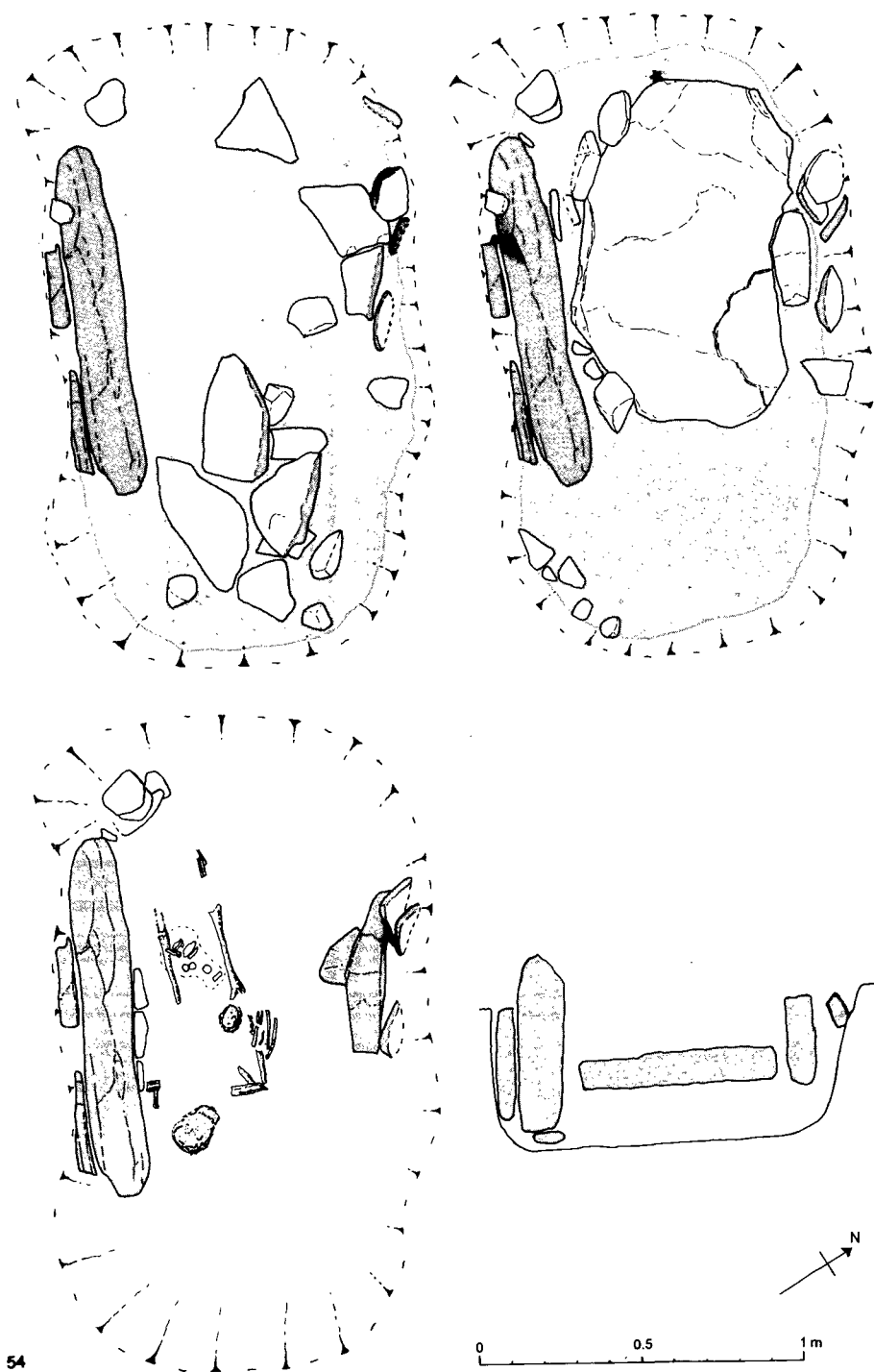
Cist 15 was an unusually small, undisturbed cist, 0.55 m long by 0.21 m wide and 0.25 m deep with one of the two cover stones *in situ*. Although small it was similar in construction to the adult long cists. It contained a foetus of not more than 28 weeks, which had been complete, but was damaged during excavation. However, the greater part of the skeleton was recovered.

Cist 78 (illus 14) was covered with a single piece of mud-stone. The cist was rectangular, shallow, not very well-made, and some of the stones were out of position. It had not been filled with soil and the cover stone was touching the remains. The cist, 0.93 m long and 0.23 m wide, contained the remains of a small child, aged between one and a half and two years at death.

Cist 25 was complete, but had been disturbed by an animal burrow. The cover was made of many small stones, including one of shale or mud-stone and another of ripple-sandstone. The west end of this cist was well made, but the east end had partly collapsed. The rectangular cist, 1.7 m long and 0.5 m wide was filled with soil. The

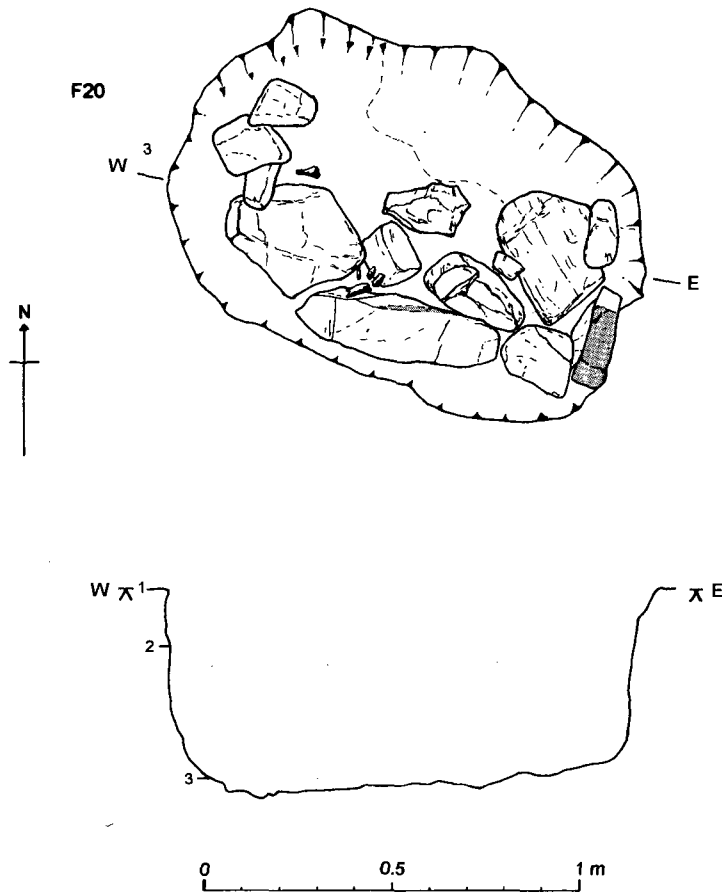


ILLUS 17 Successive stages in the excavation of the complex Cist 51 A/B/C



54

ILLUS 18 Successive stages in the excavation of the two-tiered Cist 54; the basal stone of the upper grave (above right) sealed a lower grave containing a purse and other artefacts (below left).

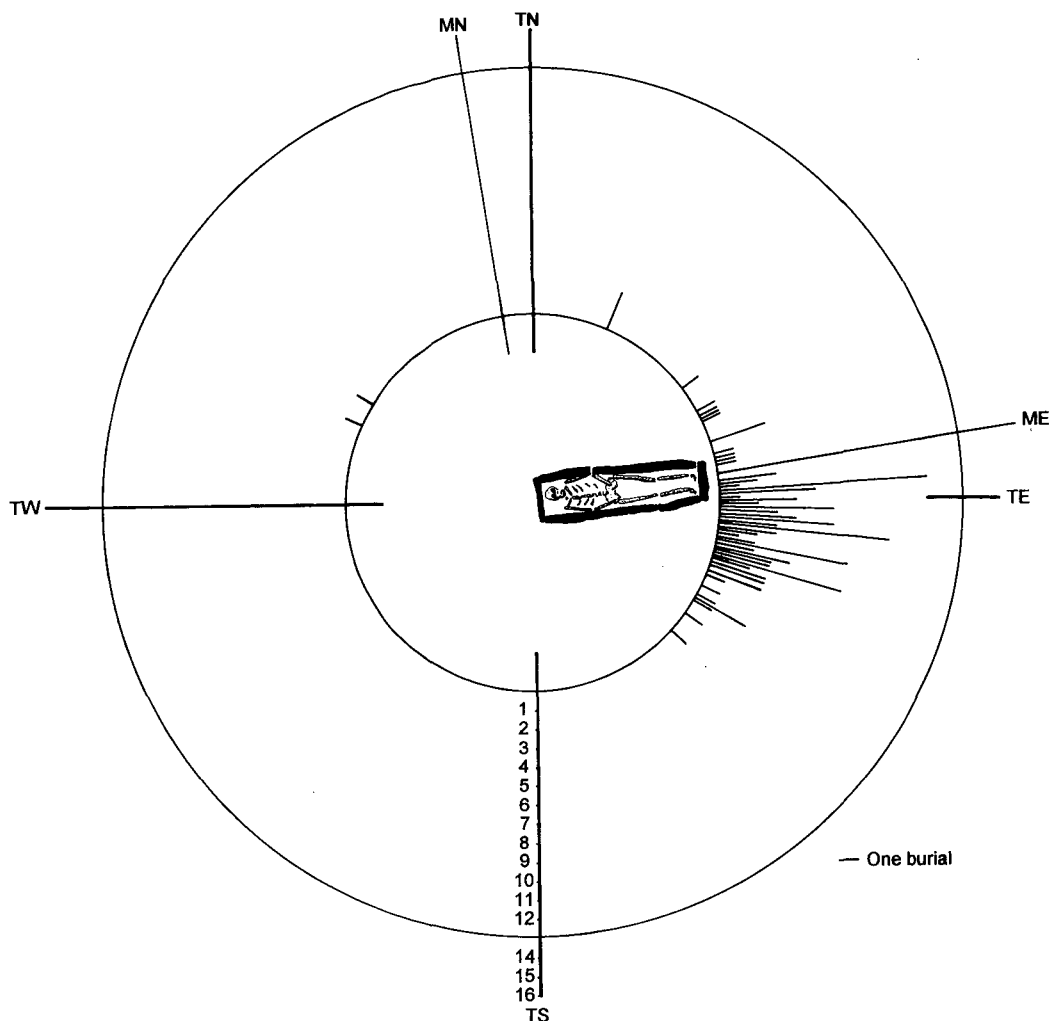


ILLUS 19 Plan and profile of the unusually early Pit F20

grave cut showed clearly around most of the cist, which was cut in gravel subsoil. A skeleton of approximately 25 – 30 years at death was in the cist. Definite identification of sex was not possible. The skull was considered to show male characteristics, while it was thought that the pelvis suggested a female. The height was estimated at 1.59–1.67 m if male and 1.54–1.62 m if female.

Cist 26 was complete. Its cover comprised many small stones, including one of ripple sandstone. The cist, cut deeply into the gravel subsoil, made of thin stones, 1.8 m long by 0.4 m wide, was soil-filled. The cist was too long for the body and, unusually, the spare space was behind the head, at the west end. The skeleton was unusually distorted, and on examination was found to suffer from leprosy, which was recognized not only in the region of the teeth and nose, but also by cortical markings on the bones. Squatting facets were noted. The skeleton was female, between 1.52 m and 1.59 m in height, and aged between 35 and 39 years at death.

Cist 27 was complete. The cover was made up of many stones, including several that were water worn. The cist, almost rectangular, but narrow at the east end, was 1.6 m long by 0.41 m wide. It was cut deeply into the gravel subsoil and the cut was clearly visible. The cist was well made, soil filled and included many small bones from the skeleton dispersed through the fill. It contained a well-preserved female skeleton, placed with



ILLUS 20 Orientation chart for all cists and graves

the arms folded over the chest. Between 1.57 m and 1.67 m in height, she was aged in her late thirties at death. The individual suffered from severe periodontal disease.

Cist 48 was a well-made rectangular cist, apparently undisturbed, with six cover stones resting on the fill of the cist; there were two base stones. This cist had been reopened sometime after the first burial and a second individual was then inserted, with some difficulty, face down, and displacing many bones of the original occupant of the cist. The first burial, 48/1, was a male aged around 50 at death; he was approximately 1.6–1.69 m in height and of powerful build, with a fracture of the right ankle. The second individual, 48/2, was a prone female, aged between 24 and 28 at death, about 1.6–1.64 m in height, with a fractured left wrist and arthritis of the left wrist and elbow.

This is the only proven example at the Hallow Hill of ancient disturbance of this kind. These two burials were not contemporary since the male, 48/1, had decayed sufficiently for many of his bones to be displaced;

for example, his lower jaw was found below his right humerus. After the second burial the cover stones were carefully replaced and the grave appeared intact until its excavation. There is no evidence to indicate the reason for this second burial. The prone position is uncommon and is known to be a form of punishment in earlier times, usually to living individuals (Meaney 1964, 18). One other prone burial is known from Scotland, Galson I, Lewis (Stevenson 1952,107), with the hands up at the neck, but this was a single burial. Certainly the upper part of the female burial at the Hallow Hill had become somewhat contorted during insertion, but the lower limbs were close together, in a normal position and there is little evidence to suggest that this woman was alive when buried. The problems of damage to the upper vertebrae and arms seems to reflect the difficulty of forcing the body into the grave. The difference between burial 48/1 and the insertion of burial 48/2 can only be estimated by the amount of decay, but as this does not occur at a fixed rate there is no means of establishing the time lapsed. Nor are the radiocarbon dates helpful in this instance, unless the specimen numbers have been inverted, since the date for burial 48/2 (GU-1854: cal AD 540-670, two sigma) is older than that for burial 48/1 (GU-1853: cal AD 693-980, two sigma).

Cists 51A/B/C The complexity of this group of cists had been increased as a result of earlier investigations and continuing agriculture. All three cists (illus 17), had been totally disturbed and the skeletal material was entirely mixed and fragmentary. Cists 51A/B were aligned NNE/SSW and were so close together that they appear to have been contemporary. A third grave of unknown type, 51C, formed part of this complex, and was recognized only by the presence of additional skeletal remains of a young child which suggest that there was an additional grave or cist south of Cist 51B.

Boulder-edged grave 51A (1861/6), was shallow, crudely built and approximately 1.3 m long by 0.6 m wide as found. A small number of adult bones was present. It was placed immediately east of Cist 51B, but the relationship had been obscured by previous disturbance. Although the human remains from these cists were badly mixed, the burial in Grave 51A could be identified as a mature adult of heavy build.

Cist 51B was a small and very deep cist, of carefully selected dark red sandstone, 1.23 m long by 0.52 m wide, inserted more than 1 m into the subsoil. It had been excavated previously and only a small number of bones from a young child remained *in situ*. The cist appeared to have been covered originally by a small cairn, the main elements of which had been redeposited in the cist by the previous excavators. Several large stones among these probably included side stones from Boulder-edged Grave 51A.

Cist 51B has been identified as previously excavated Cist 1861/5, a child burial accompanied by Roman and other artefacts, none of which now survives, though they are well documented (Stuart 1867, xlv; Hay Fleming 1931, 252). The identification of Cist 51B as 1861/5 is on the grounds of construction and because the surviving bones in 51B were of a child, as was the case with 1861/5. The latter was said to have been covered by a cairn of large stones and boulders, and Cist 51B had been refilled with and was partly surrounded by stones that could have been from a small cairn (illus 17). A pig incisor, SF514 (illus 23) and a minute fragment of bronze were found in 51B, in addition to the artefacts recovered in 1861.

Grave 51C was a disturbed burial, at the south end of Cist 51B; no identifiable trace of a cist or grave could be seen but fragmentary bones of a child were found among the disturbed bones and outside Cist 51B, where a small group of stones could be the remains of the cist. Remains from Cist 51C have been dated to (GU-1861) cal AD 680-1010, one of two possibly ninth-century attributions from the Hallow Hill. However, a radiocarbon date resulting from combined bone samples from 51ABC (GU-1861) falls between cal AD 600-730, (two sigma) (Table 2).

