

# Abstract pattern on stone fragments from Applecross: the master carver of northern Pictland?

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## ABSTRACT

*Eighteen early medieval carved stone fragments (Applecross 5.1–5.18) were recently recovered from Applecross, Wester Ross, Scotland, a site that functioned as an important ecclesiastical centre in the early medieval period. These 18 fragments join a pre-existing collection of monuments and other carved stones at Applecross, including three fragments (Applecross 1, 2 and 3) that together likely belonged to the same cross slab. Both the Applecross slab (Applecross 1–3) and the newly discovered fragments are decorated with relief-carved, geometric ornament common to early medieval Britain and Ireland, including interlace, key and step patterns, and are of exceptional workmanship.*

*This paper presents a comparative analysis of the patterns, which reveals that at least 16 of the 18 new fragments also belonged to the same monument as Applecross 1–3. In particular, the author has applied a new, artist-focused, artwork-centred approach to the study of key pattern and its structure, drawn from her doctoral research of this type of ornament. Through close physical analysis of the internal symmetry of individual spiral units and the negative (carved-out) lines in these key patterns, it is possible to identify where the new fragments were located on the Applecross monument, as well as their orientation within it. Furthermore, detailed analysis of the patterns' negative lines confirms that Applecross was linked to Nigg and likely also to Rosemarkie – two contemporary, high-status, Pictish ecclesiastical sites in Easter Ross – and that a single carver or team produced stone sculpture in all three places. The Nigg cross slab and Rosemarkie's collection of carved stones are widely recognised as among the finest in the Pictish corpus, and the Applecross fragments rival them in their supreme, virtuoso quality. This is the first concrete evidence for a single Pictish artistic hand on multiple artworks – a master carver or expert team whose oeuvre spanned both Easter and Wester Ross and who created some of the greatest surviving art-historical monuments in Britain.*

## INTRODUCTION

Applecross, in Wester Ross, Scotland (NG 7135 4583, Canmore ID 11734), was a well-known and important ecclesiastical centre during the early medieval period. Four stone sculptures have previously been discovered at the site and are now housed in its Heritage Centre and the churchyard. Three of these four sculptures are carved with complex abstract ornament characteristic of the early medieval period in Britain and Ireland, including interlace (knotwork), key pattern (composed of repeating angular spiral shapes or units) and curvilinear spirals. Ian Fisher has suggested that these three ornamented sculpture

fragments, which he numbered as Applecross 1, 2 and 3, originally belonged to a single cross slab (Fisher 2001: 87–90) (Illus 1). The author agrees with Fisher's argument that these three extant fragments were originally part of the same monument, and so they hereafter will be referred to collectively as 'the Applecross cross slab'.

In 2016 and 2017, an assemblage of 18 more carved stone fragments (Applecross 5.1–5.18) were recovered from the site. The majority of these fragments are decorated with key pattern or interlace. This article will focus on these 18 newly discovered fragments and the structure of their ornament, in particular their key patterns. These patterns reveal new evidence not only

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regarding the Applecross cross slab itself, but also of Applecross's early medieval ecclesiastical connections further afield. Close physical study of the patterns reveals that 16 of the 18 fragments originally belonged to the Applecross cross slab and makes it possible to identify their former locations on that slab. Detailed analysis of the new fragments also suggests that the Applecross monument was directly linked to contemporary sculptures at Nigg (NH 8046 7171; Canmore ID 15280) and likely also Rosemarkie (NH 7372 5763; Canmore ID 14393), two high-status, Pictish ecclesiastical sites in Easter Ross, and that a single carver or workshop team produced stone sculpture in all three places. The Nigg cross slab and Rosemarkie's collection of carved stones – both dated art-historically to the same period as the Applecross fragments – are widely recognised as among the finest in the Pictish corpus (Henderson 1990: 3, 9, 13, 16, 22; Henderson & Henderson 2004: 140). The Applecross fragments rival them in their virtuosity, demonstrating that the Applecross monastery was not solely western-looking or provincial in its links and interests, but had significant ties to Pictland.

The application of a new theoretical approach, which the author developed for her doctoral thesis on Insular key pattern, has made this examination of the Applecross fragments possible (Thickpenney 2019). This new approach is artwork- and artist-centred and involves the thorough identification of key pattern's structural properties. These properties consist of the pattern's structural elements, or its physical structures or building blocks, and its structural principles, or the abstract, often mathematical, concepts that Insular artists used to manipulate the structural elements in order to fulfil specific design goals, invent new compositions, or even solve problems in the middle of the working process. This methodology requires empirical, formal analysis, but otherwise is relatively new to studies of Insular art and archaeology. It was first pioneered by Michael Brennan in his doctoral study of Insular artists' manipulation of the structural properties of interlace patterns (Brennan coined the term 'structural properties', but he did not conduct the same analysis on

key pattern, which has a completely different structure from interlace) (Brennan 2011). As we shall see, this level of analysis was impossible in previous art-historical and archaeological studies of key pattern from the 19th to the 20th centuries. Significant methodological and conceptual flaws in these past studies inhibited scholars' understanding of this complex and subtle pattern. In contrast, the author's new approach to key pattern makes it possible to pinpoint Insular artists' own understanding of and conventions for this type of ornament, as well as the artistic habits of a single individual or workshop.

The artistic evidence from Applecross also harmonises with other archaeological evidence for a Pictish presence in the west, as well as with written records of political links between Wester Ross and Pictland. While Insular specialists have previously commented on general stylistic similarities between the stone monuments at Applecross, Rosemarkie and Nigg, and cited such archaeological and political connections between east and west in order to explain these similarities, this article presents the first concrete evidence, at the level of ornament structure, for links between multiple artworks across these three sites. The carved key patterns on the Applecross cross slab, the Nigg cross slab and most likely also a stone panel from Rosemarkie (discussed further below) all demonstrate a concerted and consistent employment of several specific strategies for handling the key pattern's repeating, spiral-shaped units and negative (carved-out) lines and spaces. As these traits appear so consistently in combination, they strongly suggest that the Applecross and Nigg cross slabs – and likely also the Rosemarkie stone panel – were the unique work of a single, virtuoso Pictish hand or stone-carving team.

#### APPLECROSS: THE SITE AND PREVIOUSLY DISCOVERED FRAGMENTS

The early ecclesiastical centre at Applecross was founded in AD 673 by Máel Ruba, an Irish monk who had ties to the monastery of Bangor (Mac

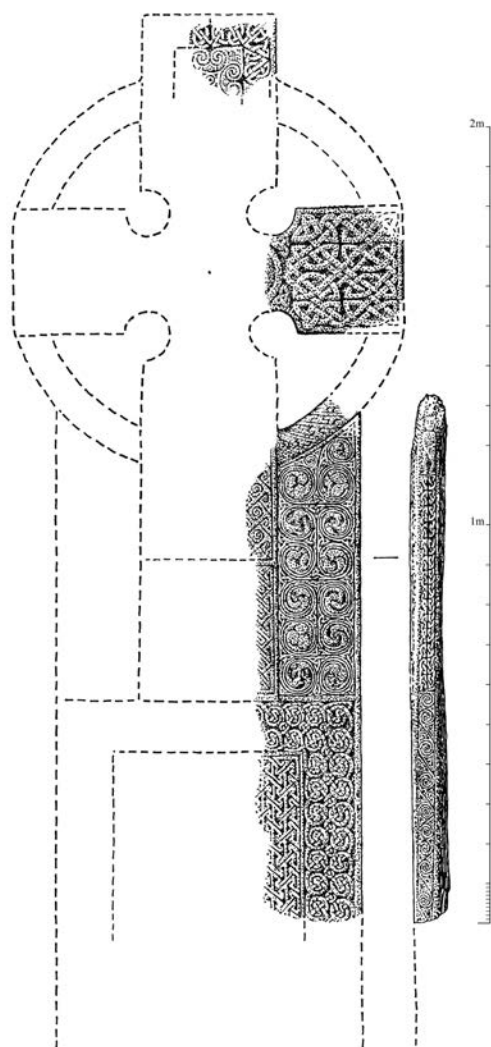
Lean 1997: 173; Fisher 2001: 87; Fraser 2009: 252; Clancy et al (b)). Little else is known about Máel Ruba's life and work in north-western Scotland, other than that he died in AD 722 (Mac Lean 1997: 173; Fraser 2009: 252–3). Early medieval written sources mention two more abbots of Applecross in AD 737 and again in 802 (Mac Lean 1997: 176). Although Applecross disappears thereafter from surviving early medieval written records, its ongoing importance is attested to by the fact that Máel Ruba is commemorated in numerous place names throughout western mainland Scotland and the Hebrides, as well as in five more locations in eastern Scotland (one as far as Crail, Fife) (Fisher 2001: 87; Clancy et al (b)). Applecross itself later became a parish church, and in 1256 and again in 1515 the church was noted as belonging to the cathedral of Ross (Close-Brooks 1995: 125; Clancy et al (a)). The current church building at the site dates to 1817 (NG 71355 45838; Canmore ID 11740) (Clancy et al (a)). In addition to the 19th-century church, a ruined 15th-century chapel or burial-aisle survives in the east end of the graveyard (Canmore ID 11736) (Close-Brooks 1995: 125; Fisher 2001: 87). In the 19th century, a mound to the south of the chapel was presumed to be Máel Ruba's grave, and a later gravedigger, K MacRae, informed a surveyor that in 1934 he had discovered a long cist containing human bones and a metal object underneath the traces of an earlier building in this same area, which he believed to be the saint's burial place (Fisher 2001: 87; HES (a); HES (c)). Any other potential early medieval landscape evidence surrounding the churchyard was obscured by afforestation in the 1960s (Fisher 2001: 2, 87).

It is Applecross's collection of early medieval stone sculpture that most clearly reflects its former power and significance. Fisher (2001: 87–90) catalogued and described the sculptures that had been previously discovered at the site. The information he provided is summarised here, with his catalogue numbers. Applecross 1, the right side of a broken cross slab, at one time was built into the wall of the 15th-century chapel, and moved into a display case in the modern church in the 20th century (Close-Brooks 1995:

25). This cross slab fragment is 1.33m in height, 0.31m in width, ranges from 55mm to 95mm thick and is carved from reddish Torridonian sandstone (Fisher 2001: 88). The face and narrow side are decorated with a variety of relief-carved ornament: key pattern, interlace and curvilinear spirals, the latter with some zoomorphic embellishments. Applecross 2 was also carved from red Torridonian sandstone and is decorated entirely with relief-carved interlace. It is the end of a cross-arm, complete with a fragmentary curved edge-moulding on its left end, which once demarcated the centre of a cross-head. It measures 0.36m × 0.32m and ranges from 35mm to 100mm thick (the narrowest measurement may be the result of a rebate carved into the back of the stone, which was likely added later). The third fragment, Applecross 3, is also carved from red Torridonian sandstone and is decorated with a frame of relief-carved interlace around a rectangular field of abstract curvilinear spirals. It measures 0.24m × 0.21m and is 75mm thick.

Because of the similarity of their material and of the 'comparable edge-mouldings' around their fields of ornament, Fisher has argued that Applecross 1, 2 and 3 were all part of a single cross slab, with pierced armpits and a ringed head, which, when whole, would have stood at 2.2m tall or more (Fisher 2001: 88). Fisher located Applecross 3 as the top cross-arm, Applecross 2 as the right cross-arm and Applecross 1 as part of the slab below them (see Illus 1). The gravedigger, MacRae, found Applecross 2 and 3 to the south of the chapel in the 1930s (Close-Brooks 1995: 125; Fisher 2001: 88). The carved patterns on all three fragments are of exceptional workmanship, with parallels to the Book of Kells, particularly in the zoomorphic spiral patterns; on this basis, Douglas Mac Lean dated Applecross 1 to the 8th or 9th centuries AD (Mac Lean 1997: 177–8).

Finally, a fourth sculpture survives at Applecross, which Fisher also catalogued and described along with the three fragments discussed above. Applecross 4, an unfinished cross slab of greyish Torridonian sandstone, stands at the graveyard gate (Close-Brooks 1995: 125). According to local tradition, it was taken from an earlier location along the nearby river



ILLUS 1 Applecross Fragments 1, 2 and 3, comprising a larger cross slab (Canmore SC 404552) (© Courtesy of Historic Environment Scotland (Ian G Scott))

and re-erected inside the gate in 1800 (HES (b)). Unlike the Applecross cross slab (Applecross 1, 2 and 3), Applecross 4 lacks relief-carved patterns and is decorated solely with an incised, ringed cross. It stands at 2.63m and it is unknown why the carver left it unfinished (Fisher 2001: 90). Because of its lack of decoration, Applecross 4 will not be discussed further or illustrated in this article.

## THE NEWLY DISCOVERED FRAGMENTS AND THEIR IMPLICATIONS

In 2016 and 2017, additional sculpture fragments were discovered in the wall of the ruined post-medieval chapel, this time in an assemblage of 18 pieces (Illus 2 nos 5.1–5.16). Two of these fragments were removed from the chapel during conservation work in 2016, after which National Museums Scotland staff identified 14 more fragments taken from that structure (5.1–5.16) (Natasha Ferguson pers comm). During ongoing conservation work in 2017, the final two fragments from the assemblage (5.17–5.18) were found (Natasha Ferguson pers comm). At the time that the author wrote this article, the whereabouts of 5.17 and 5.18 were unknown. They have since been collected by the Treasure Trove Unit. The author was given access to photographs of these two fragments, which had been sent from Applecross to Treasure Trove and which were valuable resources for this study. However, the identity of the photographer was also unknown at the time the author wrote this publication, so the photographs of 5.17 and 5.18 are not included in this publication. Earlier 19th- and 20th-century records note the presence of stone fragments decorated with key pattern, interlace and spirals in the east wall of the chapel, however, by 1968 they were either lost or covered by harling (HES (a)). The author does not know whether the 18 newly discovered fragments from 2016 and 2017 are the same as those lost fragments recorded earlier or are a separate group. Whatever the case, it was immediately clear that Applecross 5.1–5.18 belonged to a larger early medieval sculpture that was smashed apart and scavenged for building material sometime in the later medieval or post-medieval period.

The colours of the new fragments range from red to grey. Many are discoloured by later masonry stains, in white or greyish streaks and

ILLUS 2 Sixteen of the 18 newly discovered Applecross fragments (Applecross 5.1–5.16). Scale for 5.16 is approximate (© Cynthia Thickpenny)



5.1



5.2



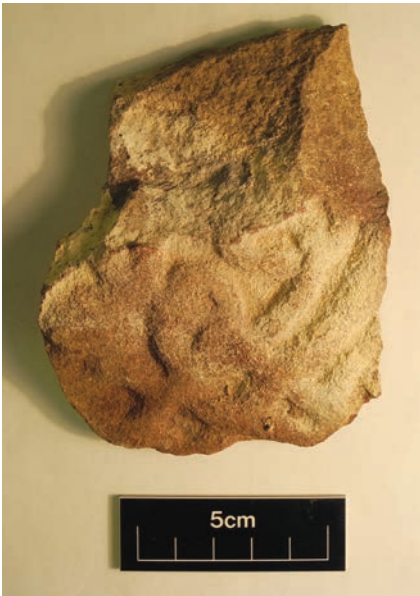
5.3



5.4



5.5



5.6



5.7



5.8



5.14 (left)  
and 5.9  
(right)