Cist 54 (illus 18) lay close to the surface when found. The upper part of the cist had been damaged by ploughing, which had displaced some of the cover stones that have been interpreted as the remains of a small cairn or covering of stones. This was a massive cist, only partly stone-lined. On the south-west was a large side stone and on the north-east side were several stones, possibly remains of walling. The cist was sub-rectangular on plan, aligned NW/SE, and was 1.95 m long by 1.15 m wide. It proved to be of two tiers.

Cist 54/upper was cut 0.23 m into the subsoil, with a large stone base which was found to be a cover stone for a lower deposit, at the north-west end of the cist. This upper tier was filled with fine orange sand of a type not other wise seen on the Hallow Hill, but no burial remained and there were no grave goods. However,

several fragments of burnt and unburnt animal bone were found in the orange sand, while under a stone near the south-east end of the base-stone of the upper grave a fragment of an iron blade, possibly from a knife, was found. When the floor-stone was removed a broken Roman bronze finger ring and some of the broken hoop fragments were found, wedged between the south-west side of the cist and the stone.

Cist 54/lower held the burial of a child, buried in fine, black soil, with much comminuted, calcined bone and a few slightly larger pieces, the whole resembling hearth sweepings. Among this soil was a small fragment of figured Samian ware. Orange sand filled the remainder of the cist, which had been dug 0.53 m into the subsoil. The child burial was lying directly on the sub-soil floor of the cist, towards its north-west end, with the head at the south-east. The remains were extremely fragile and the burial was incomplete, possibly having been reconstructed in Antiquity. The crushed, fragmentary skull, mandible and several teeth were embedded in a random fashion before burial in a clay-like lump of soil. Unidentified fragments of long bone replaced the right scapula and there was no left scapula. The right humerus was in place, but fragmentary, and a piece of burned sheep/goat bone was also found next to it. An unidentified bone fragment and a bovine incisor represented the left arm. The weathered and broken pieces of ribs were placed externally, on the right side of the skeleton. All other bones were missing apart from weathered fragments, including part of the right tibia and fibula, a piece of pelvis, the right femur and a fragment of the left femur. The dental evidence indicated that the child was about five and a half years old at death.

Because this complex grave was regarded as being possibly central to the cemetery, although unlike the long cists, and also because of the unusual character of the burial, it was targeted as one of the samples for radiocarbon dating. However, there was too little bone collagen and so no date was achieved. As the child was accompanied by several Roman and other artefacts, Cist 54 cannot be of prehistoric date, although it could be more recent than the date of the associated Roman objects (illus 21).

Cist 112 (illus 11) was undisturbed, although the single cover stone had been fractured by tractors passing over it in the recent past. The cist was well made, rectangular in shape and was 1.84 m long by 0.55 m wide and 0.35 m deep. The grave-cut was clearly defined in the gravel subsoil. Several small animal bones were found in the soil filling. It contained a well-preserved male skeleton, with excellent dentition, aged 25–28 years at death and between 1.72 m and 1.76 m in height. The individual was generally muscular, had slight squatting facets and an arthritic ankle. He had undergone two trepanning operations some time before death (see Young, below). Internally the margins of the holes showed no signs of splintering or radiating cracks. Neither of the trephined fragments was found during excavation. This burial was dated (GU 1872) cal AD 453–487 (two sigma) (Table 2).

Cist 145, one of a group found close to Cists 51 A/B/C, was undisturbed, with a high-quality single cover stone. Cut into soft, sandy subsoil, it was rectangular, 1.7 m long by 0.35 m wide, and constructed of thin stones, several of which had collapsed. It contained a well-preserved female skeleton with arms flexed, aged c 25 years at death and 1.6 m to 1.64 m in height. Because of its proximity to Cist 51B, this burial was sampled for radiocarbon dating and was dated to (GU-1872) cal AD 453–487 (two sigma) (Table 2).

Cist 148 was undisturbed and lay under 11 cover stones, carefully arranged in three layers. The cist was 1.6 m long by 0.51 m wide, rectangular and well made and was filled with a grey soil including some pebbles, very different from other grave fills and the surrounding sand and gravel. It contained the well-preserved skeleton of a female, arms flexed, between 1.55 m and 1.59 m in height and aged approximately 40 years at death. The radiocarbon date for this skeleton is (GU-1857) cal AD 560–680 (two sigma) (Table 2).

Cist 151 (illus 16) was well preserved under a single massive mud-stone cover. The rectangular cist, well built, was 1.8 m long by 0.57 m wide. It was dug into the sandy subsoil and the cut was well defined, except on the south side where the cut for Cist 143 had destroyed it. This cist contained a well-preserved female skeleton, arms flexed, between 1.6 m and 1.72 m in height and aged between 18 and 20 years at death. She had survived a severe blow to the head. After excavation the cist was dismantled and cockle shells were found still adhering to the undersides of the base stones.

Dug-grave 119 proved to be an undisturbed pit-grave of sub-rectangular form and almost vertical sides. It was 1.7 m long by 0.8 m wide, cut c 1 m into the subsoil. A number of large stones were lodged in the upper fill of orange sand, which gave way to darker sand at depth. Around the remains of the skeleton the soil was black and sticky. The skeleton could be seen at the bottom of the grave, extended and supine, but the bones became a fine sandy powder when an attempt was made to remove them. Several teeth survived and gave an age at death of between 25 and 30 years. The grave was aligned NW/SE, and the burial had been placed with the head to the south-east.

Boulder-edged Grave 96 (illus 10) was filled with brown soil and was lined around the sides with two courses of small boulders. It was 1.4 m long by 0.6 m wide and survived 0.3 m into the subsoil. Several dislodged stones had slipped into the upper fill, and the grave may formerly have been covered by a cairn. Only a small part of a jaw and some teeth had survived, where they had been protected by a fragment of stone at the west end of the grave. The remains were of an individual of indeterminate sex, aged between 14 and 19 years at death. Fragments of an animal bone were found near the skeleton.

EXTENT AND ORGANIZATION OF THE CEMETERY

It is probable that the Hallow Hill was an unenclosed long cist cemetery which possibly developed on a site of pagan importance which cannot now be identified on the ground. The limits of the cemetery were not defined with certainty. It seemed unlikely that any formal boundary ever existed, as a bank or post-holes from a fence would probably have been preserved under the deep soils to the north of the cemetery, even if destroyed elsewhere, and a peripheral scatter of graves (ie Cists 88, 131, 135 & 136) may indicate the possibility of sporadic outlying cists further to the north. Elsewhere, in the west and south-west, the excavated area was extended in order to search for a physical boundary or clearly defined limit, but this could not be established with certainty. Regrettably, the south-east of the cemetery was either inaccessible for excavation or had been destroyed by the housing development and associated landscaping, so that the limits on this side of the site can only be estimated. However, there is strong evidence that the cemetery extended further. Although the information is incomplete, the overall diameter of the long cist cemetery can be estimated as approximately 70 m.

The excavated area encompassed 145 cists and other graves. An unknown number of cists was destroyed below the house and in the garden and it is clear that the cemetery extended beyond the excavated area to the east and south-east, so that it may have been at least as extensive here as in the excavated areas. Thus, while the total number of graves at the Hallow Hill may have been as low as 200-300, it may have been as high as 400-500.

A considerable number of stones was found in the vicinity of Cist 54, as well as in the top of the grave fill. It is possible that these survive from a low cairn, some 2 m in diameter, and that other cists (Cists and Graves 56, 57, 58, 59, 60, 76) were placed around this cairn. Similarly, a low cairn of slightly smaller dimensions appeared to have covered Cists 51A/B/C, and there could have been another over Dug-Grave 119. That these were foundation burials, around which the cemetery grew, can only be suggested, but there is a coherence to the entire cemetery that might not otherwise be expected.

The tight cluster of burials around Dug-Grave 119 and the Cist 51 complex (illus 5) aligns with a widely spaced row of long cists running north-east. The relationships of Cists 51 and 54 with one another and with the site are unknown. However, to the east of this possible alignment the long cists seem to be in neater, closer rows than they are to the west, south and west of the rectilinear post-hole group (F92, illus 8) is the greatest concentration of dug-graves; graves and cists are less

regular and are further apart, perhaps reflecting a significant change in the use or users of the cemetery between the east and the west parts of the site.

Clusters of graves and long cists can be recognized, but it is the many rows of long cists that are the main organizational feature of the Hallow Hill cemetery. Some 14 surviving rows can be identified, running in a SW/NE direction (illus 5, 12). In addition there are small clusters of cists, such as Cists 7, 9, 10 and 32. Short rows, such as Cists 1, 2 and 3 or Cists 8, 33 and 34 (all in Area A) also appear prominent, although these rows could be partial, the result of nearby destruction.

The general disposition of the widely-spaced cists in regular rows implies other elements of formal organization, with row and individual cist markers, or delimited family areas, but neither markers nor sockets were found. An outstanding feature is the lack of inter-cutting among the long cists; Cists 6/24 and Cists 29/46 (illus 12 & 13) were the only definite examples of this, although in other cases, such as Cists 98/84, the graves were extremely close, virtually sharing a long side. This also appeared to be the case with the Boulder-edged grave 51A/Cist 51B.

On the west of the site a tight group of burials (Cists and Graves 93, 92, 137, 132, 133, 142, 138) surrounds a boss of hard rock. It is not clear either that this was planned or that it was simply too hard to dig into and has consequently formed the incidental centre-point for a group of burials.

THE COBBLED ROAD

The road (F43), which crossed the site SE/NW, was traced for some 60 m, beginning near the house at no 12 and running across the garden and through the park in the general direction of the Kinness Burn (illus 2, 5). The road was sunken, with eroded banks on either side, shallow near the top of the hill and deeper on the steep north-west slope examined in Area D. The road was between 2 m and 4 m wide wherever uncovered, with slightly ragged edges. The cobbled surface comprised small, densely packed, rounded pebbles, c 50–60 mm in diameter. The surface was in extremely good condition, showing little wear and tear and with no obvious repairs. The road bed was only two stones thick. Small ruts and runnels noted during the excavation were described initially as cart tracks. However, after examining disused farm tracks elsewhere the excavator concluded that natural run-off rather than man-made causes could produce such ruts. The road was well preserved, under up to 1 m of silt (F91) in some parts (illus 9, 13). In Area A, however, most of the silt had been removed by machine during construction works, leaving only part of the road bed. The silt (F91) was sterile, fine, brown sandy soil; the bronze ring fragment SF113 (illus 23) was one of the few finds from it. Integral to the cemetery, which it virtually bisected, the road was apparently respected by the cists (illus 5, 12), none of which had been damaged by it; nor had any cists been constructed over or near its (now weathered) edge or in the silt deposits that eventually covered it.

POST-HOLES AND POSSIBLE STRUCTURES

Numerous post-holes were uncovered, many of them of considerable size, even after centuries of agricultural degradation of parts of the site (illus 5, 8). Their stratigraphic relationships to one another and to the long cists have been lost. No associated floor levels or ground surfaces were present, and all survived only from subsoil level. It is possible that the post-holes represent more than one substantial structure, of which F92, described below, is of most significance.

Structure F92

Post-holes F3 (0.45 m diameter by 0.2 m deep), F7 (0.5 m diameter by 0.35 m deep), F8 (0.4 m diameter by 0.1 m deep) and F9 (0.45 m diameter by 0.4 m deep), stand out strongly as part of a

regular structural plan, with sides of approximately 3 m (illus 8). However, if post-holes F98 (0.45 m diameter) and F46 (0.3 m diameter by 0.2 m deep) are included, an east/west rectangle of dimensions approximately 7 m by 3 m can be postulated. This larger outline has been identified as a possible structure, F92 (illus 8). The post-holes are of dimensions that indicate a substantial structure, perhaps of two cells. All traces of associated deposits, such as floor levels, have been destroyed and so there is no stratigraphical corroboration for this interpretation. A cluster of graves to the south of the structure are close but do not impinge directly on F92. The presence of this postulated structure is of singular importance because it may support the historical evidence of the *Egles* at *Eglesnamin*.

Other major post-holes, such as F10 (0.45 m diameter by 0.25 m deep), F35 (0.75 m by 0.6 m by 0.24 m deep), and F14 (0.75 m by 0.3 m by 0.25 m deep possibly; re-cut), had held massive timbers. It is possible that they were structural in origin, but in each case there were no others nearby. Alternatively they could have held free-standing timbers, perhaps for crosses or markers, but evidence is lacking for any particular interpretation. On the west of the site an arc of post-holes (F54, F57, F55, F47, F45 & F48) could be the remains of a circular structure, some 22 m in diameter (illus 8). North of this is a small fragment of a gully (F58), 2 m long, 0.3m wide and 0.2m deep; it was perhaps a drain or part of another structure, most of which lies beyond the limit of the excavation.

It is probable that any buildings on the Hallow Hill were of prehistoric or early historic date, perhaps contemporary with the long cists, because after the site ceased to be used for burials it was most likely abandoned for a considerable period prior to being given over to agriculture, with subsequent restrictions on buildings as discussed above.

PLOUGHING AND FIELD CLEARANCE

Field clearance boulders (F41) have been interpreted as part of a medieval rig boundary, as the boulders sat high in the silt (F91), over the weathered edge of the road (F43), and developed, therefore, at a late date, probably while the Hallow Hill was farmed in long rigs. The location of the 19th-century fence in the same area is not known and so there is no link now between the field clearance and the later boundary.

Modern plough scores (F74) were etched strongly into the bedrock, where the soil was thin, on the southern part of the site. Considerable damage had occurred to many long cists as a result of this.

ARTEFACTS

Edwina Proudfoot

Objects from Cist 54

The artefacts from Cist 54 (illus 21) are described in order of retrieval and no scientific analyses of the metal objects have been conducted. The catalogue numbers were allocated at a late date and are not consecutive. Several animal bone fragments in the orange sand of the Cist 54/upper grave were too few and too fragmentary to assess. The black soil surrounding the Cist 54/lower burial contained many unidentifiable fragments of calcined bone and some charcoal fragments. The piece of Samian ware (SF114) and the worked bone (SF534) were in this soil but were not part of the grave goods. A collection of artefacts in Cist 54/lower was found close together, lying across the pelvis and left thigh of the child in a manner suggestive of a 'purse' or draw-string bag or pouch (illus 18). The soil in the vicinity of the 'purse' was slightly less black and perhaps more organic than the black soil around the burial. However, although this soil has been retained it has not been studied. The

disc brooch (SF108) lay slightly apart from the other items, as if it had originally been fastened on the outside of the 'purse'.

Roman finger ring, SF99 (illus 21) The ring is worn, of bronze with a base metal core, and has lost much of its bronze and its enamelled decoration, but traces of a dark red enamel survive in places on the surface. It has a plain oval bezel and simple, though heavy, shoulders. Length 23 mm; width 16 mm; Thickness 2 mm; Hoop remains 8 mm and 7 mm.

Iron blade (SF104) An undateable fragment of iron blade (not illustrated, from Cist 54 upper). Length 45 mm; Width 20 mm.

Roman brooch, SF108 (illus 21) Roman bronze and enamel disc or plate brooch, complete, with hinged pin and plate, closed; the enamel decoration had virtually deteriorated prior to discovery. The brooch was X-rayed and this enabled its design to be identified. The central cup shows clearly, surrounded by six similar cups, which are linked by a six-lobed band into a 'star' shape. The cups were originally filled with enamel. Like the raised outer rim and that of the central cup, the lobes had a raised rim, to separate the different enamels, traces of which are still present, although only two small patches of red can be identified. Details of the hinge and plate can be clearly seen (illus 21). Diameter 22 mm; Thickness 3 mm.

Bronze and millefiori seal box (SF109) This seal box is in an excellent state of preservation, with only minimal damage to the *millefiori* (illus 21 & 22 colour plate 1) hinged on one side and with a knob opposite. An iron pin secures the hinge. Two small rectangular slots are on opposite sides and four holes pierce the base. The slots are for the string which would have been tied round the box, passing through the seal box to attach it to the seal. The seal box cannot now be opened because of rust in the hinge; the X-ray shows that it is empty; it also shows two breaks in the circumference of the ring retaining the enamel panels. The concentric decoration comprises a central roundel of blue vitreous paste, set with three *millefiori* florets (colour plate 1) of which one survives. Around this is an enamel field, set with yellow enamel spots, surrounded by an outer field of alternate white and blue paste panels in which *millefiori* florets are set. Length 30 mm; Thickness 8 mm.

Silver bracelet fragment (SF103) Silver bracelet fragment, perhaps one third of the original (illus 21). It is of D-section, flat on the underside. The terminal has been made in the form of a stylised snake-head, with a pronounced snout. The sunken eyes are linked to the snout in a triangular design. A pronounced ridged flange extends around the head. The surviving part of the circumference of the bracelet is undecorated. There are small patches of corrosion on both surfaces, but it is in excellent condition overall. Length 66 mm; Width 11 mm at head, 7 mm at the broken end.

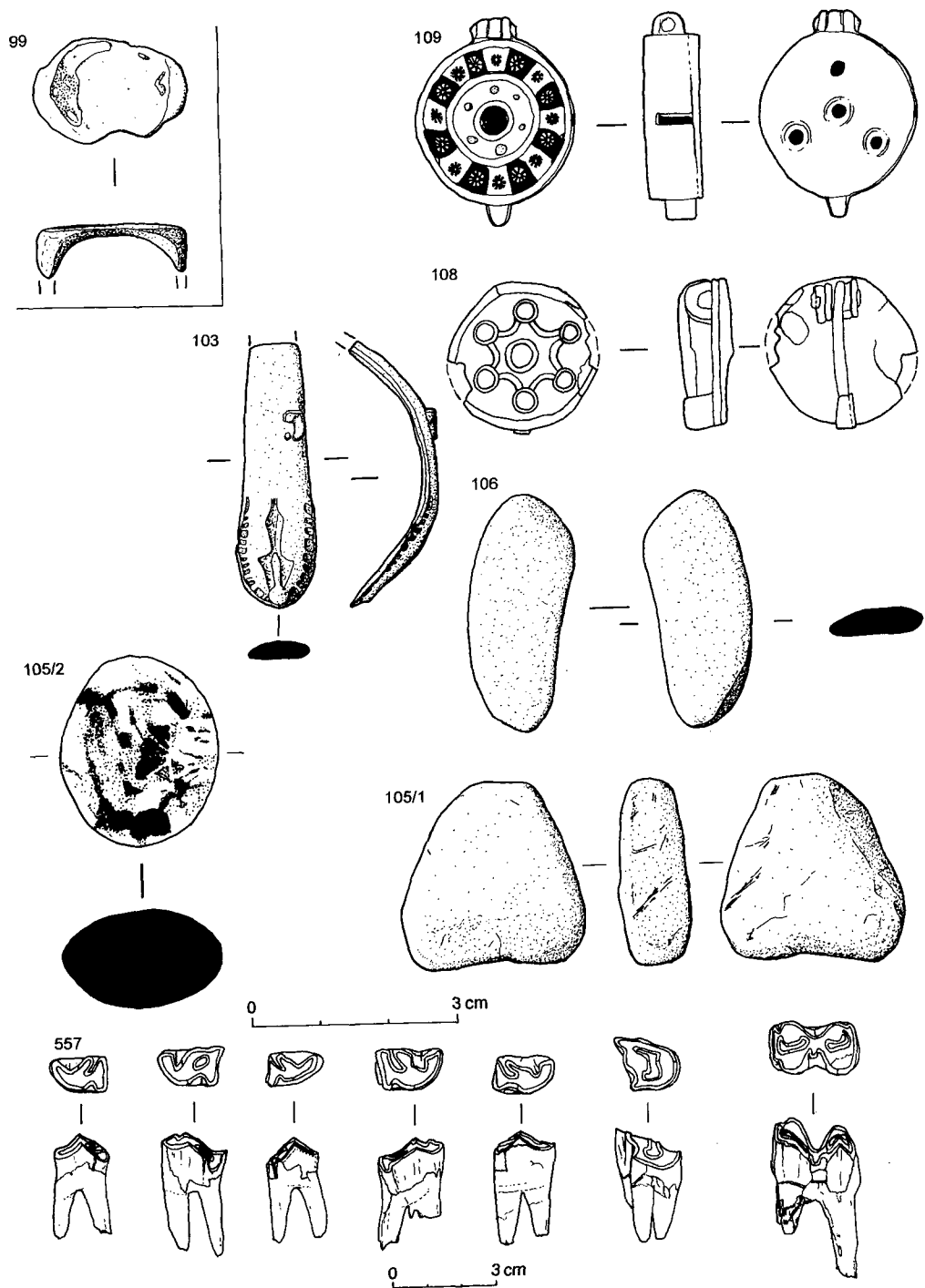
Two pebbles (SF105/1 & 2) White, triangular quartz pebble (illus 21). Length 25 mm; pink, oval, with brown pigment on one surface (illus 21). Although this seems now not to be a design it is probable that this was a painted pebble. Length 28 mm; width 23 mm; thickness 14 mm.

Small stone (SF106) Small piece of green-black volcanic stone, rubbed on one end (illus 21). Length 34 mm; width 13 mm; thickness 3 mm.

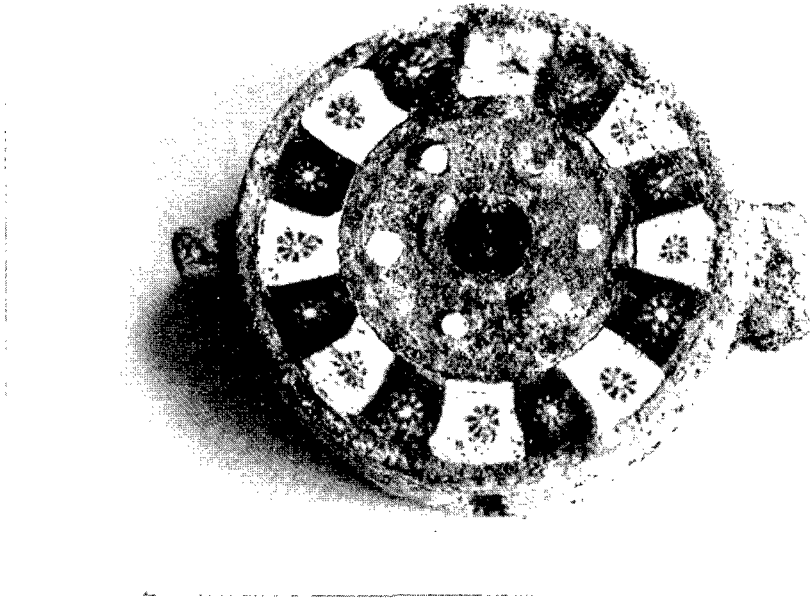
Pink quartz crystal (SF 102) Pink quartz crystal (not illustrated), found below the pebbles (SF105) which disintegrated when exposed to the air; could have been a bead or an unworked crystal. The fragments were retained, but no measurements have been possible.

Cattle teeth (SF557) Seven cattle teeth, all from one animal, fragmentary (illus 21) in a tight group (see Smith, below). They varied from length 14 mm; width 7 mm; to length 23 mm; width 13 mm.

Worked cattle bone (SF534) A fragment of worked bone was found to the left of the child, near the south



ILLUS 21 Objects from Cist 54



ILLUS 22 The Roman seal box (SF109) with *millefiori* decoration

side stone. The edges are all worn, in particular the rounded end, which appears to have been rubbed (illus 37). It was not part of the 'reconstructed' burial. Length 60 mm; width 20 mm.

Samian sherd (SF114) An extremely small fragment of figured Samian ware was found when the soil covering the burial was sieved. It is somewhat worn, but the decoration is clear although not large enough to identify specifically. Length 12 mm; width 8 mm; thickness 6 mm.

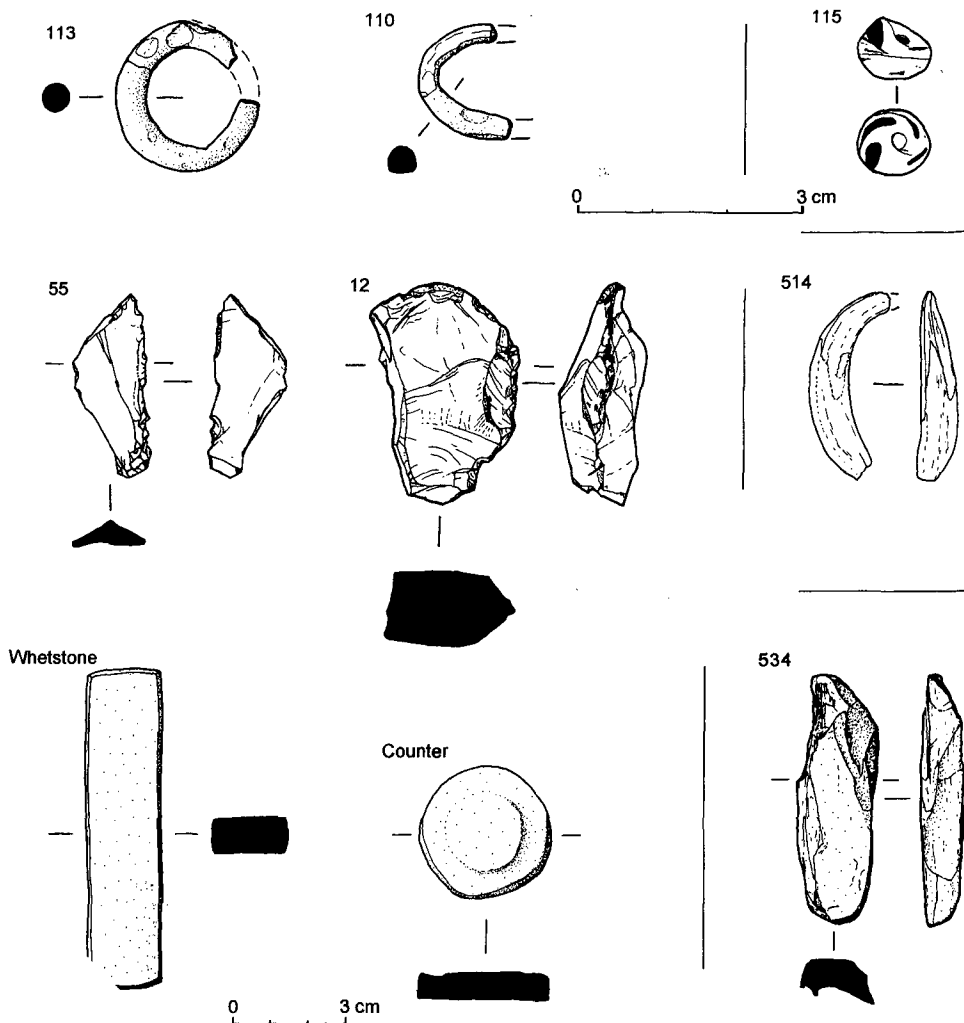
Objects from Cist 51B (1975–7) A pig's worn incisor, broken at the tip (SF 514) (illus 23), length 25 mm; width 5mm.

Bronze object (SF73). A minute fragment, only, was recovered.

Glass bead (SF115) A small blue-green glass bead with white vitreous paste, (SF115) (illus 23), of possibly Roman or post-Roman date could also have come from this cist. It was found in dumped disturbed soil from the area of the Cist 51 complex. Width 10 mm; thickness 8 mm; perforation diameter 2 mm.

Objects from Cist 51B (1861)

Excellent descriptions by more than one contemporary antiquarian enable an assessment to be made of the artefacts recovered in the last century. Stuart (1867, lix) details the artefacts. Walker (1861b) describes where they were found: 'by the right side lay the various articles . . . the glass cup towards the feet'. By 1931 the list of items had altered somewhat, but it appears that the green glass bowl was still in existence at that time (Hay Fleming 1931, 252). Regrettably, none of these artefacts now



ILLUS 23 Glass bead (SF115) and pig's tooth (SF514) from Cist 51; worked bone (SF534) from Cist 54; bronze ring (SF113) from sediment overlying the road; bronze ring fragment (SF110) from soil overlying Cist 67; and flint axe flake (SF12). Unnumbered objects (a whetstone and counter) were found during excavations in the 1860s

survives. They have not been catalogued previously and the numbers given here, based entirely on earlier descriptions, have been assigned by the author.

- 1861/5/1 A small circular vessel of glass, less than two inches in height, of a pale green colour.
- 1861/5/2 Fragments of broken glass, of a white colour, which had probably formed another similar vessel.
- 1861/5/3 Fragment of ring of glass, coated with enamel of a yellow ground with spots of red in it.
- 1861/5/4 Green-stone fragment, smooth, less than 76 mm long, like a whetstone.
- 1861/5/5 Bone, with a hole, perhaps for a knife.
- 1861/5/6 Bone, perforated, smaller than no 5, with slender socket of bronze inserted.

- 1861/5/7 Bronze, fragment, thin; knife-point.
 1861/5/8 Circular stone disc, 38 mm in diameter, central hole.
 1861/5/9 Pebbles, many, small and smooth.
 1861/5/10 Jet, small fragment.

Comparanda for the glass cup (and the fragments found with it) were made by Walker (1861b), who knew of the base of a similar cup from Westray (Curle, 1932). This cup, one with it, another (now lost) from Kingoldrum and one from Airlie, Angus (Curle 1932, fig 3) are still the only comparanda from Scotland. The two from Hallow Hill are therefore all the more remarkable, therefore, since glass cups can never have been common and were unlikely to survive long. These glass cups were all found in cists, as at the Hallow Hill and have been dated to the third or fourth centuries AD (Curle 1932).

Because it is lost, the fragment of a 'ring of glass', is extremely difficult to discuss or to date. However, the description is precise and glass with a yellow coating and red spots is by no means common. Kilbride-Jones (1938, 367 and fig 1, no 2) discusses a fragment of Type 1 bangle from Traprain Law, with spots of dark crimson enamel set into a band of yellow enamel. Stevenson (1956a, 210, fig 1, no 4) illustrates an unprovenanced fragment of bangle, perhaps from Traprain Law, as another example of this colour combination, with spots classed as Type 1/3. The bangles of all classes are Romano-British, dated to the late first and second centuries. It is possible that the Hallow Hill example could have belonged to such a bangle.

In view of the date of the glass cups it is probable that the date for the deposit as a whole need be no earlier than the third or fourth century AD, although it could be considerably later, according to whether the artefacts were buried at a date shortly after manufacture or long afterwards. On the present evidence a fourth-century date might be the earliest feasible.

Several other artefacts, found during the 19th-century excavations and alleged to be from the Hallow Hill, include a whetstone, a stone disc (illus 23) a knife in a bone handle, and a clay pipe bowl. A polished stone axe fragment (not illustrated) from the Hallow Hill still retains the 19th century label, written 'Hallowhill'.

Unstratified objects

Unstratified finds from the excavation included fragments of human and animal bone; flints, including a flake from an axe (SF12), (illus 23); sherds of early, medieval and later pottery; clay pipe fragments; and a variety of modern artefacts. Walker (1861a) also refers to finds of flint artefacts, from the soil among the cists. Although some of the artefacts may be prehistoric, the majority of these finds were casual losses of more recent date, mainly during agricultural activity, and were unrelated to the long cist cemetery. However, the damage caused by ploughing and by the earlier excavations resulted in human bone being widely distributed throughout the soil in the excavated area. A complete record of all these items has been deposited with the National Monuments Record of Scotland and the finds have been deposited with East Fife Museums Service.

RADIOCARBON DATES

Bone samples from 20 individuals and two charcoal samples were submitted for radiocarbon dating. As many of the skeletons were in poor condition the numbers from which to select samples was limited. However, selected samples were from cists widely distributed through the cemetery and almost all proved suitable and provided dates (illus 12). These samples included groups that could

have been contemporary or near contemporary, such as Burials 111, 112 and 113. Burials 145 and 148 were in excellent condition, close together, close to Cist complex 51, and the dates proved similar. Burials 26 and 36 were considered central to the north-eastern part of the cemetery; Burial 26 had been identified as a leper and dates for early leprosy sufferers are few in Scotland. Burials 48/1 and 48/2 were of interest because they were from one cist, although they were not contemporary. Burial 69, Burial 74, Burial 88 and Burial 107B were all near the outer perimeter of the cemetery, while Burial 66 and Burial 56 were in a possibly early part of the cemetery. Burial 54, which unfortunately failed to produce a date, was considered important as possibly the foundation grave for the cemetery, and because it was accompanied by Roman artefacts. The one date that stands out is from Pit F20, which is clearly earlier than the remains from the long cist cemetery. The dates for the Cist 51 complex are difficult to interpret as all the burials had been disturbed and the date for Burial 51c alone differs from the composite date, being more recent. The dates for Burials 48/1 and 48/2 should be noted, since they are the reverse of what would be expected; Burial 48/1 had been in the cist for a considerable time before Burial 48/2 was inserted.