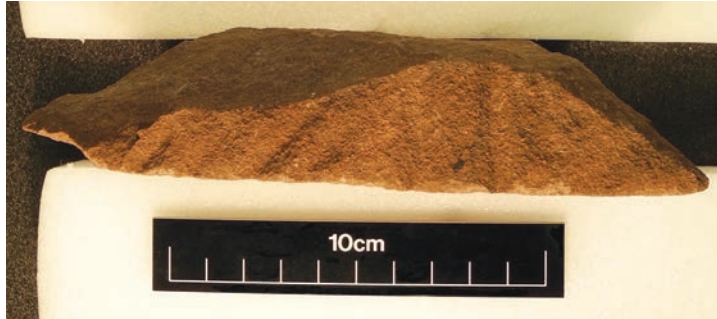
5.10



5.11



5.12



5.13

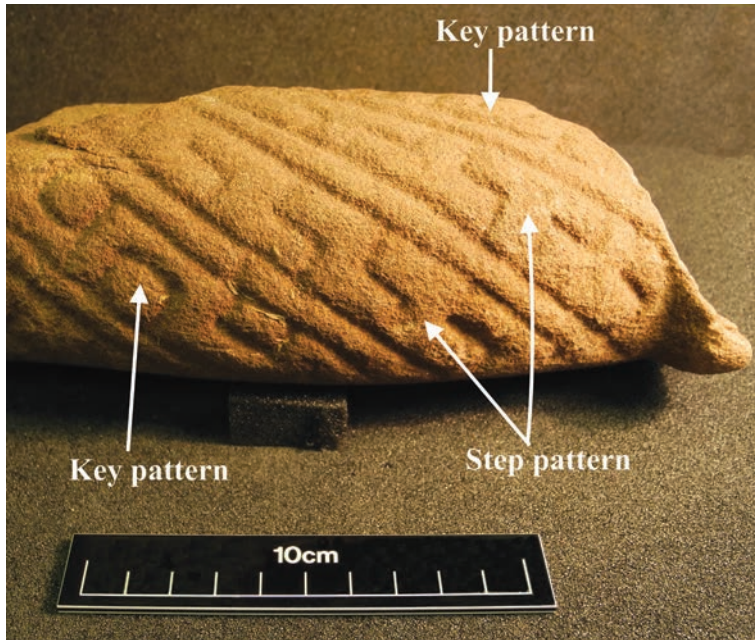


5.15

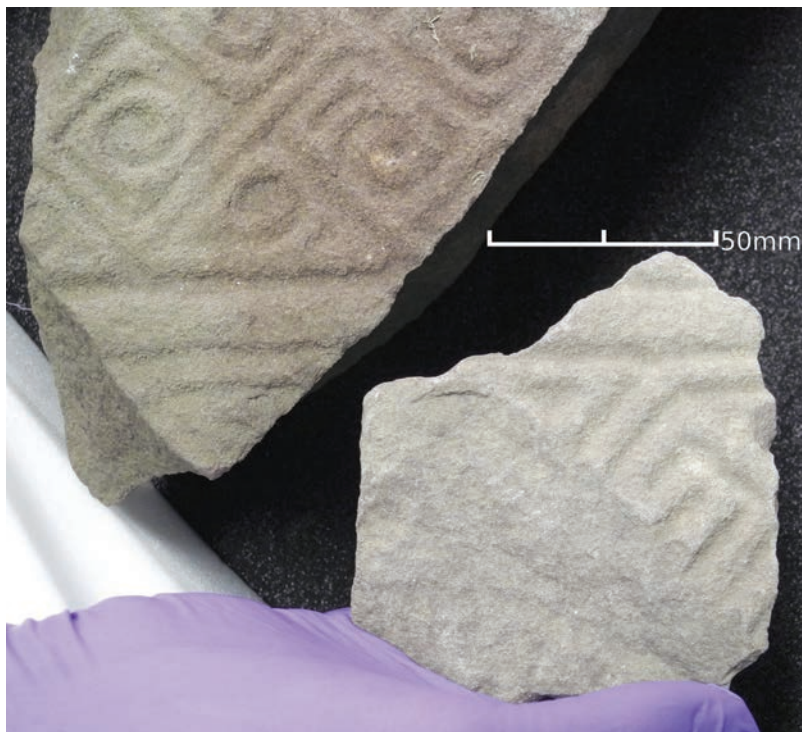




5.16



ILLUS 3 Applecross 5.1. Two adjacent rows of step pattern, flanked on either side by a single row of key pattern with pellets (© Cynthia Thickpenny)



ILLUS 4 Detail of shared moulded border on two fragments (5.3 and 5.16). Scale is approximate (© Cynthia Thickpenny)

blotches (see Illus 2 no. 5.16). It is difficult to gain exact measurements of the fragments' dimensions because of their irregular, shattered edges. However, most are small (with the notable exception of 5.16), with maximum approximate dimensions no greater than 215mm long and 90mm wide (see Table 1). All but one of the fragments are decorated with relief-carved, geometric ornament, including interlace, zoomorphic pattern and key and step patterns. This ornament is also of exceptional workmanship, and all but two of the fragments contain ornament that matches the structure of the surviving key patterns and interlace on the Applecross cross slab. Eight of the fragments have key pattern only, including 5.17–5.18 (Illus 2 nos 5.3–5.5, 5.7–5.8, 5.16). Another rounded fragment, shaped like a truncated torus, is carved with two rows of simple key pattern embellished with pellets and two rows of step pattern, all running in a diagonal fashion across the curved surface of the stone (Illus 2 no. 5.1). The two key pattern rows are separated from each other by two adjacent rows of step pattern (Illus 3). Five more fragments have interlace only (Illus 2 nos 5.2, 5.6, 5.10, 5.14 and 5.9). On some fragments, sections of the moulded borders of the pattern fields remain intact, including 5.18 (Illus 2 nos 5.2–5.3, 5.5, 5.8, 5.12–5.14, 5.16; Illus 4). Finally, two more fragments (Illus 2 nos 5.11, 5.15) do not match any other known sculptures from Applecross in form, colour, or ornament.

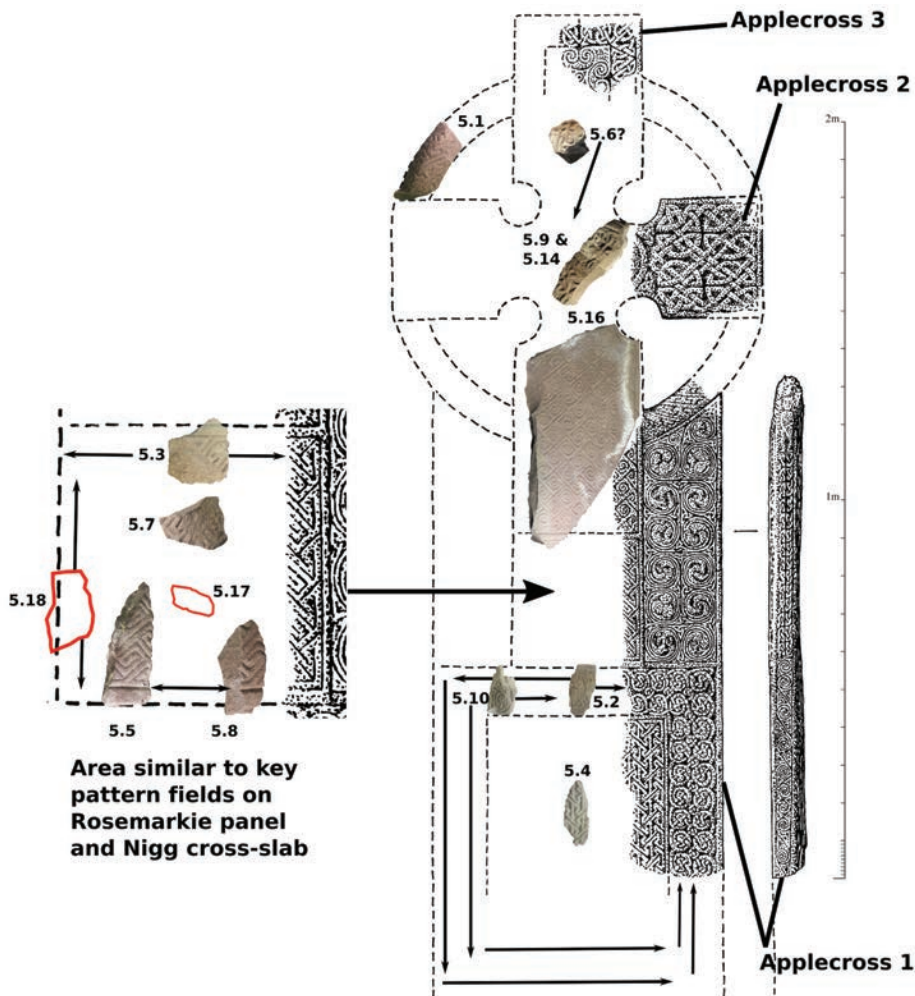
Readers should note that in the photographs of the fragments in Illus 2 nos 5.1–5.16, it was sometimes necessary for the author to create shadows in order to reveal weathered ornament. However, care was taken to maintain the overall clarity of the images. In addition, due to access as well as health and safety concerns related to Fragment 5.16's heavy weight and location in storage, it was not possible for the author to re-photograph this fragment with staged lighting and a physical scale bar, unlike the other pieces from the assemblage. This publication therefore provides the author's initial research photographs for all illustrations containing Fragment 5.16 (Illus 2 no. 5.16; Illus 4; Illus 18). Although these research photographs were taken in a more informal mode, they do record clear and crisp

images of the fragment's ornament. Finally, the author used physical scale bars whenever possible, however it was necessary to add scale bars digitally to some photographs when issues of access or availability prevented the use of physical scale bars.

#### THE LOCATION OF THE FRAGMENTS ON THE APPLECROSS CROSS SLAB

By analysing the physical components of the individual patterns, as well as any surviving moulded borders (the comparative widths of which the author matched to those on Applecross 1 during a visit to the Applecross Heritage Centre in June 2018), it is possible to determine the specific area of the Applecross cross slab to which each fragment belonged, and often their orientation within the slab as well (see Illus 5 for the location and orientation of each fragment on the slab). Key pattern, though rectilinear, is a design fundamentally based on the repetition of angular, spiral-shaped units, and these units and their structure provide useful clues for piecing the slab back together. It is also possible to locate the fragments with interlace by comparing the structure of their knots with those on the slab.