TABLE 2

The radiocarbon years and the date ranges to 1 and 2 sigma variation for selected burials (all bone) and for Pit F20 (charcoal). The dates were calibrated using the 1993 calibration data and Oxcal (Ramsay 1994; Stuiver & Reiner 1993).

Laboratory number	Burial number (bone sample)	Years BP uncal	Calibrated date range 1 sigma	Calibrated date range 2 sigma
GU-1851	69	1325±50	655-713	630-780
GU-1852	74	1480±50	543-633	440-660
GU-1853	48/1	1175±50	782-896	693-980
GU-1854	48/2	1445±50	563-650	540-670
GU-1857	148	1400±50	609-664	560-680
GU-1858	26	1225±50	711-748	670-900
GU-1859	49	1380±60	619-673	560-730
GU-1860	51/C	1155±70	783-972	680-1010
GU-1861	51A/B/C*	1360±50	641-678	600-730
GU-1863	56	1360±50	641-678	600-730
GU-1864	66	1390±65	606-671	550-730
GU-1865	36	1390±50	619-667	570-690
GU-1866	22	1450±50	560-648	530-660
GU-1867	88	1350±50	647-682	610-770
GU-1868	107B	1490±55	535-630	430-660
GU-1869	111	1340±60	647-690	660-790
GU-1870	112	1370±55	633-675	590-730
GU-1871	113	1380±50	631-670	590-710
GU-1872	145	1460±50	553-643	453-487
GU-1855	Pit F20 (charcoal sample)	2000±60	97BC-AD66	170BC-AD120

*Note: the date described as (GU-1861) 51 A/B/C represents combined bone fragments from all parts of this complex cist.

There is little statistical difference in the dates as a group, and all parts of the cemetery were evidently in use during a relatively limited period. Of the dates for human bone in this sample two fall in the sixth century, 14 in the seventh, two in the eighth and one in the ninth. All of the dated burials could have been deposited in the seventh century, or burial could have continued into the ninth century. It is indisputable, however, that the floruit of the Hallow Hill long cist cemetery was in the seventh century.

These results are significant, not only for the Hallow Hill but also for long cist cemeteries generally, since there is growing evidence that they belong to the early period of Christianity in

North Britain, before the Church had become organized on a parochial basis and before church buildings were common landscape features. The other important aspect of these dates is that they lie in the period of the historic Picts, so that this long cist cemetery probably represents a Pictish community.

DENTAL AND ANATOMICAL REPORTS

THE DENTITIONS

Dorothy Lunt

A catalogue of all dental and skeletal material appears in fiche (F2/A3–E13).

The assemblage

In the material from Hallow Hill, some of the teeth are well preserved (illus 24), many show some degree of deterioration and required careful handling and the application of a PVA varnish to preserve them, while a few were already so badly damaged that they could not be salvaged. There were 145 burials, with some part of the jaws and/or human dentition present in the material from more than 50% of burials. A complete table of teeth present can be found in the project archive at the NMRS (RCAHMS).

Age of individuals

Methods used for age estimates Attempts were made to give some assessment for all the identifiable dentitions, but not for stray teeth. In the case of children and adolescents, the age was estimated from the stage of development of the teeth rather than the eruption status, following data published by Moorees *et al* (1963) and Johanson (1971).

The roots of the third molars have usually formed completely by the age of 20 years, and after this age another method must be used for dental age assessment. The degree of attrition exhibited by the permanent dentition, and in particular the permanent molars, has been used for this purpose, and two scales have been published (Brothwell 1972; Miles 1963). It was considered that the long cist population of Hallow Hill was roughly contemporary with the Anglo-Saxons studied by Miles, and that its people may have consumed a similar type of diet; thus age estimates were made using the Miles scale where possible. In many instances, all three molars in a quadrant showed exactly the degree of attrition appropriate to a specific age on the Miles scale. This appeared to support the hypothesis that attrition was proceeding in a similar manner in the Hallow Hill population to that observed in the Anglo-Saxons. Discrepancies were also observed but may perhaps be attributed to normal variation. Age estimates were also cross-checked with the Brothwell scale, and the results were found to be similar using both methods.

Ideally, an age scale specific to the Hallow Hill population would have been constructed, but this depends on the presence of a sufficient number of children and adolescents at appropriate ages of tooth development. Unfortunately there were not enough young individuals for this procedure to be carried out.

Age distribution of the Hallow Hill population In making the basic age estimates, the ages of children have generally been estimated within 2–3 years and the ages of adolescents and adults within 4–5 years wherever possible. In some of the adults where the material was incomplete, or discrepancies in the attrition pattern were observed, the initial estimate was given as a rather wider range of as much as 10 years. Even vaguer general assessments of age, eg ‘mature adult’ or ‘elderly’, were given in the case of 12 individuals where the material



ILLUS 24 One of the few examples of well-preserved, virtually perfect dentition in a young adult (Burial 66). Exaggerated imbrication lines of Pickering may be seen in the incisors and canines

was particularly scanty or marked discrepancies were present. In three cases it was impossible to give any estimate of age.

When an attempt is made to provide information concerning the distribution of estimated ages at death, then some unified system of age grouping must be employed, and a standard system rising by five-year increments from birth was used. It was quite easy to assign the children and adolescents, and those adults whose ages had been assessed to within a narrow range of 4–6 years, to the appropriate five-year group in this system. Those individuals whose initial age estimates had been given using a wider range posed a problem, but it was eventually decided to reassess these individuals and to assign them on all the evidence available to the most likely five-year period. The 12 individuals for whom only a vague general assessment of age could be made were excluded from the age distribution data.

There is a peak of deaths in the 20–24.9 age group, with large numbers in the 15–19.9 and 25–29.9 groups. This is slightly different from the situation found in 157 Anglo-Saxons by Miles (1963), who recorded peaks at 15–20 and 35–40 years.

Calculations of average age at death for the 69 assessable individuals from Hallow Hill (using the median age for each age group) gives a figure of 26–29.92 years. This is a slightly younger average age at death than that calculated by Miles for the Anglo-Saxons (31 years) or the figures also quoted by Miles for ancient Greece (30 years) and 13th-century England (35 years). This could mean either that the people buried at Hallow Hill were actually dying on average slightly younger than the Anglo-Saxons; or that the age distribution of the skeletons is unrepresentative of the population as a whole; or that, due to differences in the diet, the Hallow Hill teeth were wearing down a little more slowly than those of the Anglo-Saxons and the age estimates are therefore slightly too low. There is no way of telling which of these interpretations is most likely to be correct.

TABLE 3
Distribution of estimated ages at death

Age group	0-4.9	5-9.9	10-14.9	15-19.9
No of individuals	3	6	3	10
Age group	20-24.9	25-29.9	30-34.9	35-39.9
No of individuals	22	10	8	4
Age group	40-44.9	45-49.9	50-54.9	55-59.9
No of individuals	6	5	1	2

Dental disease

Dental caries In skeletal material from sites such as Hallow Hill, where there has been considerable post-mortem erosion of bone, dentine and cementum, the diagnosis of dental caries can sometimes be difficult, since erosion at the neck of the tooth can occasionally mimic caries. Gross carious lesions can usually be readily identified and it is only the smaller lesions which may cause problems.

Previous studies of caries prevalence in Scottish prehistoric and medieval population groups Lunt (1972 & 1974) have shown that caries was to a considerable extent a disease of the older age groups. The Hallow Hill material has therefore been divided into three groups for the presentation of data concerning dental caries: those aged below 20, those between 20 and 30, and those over 30. This broad age grouping has allowed the inclusion of the twelve individuals who were excluded from the age distribution, giving a total of 81 individuals in the study of caries.

Many of the dentitions are incomplete, and therefore the number of individuals with carious teeth is unfortunately of little significance, since the condition of the missing parts of the dentitions is unknown. It is therefore necessary to examine caries prevalence in terms of the total numbers of teeth present and the numbers of teeth affected by caries. These figures show that, as expected, caries prevalence increased with age in the Hallow Hill population, though it is still very low in comparison with the prevalence in modern Scottish populations. The overall figure, of 3.27% of all erupted permanent teeth showing evidence of dental caries, may be compared with the figure of 4.3% found in an earlier study (Lunt 1974) in a population classed as 'Dark Age' and consisting mostly of long cist burials. The small medieval population in that study showed a caries prevalence of 6% of erupted permanent teeth.

The lesions were all in posterior teeth, and where they were sufficiently small for their site of origin to be ascertained, had started on either an approximal surface or a buccal surface. Quite frequently the lesions were associated with stagnation areas resulting from periodontal disease. Caries was not observed in deciduous teeth or in permanent teeth of individuals aged less than 20. This also accords with earlier studies (Lunt 1972 & 1974) where caries of deciduous teeth was not observed until the Medieval period, and caries of the permanent teeth was not seen in children and juveniles.

TABLE 4
The caries prevalence in the Hallow Hill population

Age group	Below 20	20-30	Over 30	Total
Number of individuals	22	25	34	81
Number of individuals with carious permanent teeth	0	5	11	16
Number of erupted permanent teeth	211	440	511	1162
Number of carious permanent teeth	0	12	26	38
% carious permanent teeth	0	2.73	5.09	3.27
Number of erupted deciduous teeth	37	0	0	37
Number of carious deciduous teeth	0	0	0	0

TABLE 5

The 38 carious lesions observed have been classified by extent or severity of lesion

Age Group	20-30	Over 30	Total
Very early, rather dubious	1	1	2
Arrested caries	4	3	7
Small lesion	1	7	8
Medium to large lesion	4	10	14
Gross destruction of tooth	2	5	7

Periodontal disease

In skeletal material which has suffered fairly severely from post-mortem erosion of bone, it is difficult or impossible to assess the periodontal bone condition accurately, since the thin plates of bone at the necks of the teeth are readily eroded, and even the slightest erosion can render the assessment of the original level of the bone extremely dubious. In some of the Hallow Hill burials the alveolar bone had been completely destroyed and the teeth were all loose, and in many others the bone had been severely damaged. Periodontal assessments were possible in only a few instances, as in Table 6.

Such data as are available show that periodontal disease tended to increase with age, both in the number of individuals affected and in the severity of the condition in an individual.

Most individuals suffered to some extent from deposition of calculus (tartar). No attempt has been made to grade calculus deposits, since it has been found that calculus tends to flake off the teeth very readily, and most specimens have already lost some before they can be examined. As far as could be ascertained, calculus was present in general in the amounts which might be expected.

TABLE 6

Periodontal assessments

Age	Below 20	20-30	Over 30
Periodontal disease			
slight	0	5	3
slight to moderate	0	2	3
moderate	0	0	5
severe	0	1	6

In vivo tooth loss and abscesses

In the Hallow Hill material many areas of bone infection may have been present in those parts of the jaw bones which have disappeared completely. Where the bone still survives but in a damaged condition, post-mortem erosion makes the diagnosis of genuine bone infection more difficult. In the case of obvious abscess cavities in the bone, if the tooth responsible is still present then the cause of the abscess can be ascertained. Often, however, the tooth has been lost either post-mortem or *in vivo* shortly before death and the cause is then quite unknown and Table 7 shows the numbers of abscesses, and numbers of teeth which had clearly been lost *in vivo*: inclusion in the latter category usually implies some degree of residual bone infection.

Yet again, the figures show the progress of dental disease in the older individuals. The greater number of abscesses due to caries in the 20-30 age group as compared to the over 30s is to be attributed to the fact that the lesions had not progressed so far, the teeth were still present and the lesions could be accurately diagnosed. As has been pointed out already, these figures should be taken as minimum numbers: had post-mortem destruction been less severe, other lesions would also have been present.

Dental conditions of developmental origin

Enamel hypoplasia On the whole, the teeth of the Hallow Hill population seem to have been well formed and well mineralized, and there is little evidence of the kind of disturbance in enamel formation which is usually

TABLE 7
Numbers of abscesses, and teeth which had clearly been lost *in vivo*

Age Group	Below 20	20-30	Over 30	Total
Abscess				
due to caries	0	4	1	5
due to attrition	0	0	2+?2	?4
due to periodontal disease	0	0	2	2
due to cause unknown	0	0	10	10
<i>in vivo</i> tooth loss				
Number of teeth lost	0	1	34	35
Number of individuals affected	0	1	10	11

ascribed either to childhood fevers or to very severe malnutrition. Gross hypoplasia of the pitted variety was not seen in any Hallow Hill dentition. Slightly exaggerated imbrication lines of Pickerill (associated with the incremental pattern of enamel) have been observed in two individuals aged less than 20, nine individuals aged 20-30 and one individual aged over 30, but it is doubtful whether these should really be classified as a hypoplasia due to systematic conditions, the more so as they have sometimes been observed in one or two teeth only and not in other teeth which should have been developing at the same time (illus 24). Very few of these lines are seen in the oldest age group because so much of the tooth crowns in this group has been removed by attrition.

Hypodontia Sometimes teeth may completely fail to develop, and such missing teeth are said to be congenitally absent. Congenital absence of a tooth can only be diagnosed when the alveolar bone is present and in good condition. In material such as that from Hallow Hill, where so many jaw bones are incomplete or badly damaged, it is not possible to give an accurate assessment of the incidence of congenital absence of teeth. A number of cases however have been observed, most involving third permanent molars. These are the teeth which are most commonly absent. In every case where a tooth was thought to be absent, this was checked by X-raying the jaw.

One or more third molars were definitely congenitally absent in eight individuals, and were probably absent in two further dentitions. The number of third molars absent can vary, and in the present material is shown in Table 8.

In two further individuals, a singular mandible second premolar was congenitally absent. In one case the deciduous second molar had been retained and was still *in situ*; in the other case, the deciduous second molar had been retained for some time but had been shed before death; this was shown by the unusually large gap in the dentition in this area, too wide for a premolar. In another case it seemed probable that a maxillary second premolar had been congenitally absent, with retention of the second deciduous molar, but this was rather more

TABLE 8
Numbers of absent third molars

No of molars missing	No of possible molars	No of cases
Certain cases		
4	4	1
3	4	2
2	4	1
1	4	1
2	2	1
1	2	2
Doubtful cases		
1	4	1
1	3	1

doubtful. Maxillary lateral incisors are teeth which are sometimes congenitally absent, but no case of absent lateral incisors was observed in the Hallow Hill material.

Embedded teeth Teeth may develop normally in their crypts, but then fail to erupt and remain embedded in the jaw bones. This is not particularly common, and only one embedded tooth was observed in the Hallow Hill material, a mandibular right permanent canine. The permanent canines are the teeth most commonly observed to be embedded.

Retained deciduous root apices Occasionally, when deciduous teeth are undergoing the normal process of root resorption associated with shedding of the tooth, a tiny epicule of the root apex becomes detached and embedded in the alveolar bone, where it may remain for some time. Such retained deciduous molar root apices were observed in two individuals from Hallow Hill, one aged below 20 and the other 20-30.

General bone conditions It is relatively seldom that general bone conditions can be diagnosed in the jaw. Arthritis of the temporo-mandibular joint may sometimes be observed, but no gross examples of this condition were seen, and no attempt was made to assess the condition of the joint in general because of the prevalence of post-mortem bone erosion.

Non-dental conditions

Ectopic submandibular gland Occasionally the submandibular salivary gland, or part of it, becomes misplaced during development and comes to lie so close to the lingula side of the mandible that a shallow depression forms on the surface of the mandible to accommodate it. This rare condition has been described in prehistoric, medieval and modern skeletal material by Harvey & Noble (1968). A clearly marked depression for an ectopic submandibular gland was observed on the lingual aspect of the left side of the mandible from a burial in Cist 112 at Hallow Hill.

Infectious bone conditions: leprosy

The maxilla of Hallow Hill Burial 26 showed clear evidence of leprosy (illus 25). There had been severe loss of maxillary alveolar bone in the incisor region, with *in vivo* loss of three of the maxillary incisors, and also loss of the anterior nasal spine: these changes are pathognomonic of leprosy. The diagnosis has been confirmed by the late Dr A T Sandison (pers comm). There was no obvious evidence of leprosy in any of the other skeletons, but the extent of post-mortem bone destruction at Hallow Hill must be borne in mind.

THE SKELETAL MATERIAL

The late Archibald Young

A catalogue of all skeletal material appears in fiche (F2/A3-D13)

Anatomical features which probably gave rise to little or no disability during life were incomplete fusion of the two halves of the centrum of the 10th thoracic vertebra (Burial 26), incomplete fusion of the two halves of the neural area of the 5th lumbar vertebra (Burial 49), a four segment sacrum (Burial 145) (five segments are usual and six are occasionally found), a supratrochlear foramen of the right humerus (Burial 48/2), asymmetrical lengths of the long bones of arms and legs (Burials 26, 42 and 151), 'squatting' facets (not always bilateral) on the related articular surfaces of tibia and talus (Burials 1, 26, 69, 122 and 148), very prominent tuberosities of the tarsal navicular bones, possibly resulting from accessory centres of ossification (Burial 42). Partial ossification of the posterior atlanto-occipital membrane and of atlanto-axial ligaments (Burial 42) may have had some connection with periodontal disease in this individual without giving rise to any noticeable disability.



ILLUS 25 The effects of *facies leprosa* in Burial 26: loss of the anterior nasal spine and the anterior maxillary alveolus, with subsequent *in vivo* loss of maxillary incisors

Trauma

A man in his twenties (Burial 66) sustained an almost certainly fatal and extensive fracture of the skull, probably from a heavy blow to the right side of his face, which also caused fractures of the zygomatic arch and right side of the mandible. The fracture line extended across the base of the skull as far as the left limb of the lamboid suture. Death was less immediate in the case of Burial 151, probably a female aged 18–20 years, who survived long enough for ossification to commence at the periphery of a large extradural haematoma at the apex of the left temporal bone. Burial 171 is probably another case of violence causing a fractured skull and death. Evidence of old, healed fractures was seen involving the right ankle (Burial 48/1), the left ankle (Burial 107B), the clavicle (Burial 148), the right fourth and fifth metatarsals with subsequent cross union (Burial 1), and the left radius with resultant arthritis of the elbow (Burial 48/2). The old female in Cist 44 had an old malunited impacted fracture of her right femoral neck and associated arthritic changes in her hip-joint, and the male in Cist 49 had probably sustained compression fractures of several thoracic vertebrae.

Pathology

Arthritis Arthritic changes, of varying degrees of severity, manifested by 'lipping' of articular margins, osteophytes, or erosion of articular surfaces, were seen in bone joints in several females, including the sacro-iliac joint (Burial 27: late 20s), hip joint (post-trauma), vertebrae (Burial 44: elderly), wrist and elbow (post-trauma), (Burial 48/2: mid 20s), and in three males, including the ankle (post-trauma) (Burial 48/1: 40–50 years), vertebrae, sterno-clavicular joint and big toe (Burial 49: 45–50 years), vertebrae (Burial 123:45–50 years; Burial 22: over 50 years). With the possible exception of Burial 48/1, these individuals showed evidence of oral disease, often quite severe.

Chronic disease A female (Burial 26), aged 35–39, showed cortical markings on her tibia and fibulae, and alveolar bone loss highly suggestive of leprosy. Another probable female, of similar age, showed grooving and pitting of the external surface of the calvarium for which no definite explanation can be given. The grooves seemed to be vascular in origin, especially one emerging from a supraorbital foramen and another on the occipital bone. A meningioma is the likely cause of a complete perforation of the skull vault in a male aged 30–35 years (Burial 107B). A deep cavity in the lower end of the right tibia of a possible male aged about 30–35 was probably due to a tumour (Burial 59).

The most interesting find, however, was the skull of a young male in his twenties, with two defects in the vault, which were almost certainly trephine holes. One may have been made at or just prior to death; the larger one's margins seem to show some evidence of bone repair, ie the patient had survived the operation, and made some degree of recovery (Burial 112).

Sex, age and stature

Various formulae exist for calculating the live height of an individual from measurements of one or more long bones. For this series, recourse has been mainly to those of Dupertuis & Hadden, (1951). However, it is to be noted that the results obtained by using two or more of their formulae do not always agree. In this series upper limb bones (humerus and radius) frequently indicated a greater height than did the lower limb bones (femur and tibia), whichever formulae were used to obtain a possible range of height. This was seen in eleven cases (Burials 21, 22, 27 (if female), 42, 48/1, 49, 74, 111, 113, 145 and 151). But there were some skeletons where upper and lower limb bone heights more or less agreed (Burials 25, 26, 48/2, 112, 114, 121, 148, 66 and 69). Only once did the lower limb bones appear to give a taller range than the upper limb bones (Burial 1).

Often, allocation as to sex on skeletal grounds could only be made tentatively on the balance of evidence from different bones (eg skull, pelvis, sacrum), or the muscular markings on long bones; in many cases, these were not all present.

Upper ranges of both minimum and maximum estimates of stature for females overlap the lower ranges for males; the mean minima and maxima are over 10cm lower for females than for males.

ANIMAL BONE

Catherine Smith

The bone assemblage

The animal bones recovered during excavations on the Hallow Hill represented a range of species, which included cattle, sheep/goat, pig, horse, rabbit, field vole (*Microtus agrestis*) and an unidentified small rodent. The majority of the bones and teeth of the domestic animals came from cattle. Pig, horse and the unidentified small rodent were represented by loose teeth only. Most of the assemblage was recovered from unstratified contexts (ie ploughsoil), though some bones and teeth were recovered from cists and possible burials (Cist 48, Cist 51B, Cist 54 and Pit F20). The preponderance of more durable loose teeth and tooth fragments indicates that conditions for bone preservation were poor. Indeed, a large proportion of the bone was unidentifiable due to erosion, though burning and calcining of some bones was also a factor. In all, 27% of the assemblage could not be identified, and a further 9.4% were found to be fragments of human remains.

Cattle

The bulk of the assemblage, around 45%, was in the form of loose teeth from cattle. These were recovered from amongst ploughsoil and modern field clearance stones on the upper part of the hill. They appear to have

TABLE 9
Summaries of age and stature, where sex determined

Males, probable males			Females, probable females		
Burial	Age (years)	Height (m)	Burial	Age	Height
21	20–22	1.60–1.65	1	adult	1.55–1.57
29	26–32		26	35–39	1.52–1.59
48/1	45–50	1.60–1.69	27	late 30s	1.57–1.67
49	45–50	1.72–1.78	36	30+	1.61–1.65
56	50–60	1.67–1.70	42	30–35	1.56–1.68
66	25–28	1.71–1.77	44	elderly	
72	30–35	1.69–1.74	48/2	24–28	1.60–1.64
74	28–35	1.71–1.8	67	30–35	
80	young adult		69	28–34	1.64–1.69
88	under 30		70	50+	1.56–1.57
100	50–60		87	25–30	
107B	30–35	1.65–1.7	99	40–45	
110	40–45		111	20–25	1.66–1.72
112	25–28	1.72–1.76	117	(16)–23	1.56–1.57
113	50–60	1.71–1.77	121	19–23	1.61–1.65
114	30–40	1.60–1.67	122	20–25	1.54–1.56
123	45–50		125	30–35	
			126	(18)20–25	1.61–1.62
			127	25–30	
			128	20–25	1.56–1.58
			145	20–25	1.60–1.67
			148	35–40	1.55–1.59
			149	mature adult	1.53–1.55

been shed teeth and correspond with the local ploughman's observation that cattle habitually gathered in this area. Cattle were also represented in an early context, as the 'purse' in Cist 54/lower contained seven cattle teeth (illus 21). Three premolars evidently came from a single right mandible and two premolars from a single left mandible. It is possible that the left and right mandibles may have come from the same animal, although the wear patterns are not identical in both sets. A femur and radius were recovered from the disturbed fill of Pit F20, and two bone fragments from Cist 48 may also have been bovine.

Sheep/goat

Bones and teeth of sheep or goat comprised 13% of the total. These included a rib fragment from the fill of Cist 111 and a sheep tooth from the fill of Cist 147. Both fills are thought to have been undisturbed, indicating that these were primary inclusions, when the cists were filled with soil before final closure.

Pig

Of two pig teeth, one was from an early context: a lower canine tooth (or tusk) was recovered from disturbed Cist 51B. This is probably from a domestic female or juvenile, rather than from a wild animal, on the basis of its small size and rounded cross section.

Other species

Rodents were represented by fragments of vole-sized incisors from the base of Cist 14, and by bones of two voles from between the femora of Burial 107B. In both cases the graves were plough damaged and the bones

TABLE 10
Summaries of age and stature, where sex not determined

Sex not determined			Immatures (under 20)		
Burial	Age	Height (m)	Burial	Age	Height (m)
6	elderly		2	early teens	
11	38-44		3	c.14	
14	late 40s		8	11-13	
20a	23-27		10	17-21	
20b	older		15	Foetus	
22	50+	1.66-1.74	28	2nd year	
24	mature adult		33	under 10	
25	25-30	1.54-1.66	34	7-10	
35	40s		39	under 1.5 months	
39b	young adult		41	5-7	
43a	adult		51A		
43b	adult		51B	6-8	
45	?40s		51C	2-3	
47	late 30s		52	under 20	
49b	adult		54	5.5	
51A	mature adult		77	c.12	
57	adult		78	1.5-2	
58	30s		81	18-19	
59	20-25		96	14-19	
63	30-35		98a	14-16	
64	40s		98b	12-14	
71	20+		115	16-18	
73	45-50		141	14-16	
97	mid 20s		143a	15-20	
108	20-25		143b	young child	
119	25-30		146	5-6	
120	22+		151	18-20	1.6-1.72
129	20-25				
130	30-40				

TABLE 11
Estimates of Age at death; summaries extracted from Tables 9 and 10

Males		Females		Sex indeterminate		Immatures (under 20)	
20-30 years	7	20-30 years	11	20-30 years	10	Foetus	1
30-40 years	3	30-40 years	7 (8?)	30-40 years	5 (7?)	Under 5 years	4 (5?)
40-50 years	4	40-50 years	1 (2?)	40-50 years	5 (7?)	5-10 years	6
50-60 years	3	50 years	1 (2?)	50 years+	1 (2?)	11-14 years	4
						14-20 years	9

are probably intrusive. A single rabbit tibia and a horse tooth were recovered from ploughsoil in proximity to disturbed Cists 11 and 124 respectively.

Discussion of the animal bones

Most of the animal bone and teeth described here was recovered from ploughsoil and probably represents midden and manuring inputs from relatively recent periods (or, in the case of some cattle teeth, natural shedding in pasture). The cattle teeth from the 'purse' in Cist 54 represent the only clearly deliberate inclusion of animal bones with a burial, although the pig tooth from Cist 51B may have also been among the grave goods from this burial, overlooked by the original excavator in 1861. The cattle bones from Pit F20 and Cist 48, and sheep/goat

TABLE 12
Estimates of Stature: summarized data extracted from Tables 9 and 10

Upper ranges of both minimum and maximum estimates of stature for females overlap the lower ranges for males; the mean minima and maxima are over 10cm lower for females than for males.

Maximum height	Individuals	Minimum height	Individuals
1.60m	3	1.55m	1
1.65-1.69m	3	1.52-1.55m	4
1.71-1.72m	5	1.56-1.58	5
		1.60-1.66m	7
No measurement	6	No measurement	6
Mean of Maxima 1.67m		Mean of Minima 1.57m	
Maximum estimate of Stature		Maximum estimates of Stature	
Range	1.65-1.8m	Range	1.55-1.72m
Mean of Maxima	1.73m	Mean of Maxima	1.62m

bones from Cist 111 and 147 are also of potential interest, as these may represent midden inclusions which were already in the topsoil when these features were created.

POLLEN ANALYSIS

June Cundill & Peter Cundill

Methods

Initially soil samples for pollen analysis were chosen at random from the large number submitted. This provided pollen counts from soils sampled widely over the site and at different depths and positions. When the initial batch of samples had been examined a final batch was carefully selected with the aim of adding data to clarify and support that already collected. In total 48 samples were counted.

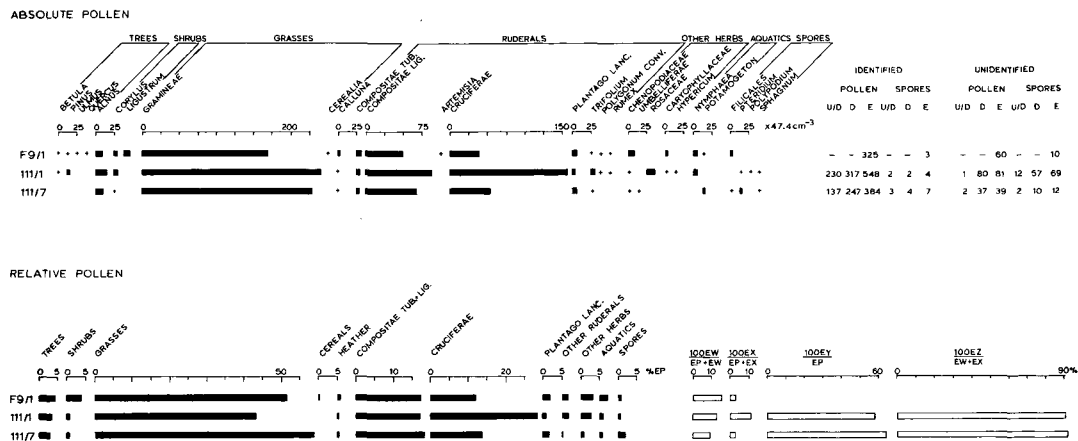
Chemical and mechanical preparation methods followed those described by Faegri & Iversen (1989) and Moore & Webb (1991). Pollen counting was carried out at x600 magnification on a Nikon Sk-t microscope. Standardization of the counting procedure was achieved by identifying pollen and spores until a total of 500 exotic *Lycopodium* spores had been counted.

Results

The results have been presented in two diagrams: a relative pollen diagram (Table 13, lower) showing percentages of total identifiable pollen and spores of the 48 samples counted; and an absolute diagram (Table 13, upper) showing examples of three representative sets of data.

Relative pollen results In the pollen diagram (Table 13, lower), which has been constructed with the aim of presenting a complex mass of data in a simplified way, only major taxa have been represented, with other pollen taxa and spores grouped under general headings. In addition 16 samples contain Cerealia pollen. The most significant feature of the diagram is the dominance of three pollen taxa: Gramineae, Compositae (Liguliflorae in particular) and Cruciferae which make up between 70% and 90% of total identifiable pollen in each sample. Lower but mostly continuous values of *Alnus* (Alder), *Corylus* (birch), Compositae Tubliflorae, *Plantago lanceolata* (plantain) and Chenopodiaceae are also recorded. The very low values for trees and shrubs emphasizes the dominance of grass and weed taxa throughout the 48 samples. Overall, the consistency of the pollen

TABLE 13
Pollen analysis results.



pattern is remarkable and suggests that all samples experienced similar environmental processes and accumulated pollen in a similar manner

Absolute pollen results The following details describe the location of each sample site. The results (Table 13, upper) have been obtained from one count at Post-hole F9/1 and two counts from Cist 111. These have not been chosen as representative of others but as examples. In addition both sites are archaeologically important and a significant number of identifiable pollen was counted. Dimbleby (1957) suggests that counts in excess of 250 fossil pollen provide reliable figures for statistical analysis, and all three counts exceed this value. The three samples derive from the fill of Post-hole (F9) (Sample F9/1) and from the fill of Cist 111 (Sample 111/1 from the south-west corner; Sample 111/7 from the south-east corner).

From the absolute pollen frequency data (Table 13) the similarity of all three samples is very evident; tree and shrub pollen values are low compared with those of open habitat types such as Graminae, weed taxa (ruderals) and other herbs.