Twelve of the 18 fragments (5.2–5.5, 5.7–5.8, 5.10, 5.12–5.13, 5.16–5.18) belong to the missing left side of Applecross 1 (the portion of cross slab below the head). The largest fragment (5.16), with its curved outer edge-moulding and diagonal key pattern with single-stranded, curvilinear spiral units, comprises a large portion of the cross-shaft (Illus 5). Six smaller fragments come from a second field of key pattern located directly below this shaft, this time with two-stranded, rectilinear spirals (nos 5.3, 5.5, 5.7–5.8, 5.17–5.18). The author has identified Fragments 5.3, 5.5, 5.8 and 5.18 as occurring at the outer edges of this key pattern field because they contain sections of the field's moulded border. In addition, it is possible to pinpoint each of these fragments' general location to a specific edge of this border, as well as their orientation toward the top of the slab, by comparing the spin direction of each individual spiral-shaped unit of key pattern (clockwise or counter-clockwise) on each fragment with those



ILLUS 5 The location of the new fragments on the Applecross cross slab. Photographic inserts demonstrate both the location and orientation of the fragments within the fields of key pattern. Fragments 5.17 and 5.18 are indicated by red outlines. To scale (annotated, line drawing © Courtesy of Historic Environment Scotland (Ian G Scott))

surviving on Applecross 1 slab, as well as the widths of the surviving edge-mouldings.

First, the spiral-shaped units along the right side of this field spin in a clockwise direction, and those along the top and bottom sides of the field in a counter-clockwise direction. These spin directions are visible along the broken edge of Applecross 1. Although the left side of the field is lost, it is possible to confirm the spin direction of the outermost spiral units of the key pattern along that side. Enough of the composition survives to

determine that the artist multiplied the spiral units using two-fold rotational symmetry (rotation twice at  $90^\circ$ ), and as a result, the outermost units along the left border of the field must therefore spin in a clockwise direction. (The structural properties underpinning the relationship between rotation and spiral spin direction are fully outlined in the author's doctoral thesis. See Thickpenny 2019.) Second, the bottom edge-moulding of this field is significantly wider than that of the top edge of the field. Therefore, Fragments 5.5

and 5.8 must be located at the bottom edge of this key pattern field because of their thick edge-moulding and the counter-clockwise spin of their spiral units (Illus 5). Fragment 5.18 is located along the left edge of the field because its spirals spin in a clockwise direction (Illus 5). The units of Fragment 5.3 spin counter-clockwise, and its narrow edge-moulding matches that of the lower cross-arm (5.16). Therefore, 5.3 is located along the top edge of this key pattern field (cf Illus 4; Illus 5). Fragments 5.7 and 5.17 cannot be located or oriented as precisely within this key pattern field; they are too small and damaged, and lack edge-mouldings. However, a location somewhere near the top and bottom of the field can be suggested for 5.7 and 5.17 respectively, when the shape of their spiral units is compared with the fragments securely located at the field's outer border. Fragment 5.7 is located near the top of the key pattern field because the lines forming its unit are short, giving the spiral a compact structure similar to that of the near-complete spiral unit on Fragment 5.3 (Illus 5). Fragment 5.17, by contrast, is located near the bottom of the field because the lines forming its unit are long, giving the spiral an elongated structure that in turn matches those of 5.5 and 5.8. While the author was unable to view Fragments 5.17 and 5.18 in person, unlike the other pieces, it was possible to accurately assess their location on the Applecross slab by examining the structure of their spiral units in the unpublished photographs noted above.

Third, Fragment 5.1, with its torus-like shape and key and step patterns, was once part of the pierced cross-ring of the Applecross cross slab and may have been located just above the left cross-arm, directly to the right of the top arm, or immediately below the right arm (Illus 5). The only direct parallels for its key pattern in the European world occurred in Classical art, particularly in Greek vase painting. Historians of Classical art often refer to this key pattern as 'battlement meander', presumably because of its visual similarity to defensive turrets (eg see Coldstream 2008: 12). Its presence on the Applecross cross slab may reflect local knowledge of ancient Mediterranean art, or may be coincidental. Fragment 5.4 belonged to

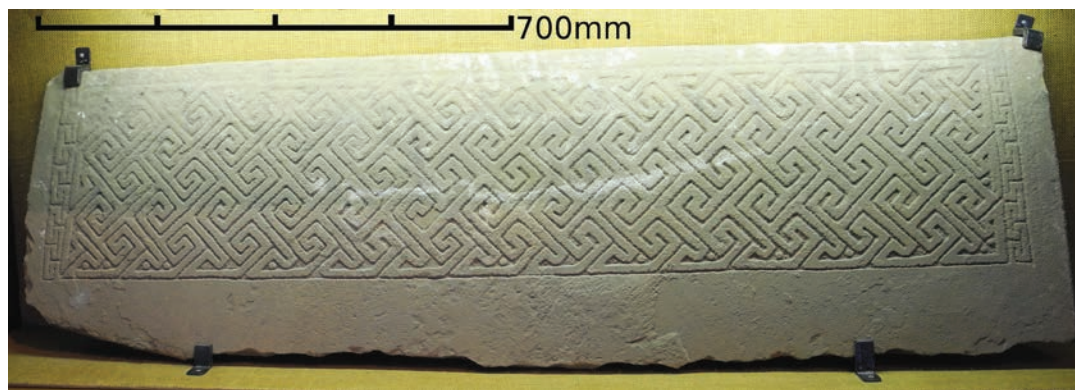
the large central field of diagonal key pattern on the bottom half of Applecross 1, of a type very common across the Insular world. It is also created by the repetition of spiral units with two-fold rotational symmetry, though its structure differs in other ways from the key pattern field located directly above it (Illus 5). As noted above, Fragments 5.12 and 5.13 likely have key pattern, but are too fragmentary to identify with certainty.

The interlace on Fragments 5.2 and 5.10 are easily located within the Applecross cross slab; their knots structurally match those filling the rectangular border at the bottom of Applecross 1 (Illus 5). Upon examining the fragments, Ian Scott discovered that Fragments 5.9 and 5.14 once fitted together, with 5.14 attached on the left of 5.9 (Ian Scott pers comm) (Illus 2 nos 5.14 and 5.9). He suggested that Fragments 5.6, 5.9 and 5.14, with looser interlace than that of 5.2 and 5.10, all may have been located somewhere within the head of the cross slab, near Applecross 2 and 3 (Scott pers comm) (Illus 5).

Finally, Scott also observed that the two final fragments (5.11 and 5.15) do not seem to match any surviving sculpture from Applecross in form. Fragment 5.11 contains a zoomorphic leg and foot, most likely from interlace or vinescroll ornament (Illus 2 no. 5.11). No such zoomorphic interlace or vinescroll survives on Applecross 1, 2 or 3. The depth of Fragment 5.11 (115mm) is also thicker than the depths of Applecross 1, 2 or 3. The unusual sloped edge and total lack of decoration on Fragment 5.15 is even more at odds with the Applecross slab. These details led Scott to propose that 5.11 and 5.15 might not have belonged to the Applecross cross slab and instead were part of currently lost monument(s) from the site (Scott pers comm).

#### THE ROSEMARKIE PANEL AND THE ACTIVE MANIPULATION OF NEGATIVE SPACE

In order to demonstrate that the same stone carver or team created the Applecross cross slab along with sculptures at the Pictish sites of Nigg and Rosemarkie, it is first necessary to discuss the structural properties of Insular key



ILLUS 6 The Rosemarkie panel, Groam House Museum (ROMGH 1992.2). Scale is approximate (© Cynthia Thickpenny)

pattern that concern positive and negative space and their interrelationship. The sandstone panel from Rosemarkie (ROMGH 1992.2; NH 737 576; Canmore ID 259997) provides an excellent case study for understanding how early medieval artists handled these structural properties in their working processes (Illus 6). The case study is drawn from the author's doctoral thesis.