Interpretation

The most obvious feature is the general similarity between the two pollen diagrams (Table 13) derived from the data. If the problems of soil pollen analysis from disturbed/turbated contexts are ignored then the interpretation of the results suggests what might be expected of the landscape in a burial ground, an open aspect with disturbed ground. The burials themselves would obviously create disturbance but so would agricultural practices and the occurrence, locally, of both arable and pastoral farming is supported by evidence from the pollen record. High values of Compositae and Cruciferae, together with Chenopodiaceae, have been used as indicators of arable agriculture (Godwin 1968; Whittington *et al* 1976), and the presence of Cerealia pollen in several samples (including F9/1), lends credence to this suggestion. Although percentages are low, Cerealia pollen does not travel far (Iversen 1949) and therefore is usually poorly represented in pollen diagrams. High values of Graminae, the dominant taxon in all samples, together with the presence of *Plantago lanceolata*, *Rumex* (dock) and *Artemisia* suggests pastoral agriculture (Godwin 1968). Low percentages of trees and

shrubs suggest these were growing outside the immediate area of Hallow Hill. *Alnus* is the most significant of these taxa, and ecologically it is likely this species grew along the banks of the Kinness Burn and Cairnsmill Burn, where it occurs at the present day together with examples of the other tree and shrub species that are also found in the pollen diagram.

Conclusions

Despite problems of variable preservation and ground turbation, the initial interpretation of an open aspect and disturbed ground prevailing at the time of the burials is still favoured. Differential preservation may have favoured herbaceous pollen types over arboreal types, but the range and combination of the herbaceous species is unlikely to have occurred in a woodland environment. There is also the general similarity of the pollen record in all samples which lends support to the interpretation, since it might have been expected that greater variation in the microfossil record would have resulted from the extent and variability of the site and the variable location of samples within the soil. Indications of agricultural practice are present but it is not possible to say if this occurred prior to the burials, contemporary with them, or simply reflects the subsequent farming in the medieval and modern periods. Samples taken from beneath basal slabs show similar pollen frequencies for Graminae, Cruciferae and Compositae to those from above such slabs, indicating that some of the evidence for disturbed ground predates the agriculture represented by the much later plough mark evidence.

DISCUSSION

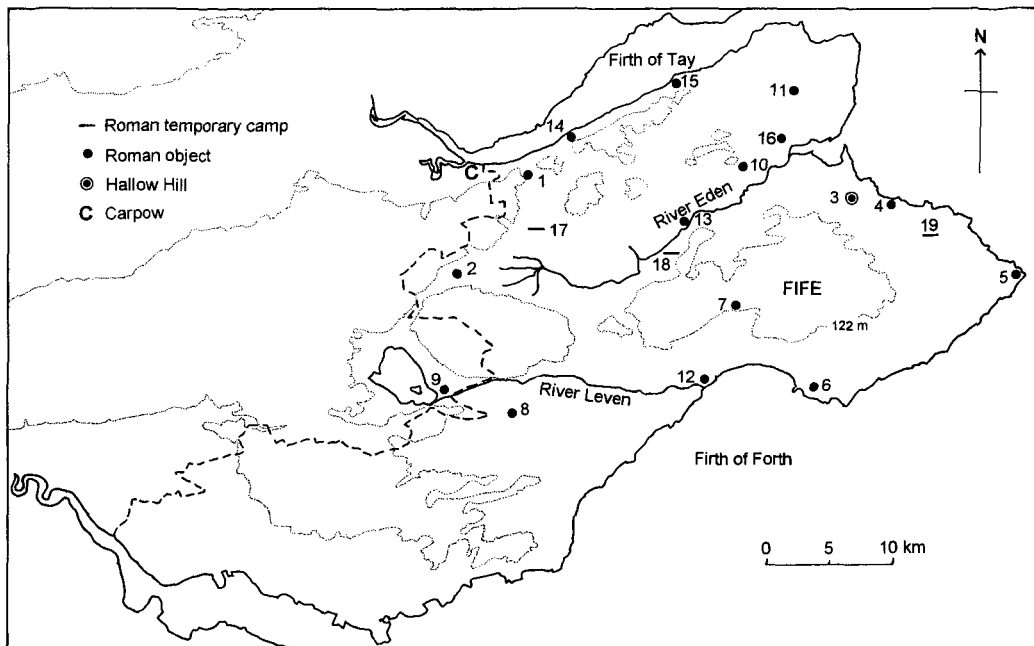
Edwina Proudfoot & Christopher Aliaga-Kelly

THE ROMAN CONTEXT OF THE GRAVE GOODS

The two prestigious native graves with Roman artefacts at the Hallow Hill lie in an area of little known Roman activity in Fife. To date only three temporary camps have been found (Auchtermuchty, NO 242 118; Bonnytown, NO 546 126; Edenwood, NO 353 117; none close to the Hallow Hill), although the existence of a fort also is entirely probable (illus 26). At present, however, the fort at Carpow, Perthshire (NO 208 179), just outside the Fife boundary, is the only known site in the vicinity that could have provided a political and cultural context for the Roman presence in the area.

Roman artefacts have been found in a number of non-Roman burials (White 1988), but they are not a normal component of the long cist cemeteries of Scotland. Breeze & Ritchie (1980) discussed some of these burials, which are in a different class from casual finds of Roman artefacts from native sites, such as those in the list compiled by Robertson (1970). The Roman artefacts from the Hallow Hill are unusual in quantity, quality and range, and are unique in a Scottish context, whether Roman or native. The seal box formerly held a small seal and can be classed as 'official', while the disc brooch and the snake-head bracelet, like the ring, are valuable personal ornaments.

The contexts of seal boxes, although plentiful at forts and other Roman sites, are not well documented. Previously none has been found in a native context or in a child's grave in Scotland. An oval Roman seal box of second or third century date from Abingdon 59, Oxford (White 1988, 146), was found with disc brooches and other objects and fragments in a fifth or early sixth century child's grave. Several bases were found in the fort at Newstead (Curle 1911, 308), where they were in courtyards, presumably dropped when the boxes they originally sealed were opened. Anderson (1901b Plate A, 3) illustrates a fine seal box lid from Camelon, with florets similar to those from the Hallow Hill, although the overall design differs considerably. The seal box design layout is comparable with one from Cramond and with a brooch from the same site (Maxwell 1974, 194, fig 14, nos



ILLUS 26 Roman objects and temporary camps in Fife; the fort at Carpow

4 & 1). However, the seal box from the Hallow Hill is not precisely paralleled by any of the Scottish examples. A closely comparable example comes from Saalburg on the Rhine (Jacobi 1924, pl LXXVII, no 8), dated to between the first and third centuries.

A disc brooch from Newstead (Curle 1911, pl LXXXIX, 14), found in the courtyard of Block XIII, has a design like the one from the Hallow Hill, but apparently without the linked cups. It is of a bright blue enamel with red in the cups. Another disc brooch, very similar to the one from the Hallow Hill, was found at Manchester (Bruton 1909, pls 89 & 90. Mackreth (1973, no 27) illustrates another of similar form and size, and he summarizes the dating evidence as largely second century, continuing into the third century, although at that date they seem more likely to be imported than made in Britain.

The Hallow Hill bracelet fragment is of particular importance, since it is of silver, one of a small class of artefacts most commonly made of gold or silver, and therefore clearly of high status. They are of second and third century date, such as one from Castlethorpe, Bucks (British Museum 1951, 13 fig 6) and another from Verulamium (Wheeler & Wheeler, 1936, 210, no 44). Cool (pers comm) considers the Castlethorpe bracelets to be comparable with finger rings, such as the one from Backworth, Northumberland (British Museum, 1951). No similar bracelets have been recorded in Scotland.

The enamelled ring trapped between the cover-stone and the edge of Cist 54/upper, lacking all but a trace of its enamelled bezel, could have been worn when broken, since crushed small fragments of the broken hoop were also found. Comparisons are few because only the shape of the bezel is available to compare. However, in form it resembles one from Vindolanda (Birley 1977, pl VIII). An iron ring with a sardonyx intaglio, found on Arthur's Seat, Edinburgh, is of the same form, but differs in detail (Stevenson 1970, 293, pl 25). Because so little detail survives, the Hallow Hill ring

is difficult to date, but it is probably from the second or the third century (illus 21). If the ring was being worn at the time of its loss in Cist 54, as the evidence suggests, it extends significantly the importance of the collection of items from this cist.

Comparable in importance with the ring is the Samian figured bowl, of which a tiny fragment became incorporated in the soil covering the child in Cist 54/lower. Although worn on the surface so that the design is not recognisable, the figured Samian fragment had freshly broken edges. This probably indicates that at least part of the bowl was in use at the time of the burial, when it was broken, and the tiny fragment became incorporated among the soil over the burial deposit. Fragments of figured Samian vases are known from a number of sites in Scotland, as illustrated by Curle (1932, 286).

The lost glass cup and the fragments of a second, both small, fragile, high quality drinking vessels, and the sherd of figured Samian ware support the suggestion that a person of wealth and importance in the Roman world formerly owned the artefacts. The glass cup was described as similar to that found at Airlie (Davidson 1886), and now in the National Museum, Edinburgh. Another was found at Westray, Orkney (Curle 1932, no 88), although only the base survives, also in the National Museum. Drinking glasses of this kind are of very thin, high quality glass, described as being for wine, and are dated to the third or fourth century, by comparison with Danish examples (Curle 1932, 292).

It is probable that the children buried with their favourite possessions in these two cists were of high rank, the artefacts being a sign of this. An incisor from a domestic pig was found on the base of Cist 51B, probably overlooked in the original excavations. A minute fragment of bronze is helpful in confirming that this was a burial in which artefacts had been placed, and supports the equation of cist 1861/5 with Cist 51B. The child in Cist 51B was also accompanied by a fragment of jet bracelet, of a kind found on almost all native sites from the late pre-Roman Iron Age.

The native enamelled glass bangle, based on its description only, appears to have been of an uncommon type, dateable only in general terms to between the first and third centuries (Kilbride-Jones 1938; Stevenson 1976). Superficially, therefore, it appears to be of a similar date to the Roman artefacts, but it could be later. A fragment of a knife with a bone handle, a stone disc and a 'stone resembling a whetstone' found on the Hallow Hill may have been from Cist 1861/5 (Cist 51B), but there is no confirmation of this and they are therefore omitted from the discussion.

The pink, oval pebble stained with a pigment, now brown in colour, could be a painted pebble, such as those found in Pictish contexts in the north (Ritchie 1972; Anderson 1901a, 112), although the Hallow Hill design is crude by comparison and may belong to a different tradition. Although Ritchie (1972) considers that painted pebbles are northern Pictish products, it is possible that they were more widespread and that many have gone undetected, especially if small. Moreover, there has been much less excavation of possible Pictish sites outside the north of Scotland. Thus, while the painted pebble from the Hallow Hill has no clear associations with the designs on known pebbles or other Pictish artefacts, either locally or elsewhere, the possibility of a Pictish context should be considered.

The child's 'purse' in Cist 54/lower also contained several pebbles, a quartz crystal or bead and seven cattle teeth, all possibly from the same animal. This collection could be a child's treasures, and is comparable with that from Cist 1861/5 (Cist 51B), comparable, perhaps, with the artefacts and natural objects buried or hidden at Monquhitter, Aberdeen (Anderson, 1902, 675; Stevenson 1967, 143). The evidence for the dating and cultural context of Cist 51B and Cist 54 points to native use of Roman artefacts, long after these objects would have been in use in their normal context. This is a phenomenon well documented in Anglo-Saxon graves in England.

Roman artefacts were favoured by the Anglo-Saxons, sometimes as heirlooms, but were also

collected because they were colourful and attractive. Some items were more popular than others, as White (1988) has shown. Examples of both Roman objects and copies of local manufacture have been found frequently in Anglo-Saxon graves, where they were in positions reflecting the clothing worn at the time of the burial. 'Bag' collections are also known (White 1988, 150). A brooch from Long Whittenham (White 1988, fig 17, 2) resembles that from the Hallow Hill. Roman finger rings have been found in Anglo-Saxon graves, sometimes as trinkets worn as part of a necklace and found on the chest, as at Abingdon 106 (White 1988, 102). Another illustrated by White (1988, fig 51, 2) from Little Wilbraham, is of a form similar to that from the Hallow Hill. Since associations and contexts are lacking for many of the finds from Anglo-Saxon graves their dating is problematic, but there seems to be a consensus that a late (perhaps fifth century) date, rather than an earlier one, may be appropriate for certain brooches and their derivatives. Roman finger rings are less frequent finds and have not been discussed in such detail, but they do occur in graves dating from the fifth century. Perhaps the two graves from the Hallow Hill should be seen as a late reuse of Roman objects.

The enamelled ring, the seal box and the snake head bracelet date from between the first and the third centuries, while the disc-plate brooch could be slightly later, as are the glass cups. The dates for the Roman artefacts are considerably earlier than the radiocarbon dates for some of the Hallow Hill burials. The date for the Cist 51 A/B/C complex falls comfortably within the main range of seventh-century dates for the cemetery (Table 2) and this may confirm a considerable time-lag between the acquisition of the objects and their burial as heirlooms. It has been suggested that Cist 54 could be the foundation grave for the long cist cemetery because of its central location within the site, but there is no radiocarbon date or other evidence to support the suggestion. Cist 54 is not a long cist and it is not oriented; nor is Cist 51B, although in form it resembles a massive long cist. The two burials are probably not dissimilar in date.

It is possible that the artefacts from the Hallow Hill have a more complex history as heirlooms or collectanea than can readily be understood in the present state of our knowledge of relationships between native Picts and the Romans both during and after the Roman occupation of Scotland. As Robertson (1970, 200) observed, following Curle (1932), the Roman artefacts from native sites normally are of particularly high quality, including fine bronze vessels, Samian ware and many high-quality artefacts; the Hallow Hill artefacts fit this pattern. Relatively few mundane artefacts of Roman origin are known from native sites.

As the relationship between Roman and native in the second and third centuries has not been explored in terms of trading, cultural and generally peaceful levels of contact at major native sites, the items from the Hallow Hill could be entirely misleading. Fine objects would be readily recognized and collected, particularly during the 18th and 19th-centuries, while the small and fragmentary items representing more common-place contacts could have been lost or ignored. Certainly large quantities of known Roman material have been lost, such as those from the Hallow Hill Cist 1861/5 and from other sites, such as the souterrains at Pitcur, Tealing and West Grange of Conan, Angus, quoted in Curle (1932, 387, nos 68-71).

Sixteen sites in east Fife, mainly coastal, have produced Roman objects, although none was found in or near any of the three temporary camps (illus 26 and Appendix 1). Perhaps the proximity of the Severan fort at Carpow is significant, since it provides a context for Roman activity in east Fife, and particularly for coastal contact.

If none of the Roman finds in east Fife can be shown to have derived immediately from a Roman site, neither could they have come from native sites, apart from Clatchard Craig, and the Kinkell cave and Constantine's cave. With the exception of the artefacts from the Hallow Hill, the remainder all appear to be casual losses. They are mainly objects of high status and of dates similar to the artefacts from the Hallow Hill. Only the Portmoak 'hoard' could be from a burial, while the

coin hoards, one on the coast at Leven and the others (nos 11, 10) on high ground in the north of the area, suggest careful hiding of personal wealth or perhaps 'pay'. The fragment of silver spoon in the Norries Law hoard (no 7) is residual, among finds of later date, and in this context perhaps is comparable with the finds from the Hallow Hill. Samian sherds were found at Clatchard Craig, Elie, Constantine's Cave and Kinkell Cave; they were associated with wine drinking at the latter two sites, where amphorae handles and a bronze jug handle were also found. The two caves were excavated by Wace & Jehu (1915), whose reports refer to native ironworking as well as to Roman finds at Constantine's Cave. At both caves there was also evidence of Early Christianity, particularly of simple crosses, although the relationship of the phases in these caves is not known (Wace & Jehu 1915, Fig 3) and there may not have been continuity. However, this perhaps provides a context for the arrival of Christianity in the area, and particularly at the Hallow Hill.

THE EARLY CHRISTIAN CONTEXT OF HALLOW HILL

Long cist cemeteries have been seen as burial grounds of the earliest Christian communities, when it was important to be buried beside other Christians, particularly before the existence of a building became integral to religious practice. Only later were Christian burials placed near churches. Other traits that suggest long cist cemeteries should be identified as Early Christian include lack of grave goods, orientation, and large groups of burials, often in rows. No other social groups in Scotland have been found to bury in rows. Sites associated with Early Christian inscribed stones, such as Yarrow, Selkirkshire (RCAHMS 1957, 111–3, no 174) and the Catstane (Cowie 1978, 169–71) confirm the attribution.

Because of its significance, the place name evidence was considered in the first part of this paper, suggesting that the Hallow Hill could be identified as *Eglesnamin*, a site which may have developed close to an existing sanctuary, or *nemeton*. The putative building (F92) may be the surviving evidence for this sanctuary or, alternatively, the *egles-* around which the long cist cemetery developed.

Moreover, the site of *Eglesnamin* was different from other properties in the vicinity belonging later to the Priory of St Andrews, since it was not a farm, but evidently referred to an earlier church site. The Church authorities would have been aware of the significance of the name, even if they knew little else about a religious site that originated at least in the early sixth century and had been abandoned by the end of the ninth century.

The Hallow Hill would have been an open site, not a clearing in woodland, since the pollen evidence from the site indicates open grassland or arable with light woodland, occurring along the two burns. Although the pollen samples were not suitable for chronological interpretation, they were, however, so similar that it was considered that the pollen spectra were representative of a long history as open ground (Cundill, above).

Archaeological evidence for a *nemeton* is lacking, apart from the pits or possible graves F20 (illus 19) and F30, which were different in shape, contents and date from the long cists. They could have been associated with some kind of early ritual or religious activity. Pit F20 contained black soil with charcoal flecks, and the only surviving remains proved to be of sheep and pig bones. In addition, Pit F20 occupies a significant location on the summit of the Hallow Hill, and it has an early date of some 2000 years BP (GU-1855, Table 2). Pit F30 is smaller, without recognisable contents in its fine black soil fill, but it too differs from all the long cists and post-holes.

Strong circumstantial evidence exists for assigning the structural traces of building F92 to an early date, whether as the shrine or as the *egles*. Structure F92 occupies a prominent hilltop location, and does appear to be part of the cemetery complex. The existence of a substantial structure, the

associated long cists and the place name provide a context for Early Christianity in the area, perhaps serving the first Christians at *Cennrighmonaid*, before the focus moved to new buildings on the 'head of the king's ridge', at present-day St Andrews.

SPATIAL ORGANIZATION

The road

The relationship of long cists to other site elements, such as earlier graves, structures or roadways is known at few sites. One example of a road at Old Melrose (Thomas 1971, Fig 11) leads across the vallum into the interior, but only for a short distance, and its relationship with other elements is unknown. At Whithorn (Hill 1991, 10) a track through the cemetery from an early date was generally respected by the lintel graves in Phase 3A, while at Iona the early medieval paved roadway, the 'Bothar na Marbh', passed through the secondary burial ground at Reilig Odhrain and led towards the early graves which probably represent the heart of the primary monastic settlement (O'Sullivan 1994, illus 1; Barber 1981, fig 5). At Cannington, Somerset a track leads to a summit slab-lined grave, which was a focus within a large cemetery (Reece 1977, 57). It is possible, in fact, that the cemeteries were organised in relation to routes, perhaps copying those outside Roman forts, as at Petty Knowes, Rochester, Northumberland (Chalton & Michison 1984). Indeed, these cemeteries may have influenced the organization of burial in long cist cemeteries. (Halliday S, pers comm). Regular organization of long cists is present in other cemeteries, for example at Old Haaks, Crail, Fife (McCulloch 1860, 505).

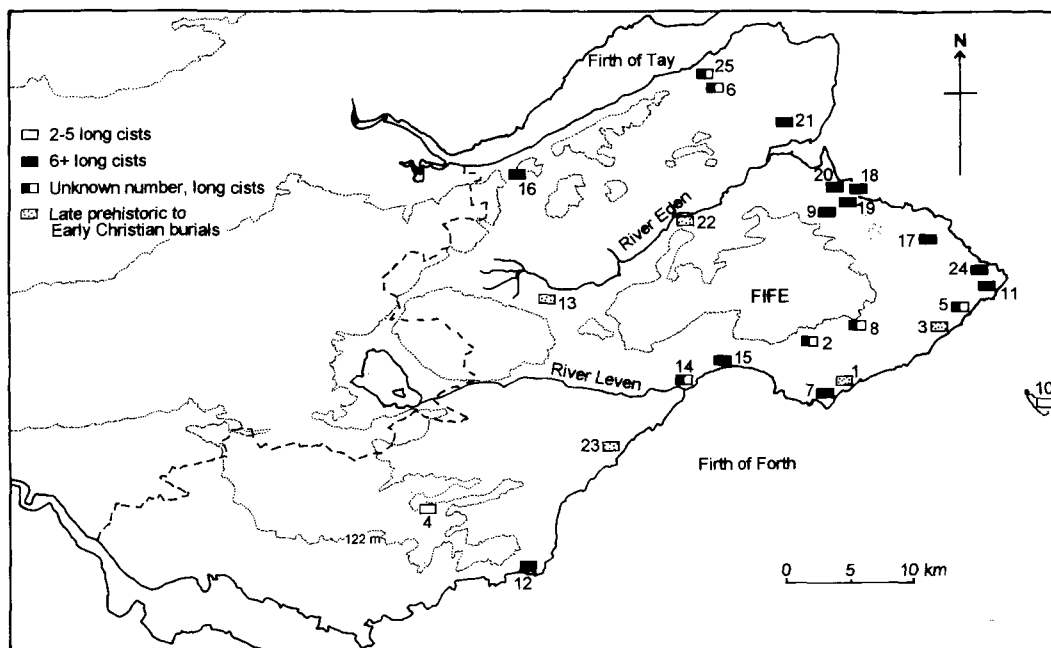
Although some of the long cist cemeteries are at remote locations, all were near routes; some were sea routes, (especially on the west coast), some have remained as trackways, while others have become main roads. This link evidently provided the association between the long cist cemetery and a living community. The arrival of Christianity to any community heralded considerable social changes, which are poorly understood in relation to the physical traces they have left, even at enclosed chapel sites.

Grave clusters

Another form of clustering or grouping which is useful to the analysis of long cist cemeteries is the frequent incidence of grave clusters or groups on excavated sites. At the Hallow Hill the dug graves were nearly all on the summit, while all but a few of the long cists were to the north-east. At Parkburn, Lasswade, clusters and 'strings' of graves were visible, along with fragments of walling which could have marked divisions (Henshall 1956, fig 3). The cists at Hanley, Gogar Burn, near Edinburgh, were in three groups, of 24, 15 and six (*New Stat Acc*, 1, 1845, 277). These factors seem to reflect deliberate organization of burials, possibly with markers or mounds to indicate previous interments. There may have been groupings, by families or communities, to a particular portion of ground. Related burials could have been clustered or in short rows, as can be identified at the Hallow Hill. The new techniques of DNA testing could be used to identify related groups, and as the Hallow Hill skeletons are still available this testing may be possible at a future date.

CEMETERY AND COMMUNITY

The long cist cemeteries of Angus, east Fife and Lothian, with isolated examples in the Border counties and in western and north Scotland, provide strong evidence of social organisation, whether



ILLUS 27 Long cists in Fife

they were used by the inhabitants of one settlement over a long period or by several settlements over a shorter period. The Fife cemeteries are almost exclusively coastal and, contrary to the situation in Lothian, for example, they are not distributed one per parish. For instance, there are four in St Andrews and St Leonards, and two in Crail (illus 27). Henshall's (1956, 260) estimate of the relationship of cemetery to burials per family through time deals with large open burial grounds and not with several small cemeteries in close proximity. Few studies of site duration and the nature of local communities have been carried out, although Wordsworth (1982, 219) estimated that the 500 burials from St Mary of the Rock on Kirkcubright, St Andrews, reflected one annual burial over a period of 500 years. Certainly, the radiocarbon dates for the site (Close-Brooks 1984, 109) span this long period, but there are other factors to consider, such as the completeness of the evidence, the date of foundation, the size of the community, years of normal or unusual numbers of deaths and whether the burials might have included outsiders, such as later pilgrims or other, unrelated earlier or later burials.

The existence within the St Andrews precinct of several long cist cemeteries (illus 27) at St Leonard's and St Peter's, with the Hallow Hill only a mile westwards, may reflect population density, settlement, duration, rites of burial, or social position. The Hallow Hill cemetery appears to be earlier than St Mary of the Rock, where there were relatively few long cists among many other burials. It is possible that the Hallow Hill was the early burial place of the majority of the local population, before the development of the Priory complex, with the long cists at St Peter's Chapel and St Leonard's College being of the same date, but serving a different section of the population.

By no means were all long cists of Early Christian date and many occur among short cists. This can be seen as evidence for the development of long cist cemeteries on long-established sites of religious importance, showing that the practice of extended interments was at least of pre-Roman

Iron Age origin (Stevenson 1952, 108; O'Brien 1992, 130). Some long cists are known to be of Bronze Age date (Welfare 1974, 7-8), as they also were in Ireland (O'Brien 1992, 130-7), and aerial photographs show possible long cist cemeteries or oriented dug-graves among prehistoric sites, for example at Forteviot, Perthshire (Driscoll 1991, fig 3.56), and Trohoughton, Dumfries (Simpson & Scott-Elliott, 1964, 125-34). Whimster (1981.1, 172-4) discusses a small number from Scotland, while Welfare (1974) compiled a valuable list and discussion of burials from the late prehistoric period to the post-Roman centuries; it is from this period that long cist cemeteries and a site such as the Hallow Hill could have emerged.

Graves with sides of drystone walling from East Lothian and Berwickshire are known only as isolated examples. These include the massive example from Lochend, Dunbar (Longworth *et al* 1966), with 21 burials, while others are smaller, with single inhumations (Halliday & Ritchie 1982). 'Built graves' are known from long cist cemeteries, such as the Catstane, Midlothian, and Burnhouse, West Lothian (Cowie 1978; Hutchison 1866, 187).

Outside the long cist cemetery areas, platform cairns, both round and square examples, are often associated with large cists, particularly in northern and eastern Scotland, as at Ackergill, Caithness (Edwards 1926, 179) or Dunrobin, Sutherland (Close-Brooks 1980). It is possible that similar barrows formerly existed at Aberlemno, Angus, where Jervise (1857a, 192) recorded cists under a cairn (whether they were long cists is not recorded). Jervise (1857b, 245) also refers to cist graves at Meigle and at St Orland's Stone, Glamis. Platform cairns are usually associated with the Picts, chiefly occurring north of the Forth (Close-Brooks 1984, fig 5.10), but two groups have been identified on the shore north of Gullane, East Lothian (Richardson & Richardson 1902; Ewart & Curle 1908, illus 2). A similar group, which included long cists, was excavated by Greig at Lundin Links (Close-Brooks 1984, 104, fig 5.12) and it is possible, therefore, that some long cists had been covered by such low cairns, and that some, perhaps early, graves in long cist cemeteries could have been marked in this way, as may also have been the case at the Hallow Hill.

Some long cist cemeteries were sited within apparently deserted defended settlements, re-used as cemetery sites, as at Castle Dykes, Berwickshire (*New Stat Acc*, 2, 1845, 303). It is possible that the enclosures could have been deliberately constructed, not for defence, but for gatherings, religious activities or for burials. Similarly, the dug-grave cemetery at Trohoughton, Dumfriesshire (Simpson & Scott-Elliott 1964), within an Iron Age defended site, has been identified as of Early Christian date and compared with long cist cemeteries.

DATE

Burials of possibly post-Roman date at Cairnpapple, West Lothian (Piggott 1948, 100), and Millfield, Northumberland (Miket 1980, 295), and a single example dated to 1190 ± 60 BP at North Mains, Strathallan, Perthshire (Barclay 1983, 145-9), suggest possible long continuity at some sites, while continuity, or reuse of a site, can be seen on an aerial photograph of the burial ground of Kinneil Church, West Lothian, which is possibly of Early Christian origin and is sited within a ditched enclosure (Aliaga-Kelly 1986, 445, Fig 17). The assumption that long cist cemeteries were of Christian origin is not entirely supported by the archaeological evidence, and radiocarbon dates confirm some long cists as pre-Christian. For example, a burial in the small cemetery outside the defended settlement at Broxmouth, East Lothian has been dated to 2020 ± 65 BP (Close-Brooks 1984, 108). At Lundin Links, Fife, two long cists have radiocarbon dates of 1630 ± 95 BP and 1090 ± 100 BP, while burials under cairns at the same site have been dated to 2340 ± 110 BP and 1360 ± 60 BP (Close-Brooks 1984, 109). Amongst the earliest dates for long cist burials from cemeteries is one of 1595 ± 85 BP from the Catstane cemetery (Close-Brooks 1984, 108) and one of 1490 ± 55 BP from Cist 107B at the

Hallow Hill (Table 2). However, it is the size and organisation of long cist cemeteries that set them apart from burials of earlier date.

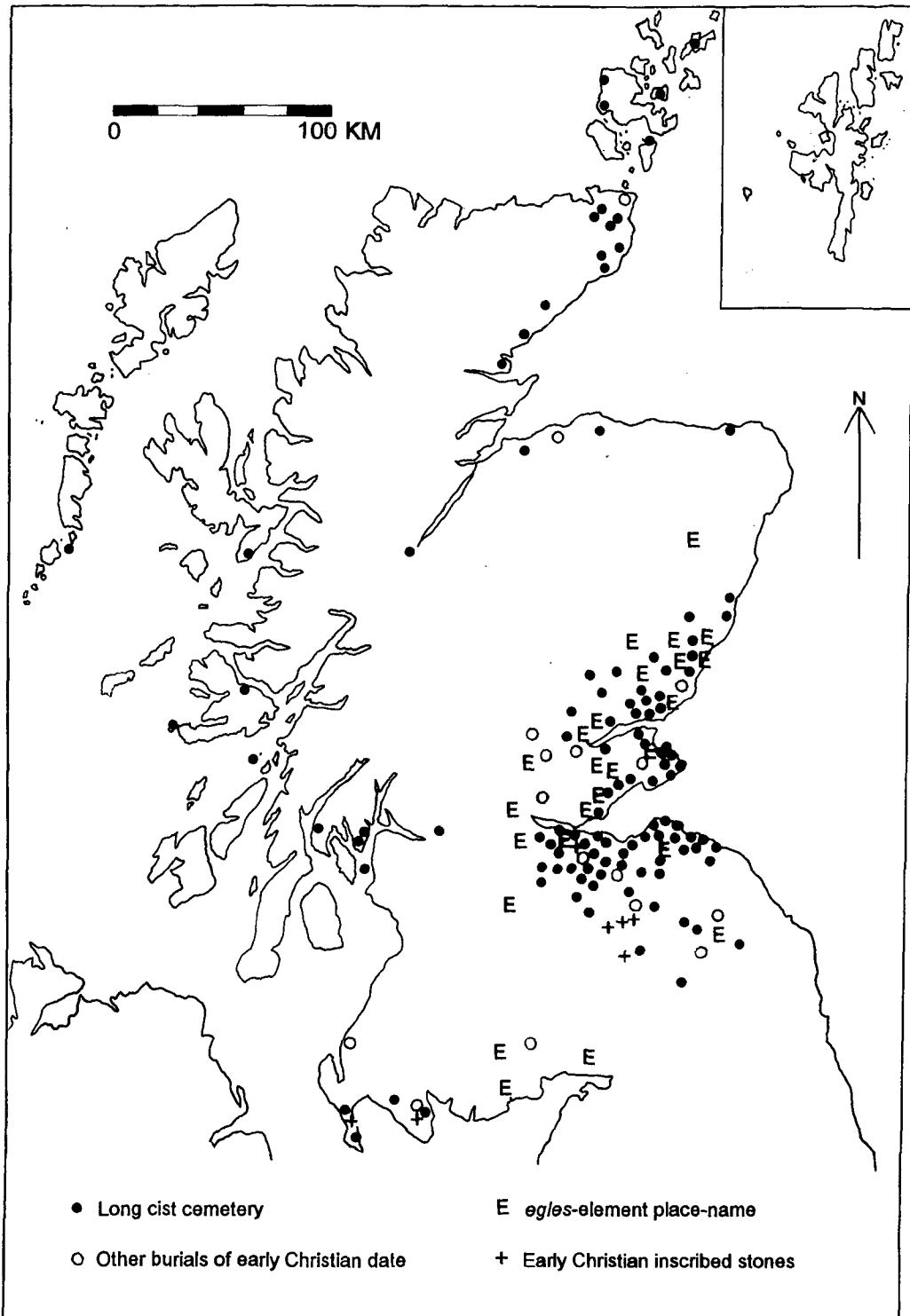
The radiocarbon dates suggest that the Hallow Hill cemetery had been abandoned by the ninth century, as were the Catstane and Lundin Links (Close-Brooks 1984, 108–9), and it is probable that long cist cemeteries generally went out of use at that time. Henshall (1956, 275) has referred to the apparent lack of any connection between the siting of the long cist cemeteries and that of the later parish churches and burial grounds. The developing idea of burial associated with a church, due to ecclesiastical influence, may have led to the abandonment of long cist cemeteries. For example, under the influence of the Northumbrian Church and its diocesan structure, new sites for burial and religious activity may have been important. Such moves would have had to wait until the early Church became sufficiently powerful to stamp its authority over a wide area.