The sizeable collection of monumental sculptures at Rosemarkie, Easter Ross, indicates that it was the site of an important Pictish ecclesiastical centre (Groam House Museum 2013: 3). The carved stone panel in question has been dated art-historically to the 9th century and measures 1.54m long and 0.46m wide (Groam House Museum 2013: 8). Its purpose is unknown, though it may have been part of a composite sarcophagus or the interior architecture of a church (Henderson & Henderson 2004: 207). It is decorated with a large rectangular field of diagonal key pattern. The individual spirals within this key pattern have two strands, or two interlocked carved lines (Illus 7). Three of the panel's edges are dressed, while the fourth was left rough. This edge may have been concealed when the panel was mounted, though whether the panel was displayed in a horizontal position (as pictured in Illus 6) or vertically (with the rough edge set into a wall or other structure) is unknown.

Like all Insular key pattern compositions, the key pattern on the Rosemarkie panel contains the

structural elements (or physical building blocks) of negative and positive space. In all key patterns, the negative space or background is formed by a series of intersecting line segments. However many times these line segments intersect, they always ultimately terminate or dead-end in the middle of the pattern (with those at the edge of the field also terminating at their point of intersection with the outer border). When making key pattern, Insular artists always actively created only the negative space. In sculptures, including the Rosemarkie panel, sculptors carved the negative line segments out of the stone (Illus 6; Illus 7), while in manuscripts, illuminators would draw the same structures in dark ink (Bain 1994: ix). Insular artists also manipulated negative lines according to a specific structural principle: negative lines could be expanded or contracted to make them thicker or thinner, or transformed into a variety of shapes, such as the triangular expansions seen at the outer edges of the key pattern field on the Rosemarkie panel (Illus 6). This approach to negative space allowed Insular artists significant creative leeway to manipulate, adjust and embellish their key pattern compositions.

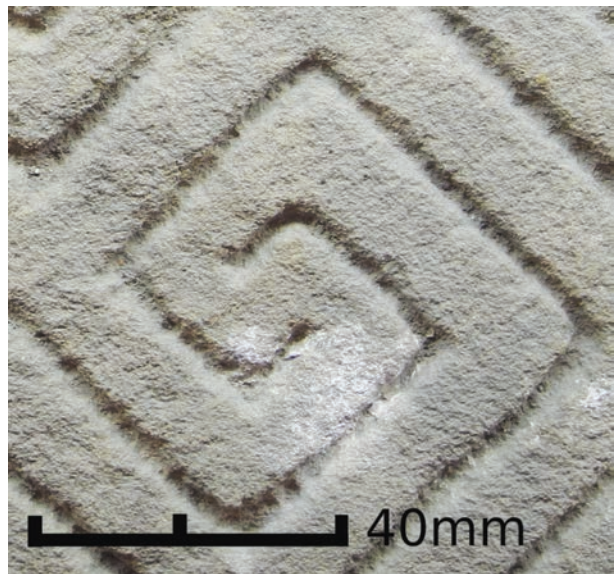
The structural element of positive space, or the foreground of a key pattern, is formed between the carved (or drawn) negative lines, as a passive by-product. In sculpture, the carver left it raised in relief after carving away the negative lines and shapes. (In manuscripts, the illuminators left

the positive space on blank vellum after drawing the negative lines and shapes.) Insular artists upheld two strict structural principles regarding positive space in key pattern. First, unlike the discontinuous negative lines, artists expended considerable effort to prevent the positive space from terminating anywhere within the pattern field. The positive space therefore is continuous and can be followed with the eye throughout a key pattern composition *ad infinitum*. For this reason, modern scholars often refer to it as the ‘path’ (eg see Bain 1994: ix). Second, Insular artists also expended great effort to maintain the positive path at an even, consistent width throughout a given key pattern composition. It was not allowed to thicken, contract or expand into shapes, unlike the negative space. These two principles of path continuity and evenness are found consistently in all key patterns across Insular art. Therefore, the same principle that permitted artists to thicken or manipulate the negative lines of key pattern into shapes also presented a significant challenge, because artists could only manipulate the negative lines of a key pattern if they also simultaneously maintained the structural integrity of its path.

Together, the negative lines and shapes and positive path form yet another crucial structural element in key pattern: the repeating, spiral-shaped unit (Illus 7). Spiral units of the same size repeat over and over to form a key pattern composition. The negative and positive space, as well as the spiral units, are just some of the many structural properties of key pattern. However, it is the structural properties pertaining to positive and negative space which contain evidence that the same carver or team produced key patterns on the Rosemarkie panel and the Nigg and Applecross cross slabs.

At first, the large field of key pattern appears remarkably regular across the Rosemarkie panel, almost as though it were produced not by hand but by machine (Illus 6). However, close physical inspection of the monument revealed that the

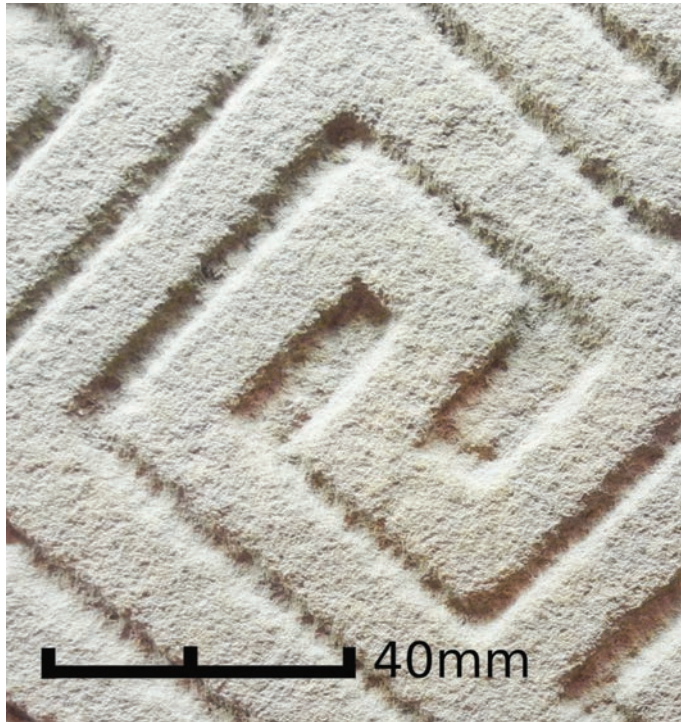
spiral units on the leftmost and rightmost sides of the key pattern field are markedly different in structure. The spirals on the left side of the field (Illus 7) contain four intersected negative line segments (and therefore four angles or ‘turns’ outward from the centre of the spiral). The author also measured the width of the negative line segments on this side of the field and found that they were all carved very thinly, often just a few millimetres in width. Both the thinness of the negative line segments and the high number of angles or ‘turns’ within the spiral units gives



ILLUS 7 A spiral-shaped unit from the leftmost side of the Rosemarkie panel key pattern. Each series of intersected negative line segments within the spiral contains four angles. The negative lines are carved thinly. Scale is approximate (© Cynthia Thickpenny)

them a tight, compact appearance. In contrast, the spiral units on the right side of the field only contain three intersected negative lines (and therefore three angles or ‘turns’ from the centre of the spiral) (Illus 8). Furthermore, the carver made some of these line segments significantly wider than their equivalents on the left side of the field, in some cases up to 1cm wide. This gives the spirals on the right side of the field a more open, ‘looser’ appearance.

The carver gradually altered the structure of the spiral units from ‘tightly turned’ to ‘loose’, starting from approximately one-third of the way from the left side of the key pattern field. At this point, they began to mix spiral units of both structures alongside each other. Halfway across the field, the artist then discontinued the ‘tightly turned’ spirals completely, and solely



ILLUS 8 A spiral-shaped unit from the rightmost side of the Rosemarkie panel key pattern. Each series of intersected negative lines within the spiral contains three angles. Some negative lines are widened. Scale is approximate (© Cynthia Thickpenny)

carved the ‘looser’ spirals from there to the right edge of the stone. In addition, the carver also maintained the raised positive space or path at an even, consistent width (approximately 1cm) throughout the composition, despite the changes in structure and width they made to the negative lines.