The eighth century was also the time of the so-called ‘Anglo-Saxon shuffle’ in England, ‘the relocation of settlements within a defined land unit . . . with the reorganization of such territorial units, some of whose new boundaries later became fossilised as parish boundaries’ (Hodges 1989, 63–4). Although evidence for settlement shift in Scotland and northern Britain has not been identified on this scale, the ninth century was a time of Scottish and Viking raiding, which would have led to disruption of economic and religious activity. If the factors underlying the so-called ‘Anglo-Saxon shuffle’ were present in Scotland, they could have exacerbated changes or population movement. Alcock (1981a, 138) has pointed out that recorded royal sites of post-Roman and early medieval date in northern Britain tended to be on craggy, rocky sites where there was no evidence of earlier occupation, like Dumbarton Rock and Dunadd, Argyll, and ‘in that sense, they seem to prefigure a new order’.

CEMETERIES IN A TERRITORIAL LANDSCAPE

The distribution of long cist cemeteries, mainly in Angus, Strathearn, east Fife and Lothian, seems to reflect the best agricultural land; the Lammermuir Hills, along with the river Avon in Lothian and the rivers Tay, Isla and South Esk in Angus, appear to mark the limits of the greatest density of long cist cemeteries (illus 28). Long cist cemeteries were possibly an aspect of the distinctive culture of the peoples within these areas. For example, the concentration of long cist cemeteries in Angus contrasts with their absence in the intensively cultivated lands of Perthshire and the Mearns, where there are many round and square barrows. In fact, the distribution is complementary.

Although long cist cemeteries have been interpreted as organized burial for related or groups of settlements, reflecting other possible associations, there are clear limitations to the evidence. It is unlikely that all long cist cemeteries have been discovered, and the possibility should be taken into account that others are not easily recognizable because they developed into parish burial grounds around church sites, as at Leuchars, Fife, where 34 long cists were discovered at the site of St Bonoc’s chapel, west of the later Norman parish church (*New Stat Acc* 9, 1845, 72; Reid 1909). While the cemetery at Parkburn lay within the parish of Lasswade, of considerable extent and importance in the later medieval period (Cowan 1967, 138), available evidence does not directly connect the later parish with the settlements associated with the long cist cemetery. Only on sites such as Sprouston, Roxburghshire and Philiphaugh, Selkirkshire, is there an explicit association between estate centres and large burial grounds (Smith 1991, 275–82). Similarly, it could be assumed that the long cists revealed north of Lauderdale House, Dunbar (Perry 1993) were associated with the Anglo-Saxon predecessor of Dunbar Castle (Holdsworth 1991) immediately to the north. The long cist cemeteries on the River Almond are certainly distributed by parish, and this is generally the case from the



ILLUS 28 *Egles*- place names and long cist cemeteries in Scotland

Border counties to Angus, although long cist cemeteries are not known from all parishes and several parishes have more than one cemetery.

Such a model of development envisages settlements becoming associated within the territorial arrangement known as the 'multiple estate', a grouping of settlements or pieces of land and related boundaries rather than a single, well-defined piece of land. The evidence for this form of land organization in northern Britain has been studied by Kapelle (1979, 50–85) and in Scotland by Barrow (1973, 7–68). The settlements within such an arrangement would have had a central or common meeting place which may also have become a focus for religious or sepulchral activity. Thus, the arrival of Christianity might not have had a significant immediate impact, simply fitting into the already existing framework. This is indicated by the *egles*-element place-names in Scotland which appear to indicate places where Christian religious activities took place (Barrow 1983), possibly at locations of earlier religious importance. However, territorial arrangements could develop, dependent on changes in population, lordship or ownership and cultural influences: the sites of burial and religious activities may have shifted in tandem with these changes. Thus, a cemetery may ultimately have been abandoned for a new site, as in the case of the Hallow Hill.

The crystallization of boundaries and associations between settlements may have been influenced by the granting of land to Anglian, Pictish and Scottish religious establishments, as was the case when the abbeys and monasteries were established from the 12th century. This would have contributed to the concept of these lands or groups of settlements as distinct units, while there could also have been a development of lordly power, with chapels or places of worship and burial increasingly being associated with estates rather than with groups of settlements. For example, the *Cursus Apri* at St Andrews clearly existed from an early date, since there is the grant to the Pictish Church in the 8th century and Alexander I considered it of sufficient importance to grant it to the projected priory before Bishop Robert's confirmation (Lyon 1838, 1,61).

In her study of the Lothians, east Fife and Angus, Macinnes (1983, 23–4) commented on the good evidence for economic and probable social and settlement change during and after the third century AD, (see also Aliaga-Kelly 1986, 156–9). Fowler's (1964, 134) study of metalwork in northern Britain identified a resurgent native culture in the same period, owing little to centuries of Roman influence. The late and sub-Roman period, from the third to the sixth centuries, was the time when the 'kingdoms' of Rheged, Strathclyde and Gododdin came into being. The economic and political developments which led to such groupings may also have given rise to a form of centralisation of religious and sepulchral arrangements at a local level.

The anonymous author of the 12th-century foundation legend of St Andrews referred to 'Kinrigmaid', the former place-name, as an 'urbs' (Anderson 1976, 1). The word 'urbs' was used in some Anglian Northumbrian sources to describe a fortified site with economic or political roles in relation to dependent territory (Campbell 1979, 42, 50). The Hallow Hill lies within the *Cursus Apri* (Boar's Chase), just such a dependent territory, situated at some distance from the fortified stronghold at *Cennrigmaid*, and within what, from the 12th century, became the Priory Acres, also known to be a royal estate and given to the church at an early date (illus 7).

The predecessor of Dunbar Castle, an Anglian settlement excavated between 1988 and 1990 (Holdsworth 1991), was described as 'urbs regis' by Eddius Stephanus (Colgrave 1927, 38) in his *Life of Bishop Wilfrid*, written in the seventh century. The site of the 'urbs' became the seat of the Earl of Dunbar and March, whose court was recorded in 1327 at Whittinghame (Chalmers 1810, 2, 538), not far from Luggate, the location of both a long cist cemetery of 'upward of 200 burials' (Norman 1884, 463) and the chapel dedicated to St Oswald (Mackinlay 1914, 235). This may have been an example of what Driscoll (1991, 107) has described as 'a meeting place . . . preferably located near areas of ancient ritual activity'. The parish church of Whittinghame was originally a

chapel of the parish church of Dunbar (Cowan 1967, 80), thus providing further evidence of association, as parochial arrangements probably reflected seigneurial organisation.

In the charter of Duncan II to the See of Durham in 1904, listing the lands of Tynninghame, East Lothian, one of the places listed was 'Cnolle' (Duncan 1958, 119), identifiable as Knowes, where ploughing of 'The Bishop's Field', south of the farm of Knowes, revealed 'a number of stone coffins computed to exceed 500 in number' (Norman 1884, 464). This long cist cemetery appears to have been associated with a territorial arrangement of related settlements, centred on Tynninghame.

CONCLUSIONS

In spite of differences in the quality of the available evidence, the various radiocarbon dates and the excavated long cist cemeteries all indicate origins in pre-Christian or late prehistoric times, with the bulk of the burials taking place in the sixth to ninth century and changes in site use and burial developing in the eighth century. Variations in size, burial ritual, development and continued site use or abandonment were probably affected by three sets of factors: the date of foundation and duration of site use; the cultural background and influences during use; and the specific religious influence and organisation at foundation and after. The association between settlement organization and burial, as in the association with parishes, is not unexpected. Just as the concentrations of long cist cemeteries around sites such as *Cennrigmonaid*/St Andrews further illustrates their importance between the fifth and 10th centuries AD, so the small, isolated cemeteries of less than six burials could indicate small, isolated Christian settlements, or communities outwith formal religious organization.

If the long cist cemeteries were the product of the Ninianic conversion of southern Scotland and the 'southern Picts' (Thomas 1980, 275-94), and its impact upon the pre-existing burial rituals and tendencies to local nucleation, the Columban and Anglian Northumbrian influence can perhaps be perceived in the subsequent development of churches and chapels in relationship to long cist cemeteries.

ARCHIVE

A project archive, consisting of all field records, photographs, drafts, specialists reports and post-excavation concordances has been deposited with the National Monuments Record of Scotland (RCAHMS). All artefacts and skeletal material have been deposited with East Fife Museums Service, as allocated by the Finds Disposal Panel, in accordance with Scots Law.

ACKNOWLEDGEMENTS

Thanks are due to Mr and Mrs Fullerton, former owners of 12 Hallow Hill, for their support; to the former Manpower Services Commission; to Tayside and Fife Archaeological Committee; Geography and Finance Departments, University of St Andrews; the former Fife Regional Council's Roads Department, for surveying the site; to Dundee Museum for conservation assistance; and to the National Monuments Record of Scotland, Dr Ronald Cant, Mr R Smart, Professor Donald Bullough and Dr R McGregor, the late Professor Stuart Piggott and Professor Leslie Alcock all offered encouragement, while Dr Marjorie Anderson and Professor Geoffrey Barrow generously shared their own research. Thanks are due to the site assistants, Angela Parker, Peter Corser, Deirdre O'Sullivan, Caroline George, and the late Denny Edwards.

Equipment was loaned by the then Scottish Development Department Ancient Monuments

Branch, now Historic Scotland, which also provided funding for post-excavation and for the preparation of this report. Thanks are due to Olwyn Owen of Historic Scotland for her encouragement in the final stages of preparation, to Melissa Seddon for editorial assistance and Margaret Fairbairn for her typing.

APPENDIX 1

OBJECTS OF ROMAN ORIGIN FOUND IN FIFE

This list includes all known objects (other than casual coin finds) and sites of Roman origin from Fife, to 1995, (illus 26).

No	Site Name	Parish	Artefact	Date (century)	Reference
1	Clatchard Craig	Abdie	Samian sherd 'Déchellette 72'	2-3	Hartley 1986, 155
2	Merlsford	Strathmiglo	Brooch 'Langton Down'	1	Robertson 1970, 222, Tab 9
3a	Hallow Hill Burial 51B	St Andrew & St Leonard	Glass Bowl and fragment of second (lost)	3-4	Stuart 1867, 2, lix. Walker 1861
3b	Hallow Hill Burial 54		Ring, Brooch, Seal Box, Snake head bracelet, Samian sherd	late 2-4	Proudfoot 1991a, 136-42
4	Kinkell Cave	St Andrew & St Leonard	Bronze jug handle, Samian sherd, Coarse ware sherds	2?	Robertson 1970, Tab 5
5	Constantine's Cave	Craik	Glass bottle, Amphora sherds, stamped handle, Samian sherd	1-2	Robertson 1970, Tab 5
6	St Ford Links	Elie	Late or imitation Samian sherd	2-3	Robertson 1970, Tab 5
7	Norrie's Law	Largo	Silver spoon fragment	4	Stevenson 1956b, 229
8	Kinglassie (lost)	Kinglassie	Bronze mount with enamel decoration (lost)?		Way 1859, 63
9	Portmoak	Portmoak	Hoard - 'Iron sword', 'Silver mount	3	Lindsay 1854, 60
10	Pitcullo	Leuchars	Coin hoard	3	Robertson 1957, 246
11	Craigiehill (lost)	Leuchars	Coin hoard, 'earthen jar'	3	MacDonald 1918, 267
12	Leven (lost)	Leven	Coin hoard? 'Bronze vessel'	1?	MacDonald 1918, 265-6
13	Cupar	Cupar	Headstud brooch	1-2	E Fife Museum Service
14	Ballinbriech Castle	Flisk	Button-and-loop fastener, tankard handle frag 1-2E Fife Museum Service		
15	Balmerino	Balmerino	? Headstud brooch fragment	1-2	E Fife Museum Service
16	Pusk Farm	Leuchars	Headstud brooch, bar brooch, 'Wroxeter type'	1-2	E Fife Museum Service

APPENDIX 2

LONG CIST CEMETERIES IN FIFE (illus 27)

No	Site Name	Parish	I	II	III	IV	Reference
1	Ardross	Elie				*	Errington, Errington & Proudfoot 1983
2	Balcarres Lodge	Kilconquar		*			RCAHMS 1933,165, No 315
3	Caipie Caves	Kilrenny				*	Stuart 1867 2, lxxxix-xc
4	Calvins Knowe	Auchtertool					<i>ONB Fifeshire</i> , 133, 1855, 74
5	Castle Haven	Crail			*		<i>Stat Acc</i> , 9, 1793, 454
6	Castle Hill	Forgan			*		Campbell, 1894, 13
7	Earlsferry House	Elie		*			Wood, 1887, 4.
8	Gillingshill	Carnbee		*			<i>ONB Fifeshire</i> , 24, 1853, 25
9	Hallow Hill	St Andrew and St Leonard		*			Proudfoot 1991a & this vol.
10	Isle of May	Anstruther	*				James 1994,
11	Kilminning	Crail	*				Greig 1967
12	Kingswood	Kinghorn	*				Stevenson 1952, 111
13	Lathrisk	Kettle				*	EASE 1995, 1
14	Leven	Scoonie			*		<i>Stat Acc</i> , 5, 1793, 116
15	Lundin Links	Largo		*			Close-Brooks, 1984, 104, Fig 5.12, 105. Durham 1860
16	Mare's Craig	Abdie		*			Close-Brooks 1986, 179.
17	Pitmilly Law	Kingsbarns	*				Skinner 1869.
18	St Andrews, Kirkheugh	St Andrew and St Leonard		*			Hay Fleming 1931, 236-9. Wordsworth 1980; 1982
19	St Andrews, St Leonard's College	St Andrew and St Leonard		*			Hay Fleming 1931, 234-5
20	St Andrews, St Peter's Chapel	St Andrew and St Leonard		*			Hay Fleming 1921, 80
21	St Bonoc's Chapel	Leuchars		*			Reid, 1909.
23	W of Jonathan's Cave	Wemyss			*		Provan, 1988; Yeoman & Provan 1993 Proudfoot 1991b
24	Wormeston	Crail		*			McCulloch 1860, 505
25	Wormit	Forgan			*		NMRS NO 32 NE5

Group I – up to five long cists, including probable examples. Group II – six or more long cists. Group III – unknown number, high probability that they are long cists. Group IV - groups of burials of late Prehistoric to Early Christian date. Single long cists (for example Balfarg Farmhouse), have been omitted, where it is known that there is no other long cist nearby

The full extent of the long cist cemeteries in Fife is not known, as most of those listed above were not excavated, but simply recorded in varying detail during or after removal in the past. For this table, tentative classification has been made on the basis of the number of long cists at any one site, so that the symbol used refers to the number of burials, on the basis of available information. Consequently, Henshall's (1956, 265) provisional total of six or more graves from a long cist site has been used as a basis for classification, since there remains the possibility that up to five recorded long cists 'are all that chance has revealed of a more extensive cemetery'.

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This paper is published with the aid of a grant from Historic Scotland