Experimentation with scaled sketches of the Rosemarkie panel has revealed that while the Pictish carver could have filled the entire field

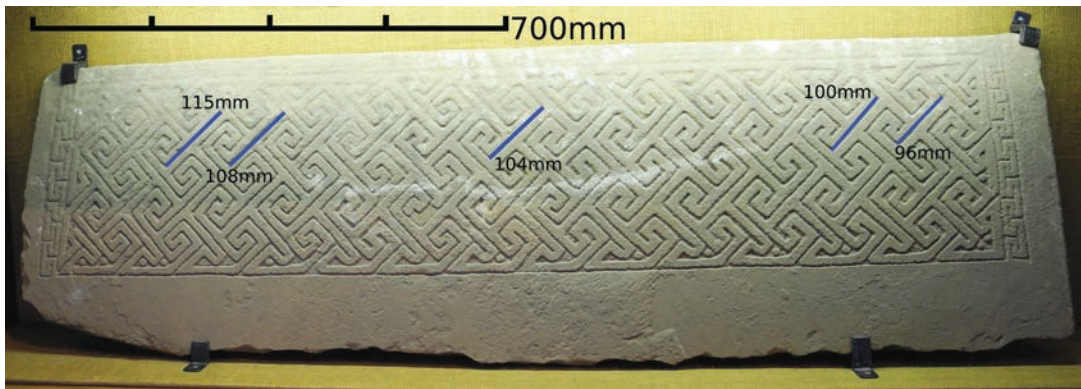
with the ‘looser’ spiral units found on the right side of the panel (Illus 8) and still maintained the structural integrity of the key pattern, they could not have done the reverse. If the artist had filled the entire composition with the ‘tight’ spirals found on the left side of the field (Illus 7), the extra negative line segments or ‘turns’ within each spiral would have made the positive path too narrow or even caused it to terminate

at the centre of the spirals once the artist reached the right end of the field. In addition, the key pattern would have run off the bottom of the field, at approximately a third of the way from the left edge – a fate which Insular artists diligently avoided for every type of ornament they created.

The author measured each structure within this pattern field in person and discovered a deeper structural reason for this physical discrepancy between the spiral units. This discrepancy was structurally necessary to maintain the pattern throughout the field. The longest negative lines of the pattern, which connect the spiral units to each other, are longer on the left side of the field than those on the right side (Illus 9). It is these negative lines on the left side that would have caused the pattern to overrun the borders of the field. To prevent this, the carver appears to have gradually shortened these long negative

lines from the middle to the right side of the field. However, once these long negative lines were shortened slightly, it was no longer possible to continue carving spirals with four internal turns and narrow negative space without causing the path to terminate or become too narrow within these spirals. To keep the path even and continuous, the artist was forced to create spiral units with only three internal turns and to simultaneously widen some of their internal





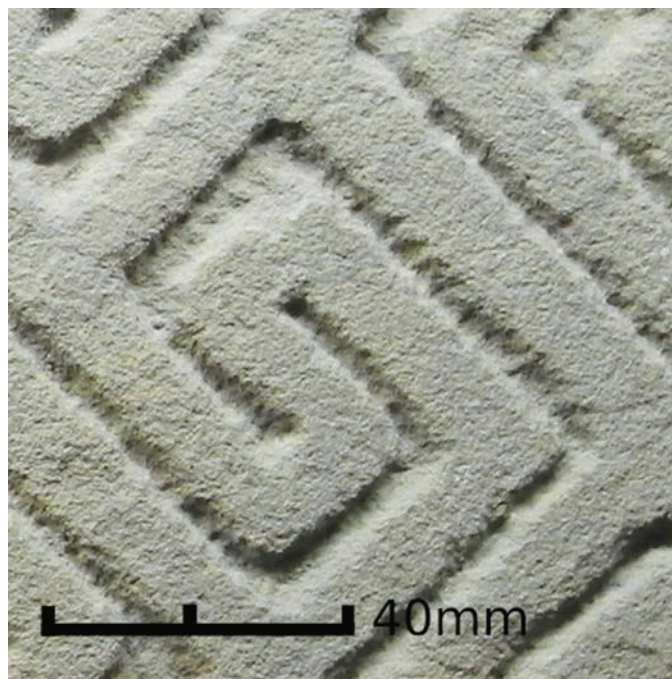
ILLUS 9 Measurements show the progressive shortening of the Rosemarkie key pattern’s longest negative lines (blue). Scale is approximate (© Cynthia Thickpenny)

negative line segments. This relationship between these longest, connective negative lines and the internal structure of spiral units is itself a structural principle, which is fully explained in the author’s doctoral thesis (Thickpenny 2019).

Some spiral units on the right half of the panel also contain longer internal negative line segments than those on the left side of the panel, in addition to fewer internal turns and widened negative space (cf Illus 7; Illus 10). These longer negative line segments give these particular spirals an elongated, sprawling appearance. The carver created these ‘elongated’ spiral units in a scattered fashion different from their otherwise deliberate and methodical structural alterations, although they did limit the elongations to the right side of the panel only. The author is still studying the underlying reason for this phenomenon. However, these ‘elongated’ spirals follow the same general trend as all the other units on the right half of the panel, by having a ‘looser’ appearance than those on the left side. It is also important to note that all the spiral units on the Rosemarkie

panel are roughly the same overall size, whether ‘tight’, ‘loose’ or both ‘loose’ and ‘elongated’, despite the variations in their internal structure.

It is likely that the Rosemarkie panel carver began working on the left side of the panel (as



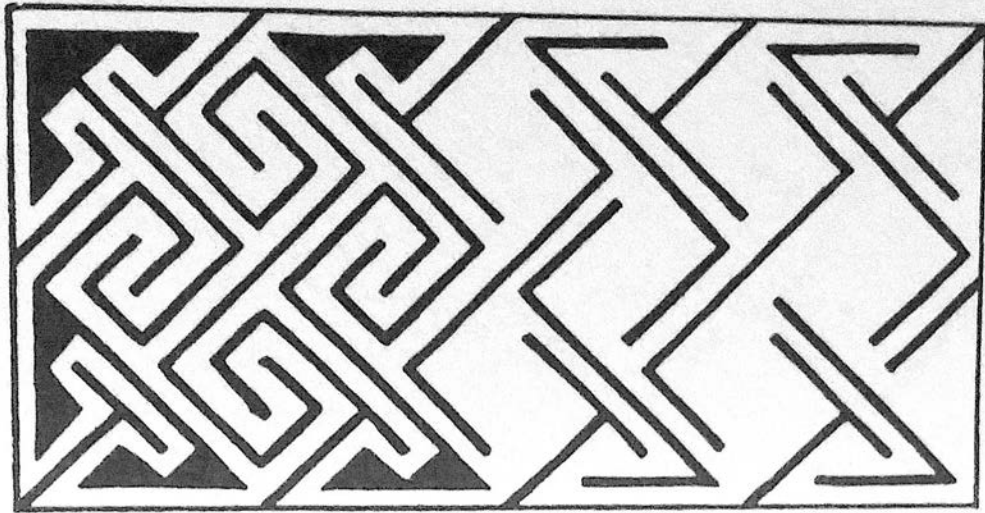
ILLUS 10 A spiral-shaped unit from the rightmost side of the Rosemarkie panel key pattern. The negative line segments are elongated. Scale is approximate (© Cynthia Thickpenny)

viewed in Illus 6) and realised approximately one-third of the way across the field that the initial plan was unworkable. At this point, the carver changed the structural programme in order to salvage the key pattern and thus the entire panel. If the artist instead planned this progressive structural change before carving, rather than making a mistake midway through the working process, it is possible it was done in order to create the optical illusion that the ‘tighter’ spirals on the left side of the panel were smaller than the ‘looser’ spirals on the right side. For example, if this panel were originally oriented in a vertical position when it was first displayed, the carver may have altered the spiral structures to create a sense of perspective. If the panel were oriented vertically and slightly above eye level, with the ‘looser’ spirals at the top, this might have helped the medieval viewer to visually register the entire pattern as being perfectly regular, with the spirals identical in structure and size (in the same way that Michelangelo enlarged David’s head and hands so that they would appear proportionate when the statue was viewed from below). If the panel were oriented vertically, but with the ‘looser’ spirals at the bottom and the ‘tighter’ (and seemingly smaller) spirals at the top, this might have reflected the carver’s attempt to produce the same effect that modern picture-framers do when they bottom-weight the matting of a photograph or painting – that is to make the bottom edge or area wider than the top of the frame – which actually creates an optical illusion of perfect evenness throughout the visual field when viewed at eye level (Archival Methods 2015). Whatever the Rosemarkie carver’s reason for the structural shift from one side of the key pattern field to the other, this gradual alteration was a careful and deliberate programme.

These structural alterations from the left to right side of the panel are also so gradual and subtle that the progression is not immediately noticeable to the eye. The artist’s careful maintenance of the evenness and continuity of the positive path, as well as consistency of overall spiral size despite the structural variations and widening of the negative space, all serve to enhance the impression of regularity

throughout the pattern. This total creative control, either in the planning or working processes – or both – showcases the carver’s skill and fluency with key pattern. A truly virtuoso master carver or team of artisans created the Rosemarkie panel.

Up to this point, methodological limitations in previous studies of Insular key pattern have prevented specialists from identifying evidence at this level of detail. Iain Bain, cited above, was one of the few to discuss how Insular artists created negative space in key pattern, but he did not explore the wider creative implications of their approach to it. In addition, in some earlier theories about key pattern structure, such alterations within a single field of ornament as on the Rosemarkie panel would have been seen as irreconcilable contradictions. In this case, it is only necessary to discuss John Romilly Allen’s archaeological classification of key pattern in *The Early Christian Monuments of Scotland* (1903), because this seminal work impacted all studies of Insular key pattern published thereafter. Allen used typographic reproductions to catalogue and analyse individual key pattern compositions in the abstract, rather than focusing on individual artworks directly. Within these reproductions, Allen physically straightened, regularised, and idealised the lines and shapes. He did not record the panel from Rosemarkie, but in his key pattern no. 958, which is very similar in structure to that of Rosemarkie, he recorded no such fluctuations in the width of the negative lines (Allen & Anderson 1903, vol I, part II: 348, no. 958) (Illus 11). His pattern instead looks as if it had been made ‘perfect’ by machine, thereby erasing the subtle, hand-made alterations to key pattern structures as found on the Rosemarkie panel. Furthermore, Allen separated his key pattern types in part by identifying the specific triangular or rectangular shapes in their negative space (cf Allen & Anderson 1903, vol I, part II: 348, nos 959, 960). These divisions were stricter than the medieval reality and Allen would not have been able to reconcile the fact that the negative lines in the Rosemarkie panel’s spiral units take two different forms within the same key pattern. This rigid modern approach elides the reality of medieval artists’ flexibility and



ILLUS 11 John Romilly Allen's key pattern template (Allen & Anderson 1903, vol 1, part II: 348, no. 958)

creative agency and therefore the evidence for their own conception of key pattern as well as their working processes.

#### KEY PATTERNS ON THE APPLECROSS AND NIGG CROSS SLABS

The fragmented key pattern field directly below the lower cross-arm on the Applecross cross slab (Illus 5) betrays Applecross's historical connection to the Pictish ecclesiastical site of Nigg and likely also to Rosemarkie. Here the carver(s) manipulated the negative lines and spiral units in ways analogous both to the key pattern in the Rosemarkie panel, as well as another field of key pattern located in the same position on the Nigg cross slab, directly below the lower cross-arm (Illus 12a–b). All three diagonal patterns are ultimately built upon the two-fold rotation of rows of spiral units, and the individual units themselves are each formed by two strands (ie two interlocking carved negative lines). More importantly than these basic structural similarities, all three sculptures share a constellation of deeper, unusual traits in the treatment of their negative lines and spiral structures. Namely, the carver(s) lengthened

and widened negative lines to give the illusion that the key pattern spirals progressed from smaller/compact to larger/looser across each field. Because both the Applecross and Nigg key patterns are situated within cross slabs, we can confirm that these alterations were intended to progress from the top edges of the fields to the bottom edges. These shared traits provide concrete evidence that all three sculptures were carved by a single artist, or by a team that shared distinctive habits in the manipulation of key pattern.

Further linking the Applecross and Nigg key patterns specifically is the fact that their longest negative lines each connect two spiral units to form S-spirals (on the Rosemarkie panel these connections instead form C-spirals). For this reason, the deep structural similarities between the Applecross key pattern field and the Nigg cross slab – which, like the Applecross cross slab, may also be dated to the 8th or 9th century due to similarities in its layout and ornament to carpet pages from the Book of Kells (Henderson 1982: 85–90, 98) – are doubly strong.

The Applecross carver significantly widened the negative line segments in the spiral units located along the top edge of the key pattern field. In contrast, they carved only very thin negative



ILLUS 12 (a) The Nigg cross slab and key pattern (below the cross-shaft, indicated in red). Scale is approximate (© Cynthia Thickpenny). (b) Detail (© Cynthia Thickpenny)

lines at the bottom edge of the same field. These differences can be seen by comparing the newly discovered Fragments 5.3 and 5.7 (top) with 5.5 and 5.8 (bottom) (cf Illus 13 and 14, versus Illus 2 nos 5.8 and 15). Because this panel only survives in fragments, it is not possible to determine what necessitated these alterations to negative line width. However, their progression across the key pattern field echoes that of the Rosemarkie panel. Damage and weathering make it unclear whether the individual spiral units on the Nigg panel were manipulated in the same fashion, although some hints suggest that the artist did widen the negative

lines within the spirals as they progressed down the field (albeit in the opposite direction of the widening on the Applecross key pattern, which occurred at the top of that field) (cf Illus 12b, Illus 16 and Illus 17).

However, neither fragmentation nor damage can hide the fact that on both the Applecross and Nigg key patterns the carver(s) shortened and lengthened the negative line segments within the spiral units, to lend them a 'tight' or compact appearance at one end of each field and a contrasting elongated or 'loose' appearance at the other end, as also seen on the Rosemarkie



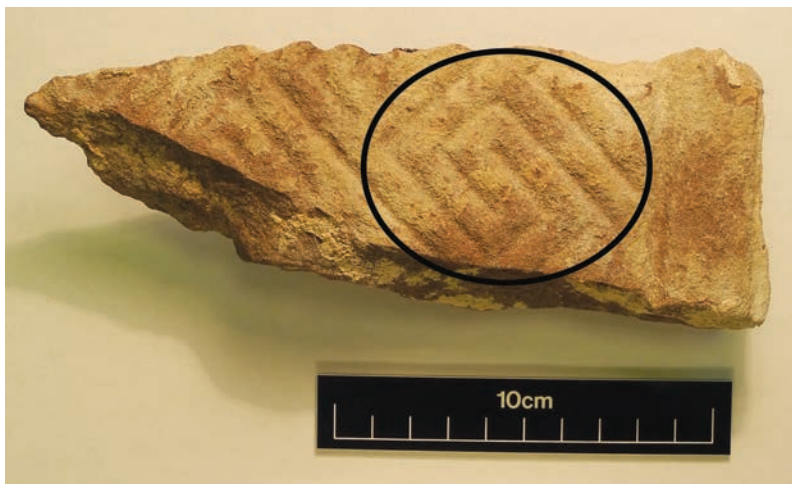
ILLUS 13 Shorter negative lines and wider negative space in a spiral at the top edge of the Applecross key pattern field. Fragment 5.3 (© Cynthia Thickpenny)



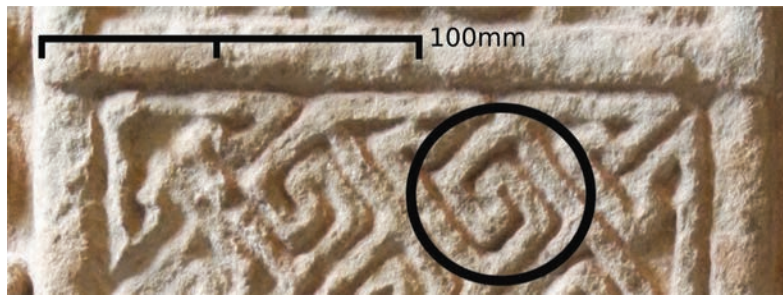
ILLUS 14 Wider negative space in a spiral near the top of the Applecross key pattern field. Fragment 5.7 (© Cynthia Thickpenny)

panel (Illus 10). Spirals along the top edges of the Applecross and Nigg key pattern fields possess comparatively short negative lines and thus a tighter, more compact appearance. On the fragments along the bottom edge of the Applecross key pattern field, these lines

are lengthened, giving spirals an elongated, strung-out appearance. It is unknown when this lengthening begins within the field, as so much of it is now lost. The same progression occurs on the Nigg cross slab and, because the entire field survives, it is clear that the elongation of the



ILLUS 15 Narrow and elongated negative lines in a spiral at the bottom edge of the Applecross key pattern field. Fragment 5.5 (© Cynthia Thickpenny)



ILLUS 16 Shorter negative lines in a spiral at the top edge of the Nigg key pattern field. Scale is approximate (© Cynthia Thickpenny)

spirals' lines commences approximately halfway down the field – as it also does on the Rosemarkie panel (for Applecross, cf Illus 13 and 14 with Illus 15 and 2 no. 5.8; for Nigg compare Illus 16 and 17). The only previous scholar to observe the gradual spiral elongation on Nigg was George Bain, but he made no connection to Applecross and attempted no explanation for why the artist altered the spirals in this way (Bain 1951: 77, plate 6). It is unlikely that the carver(s) altered their spiral units in response to an initial mistake in their planning or working processes, given that it appears in an identical manner on both Applecross and Nigg. It is more likely that the effect was deliberate. Again, one might speculate that the carver(s) intended to bottom-weight both key patterns.

These two key pattern fields from Nigg and Applecross do lack one detail found on the Rosemarkie panel: the use of spirals with four negative line segments (and thus four angles or

'turns' from the centre of each spiral). The Nigg and Applecross key pattern fields only contain spirals with three negative line segments (and thus three angles or 'turns'), like those found exclusively on the right half of the Rosemarkie panel. In fact, the partial addition of extra line segments or 'turns' within only some spiral units in a single key pattern field is unusual. The author is not aware of this occurring in any other sculptures in the Insular world besides the Rosemarkie panel.

On the Applecross cross slab, the carver manipulated the negative lines of another key pattern field in an equally unusual manner. This key pattern has single-stranded rather than two-stranded spirals, and is found in the lower cross-arm of the Applecross slab (Fragment 5.16) (Illus 18). During the carving process, the positive (raised) path in some spiral-shaped units had become noticeably wider than in others within this field. Further research is needed to identify



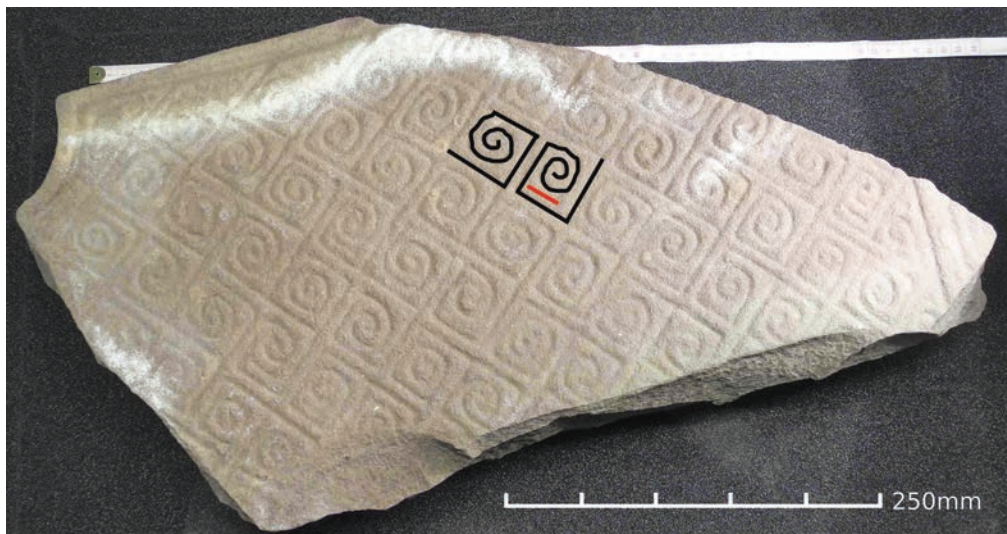
ILLUS 17 Elongated negative lines in a spiral halfway down the Nigg key pattern field. Scale is approximate (© Cynthia Thickpenny)

why this structural discrepancy occurred, but the Applecross artist restored the principle of path evenness by carving additional, unusual, short negative lines, or ticks, into units where the path had become too wide (Illus 18). This physical alteration likewise is found nowhere else in Insular key pattern in any medium – including the Rosemarkie panel. Therefore, while these specific strategies for physically altering negative space differ between the Applecross cross-arm and the Rosemarkie panel, they do share an utterly unique and experimental spirit or approach to the manipulation of space in key pattern.

The progressive widening and elongation of negative lines within spiral units, as seen on the Rosemarkie panel and Applecross and Nigg cross slabs, is itself also extremely uncommon on other Insular sculptures. While spiral units do contain negative lines of varying widths on other Pictish sculptures, such as the Rossie Priory cross slab, which the author examined personally, these widened negative lines were scattered randomly across the pattern fields in question and so are not limited to the innermost negative line segments within individual spiral units only. The artists simply widened whichever negative lines were

necessary for the maintenance of path evenness, instead of following an incremental, progressive programme like those at Rosemarkie, Nigg and Applecross. Furthermore, such manipulations of negative space are even rarer on key patterns from northern Britain that share Rosemarkie, Nigg and Applecross's diagonal structure with two-fold rotation and two-stranded spirals. These include the Ulbster cross slab, Burghead 9 and 12, the Aberlemno roadside cross slab, the Ardchattan cross, Kinneddar/Drainie 7, 12, 14 and 18, Lindisfarne 5 and Norham 5 (Allen & Anderson 1903, vol II, part III: 33, 140, fig 30 & 142; Cramp 1984b: plates 191, 206, nos 1055–9, 1174–5; Fisher 2001: 120; Fraser 2008: 48; HES (d); HES (e); HES (f); HES (g); HES (h)). None of the sculptures from this list contain gradual, progressive alterations of negative space.

The only other sculpture in northern Britain with key pattern that shares the same basic diagonal, rotated, two-stranded structure and possesses a progressive widening and lengthening of negative lines is the Abercorn 2 cross-shaft (NT 08147 79077; Canmore ID 251978). In a field near the top of Abercorn 2, one spiral unit at the top edge of the field has shortened negative



ILLUS 18 Applecross 5.16. Two adjacent spiral-shaped units with negative lines annotated in black. The carver added an extra negative line to one of the units (indicated in red). Scale is approximate (© Cynthia Thickpenny)

lines, while all the units below it have elongated negative lines. Only one spiral unit, in the bottom row of the pattern, has widened negative space. Though these alterations in spiral structure and negative space are similar to the Rosemarkie, Nigg and Applecross key patterns, Abercorn is located far to the south in West Lothian, making this cross-shaft an outlier.

The intense focus at Rosemarkie, Nigg and Applecross on the creation of progressions in negative line width and length, along with the two additional and highly unique methods of manipulating negative space on the Rosemarkie panel and Applecross cross-arm, are indicative of a single carver's or team's artistic habits and creative mindset. This evidence is further cemented by the artist's or artists' preference for diagonal patterns with two-stranded spirals and two-fold rotation across all three monuments, as well as these patterns' identical location below the lower cross-arm on the Applecross and Nigg cross slabs – both minor similarities which on their own would otherwise not be enough to identify a connection between the three sites. When viewed individually, each manipulation of the negative lines and spiral structures on the Rosemarkie panel and the Nigg and Applecross cross slabs also might not be enough to arouse suspicion. However, these traits occur together on these monuments en masse with a unique, unusual repetition and consistency indicative of an individual artist's personal habits and deliberate programmes, much like a scribal hand in manuscripts. If these three monuments were not carved by a single person, then they were created by a team of craftspeople all trained in the same strategies for manipulating key pattern's deep physical structure.

#### PREVIOUS SCHOLARSHIP ON STONE-CARVING 'SCHOOLS' IN THE INSULAR WORLD

The panel from Rosemarkie was not specifically discussed by Douglas Mac Lean or Ian Fisher in their overviews of sculpture from Applecross (Mac Lean 1997; Fisher 2001). John Romilly Allen himself was not yet aware of this sculpture

in his 1903 *Early Christian Monuments of Scotland*. However, both Mac Lean and Fisher briefly noted connections between the key patterns on the Applecross cross slab, the Nigg cross slab and other sculptures at Rosemarkie in a very general way, and on this basis suggested that Applecross had artistic links with Rosemarkie, Nigg and other sites in Easter Ross, and with Pictland more widely (Mac Lean 1997: 177, 181; Fisher 2001: 11, 14, 23, 88). For example, Fisher misidentified the two-stranded key pattern in the field below the cross-arm on the Applecross cross slab as Allen's no. 963, which actually contained four-stranded (rather than two-stranded) spirals (Fisher 2001: 88). He then briefly concluded that 'several' key patterns 'recur' at Applecross, Nigg, Rosemarkie and Tarbat in Easter Ross and Farr in Sutherland (Fisher 2001: 88). However, his observation about the Applecross key pattern was not only structurally incorrect, but also not specific enough to support any suggestion that the three sites traded ideas in the early medieval period. As we have seen, other sculptures, which contain key patterns with the same basic structure as that on the Applecross slab, are found across northern Britain but are otherwise unrelated. It is therefore best not to support arguments for links between multiple archaeological sites on this basis, nor should scholars rely on Allen, whose renderings of key patterns – as we have seen – are often unfaithful to the original medieval works. Neither Mac Lean nor Fisher analysed the key patterns on the Applecross cross slab at a level of detail sufficient for drawing firm connections between the site and Pictish Easter Ross.

Previous scholars similarly have compared other types of Insular pattern (interlace, vine scroll, etc) as evidence for the existence of 'schools of carving' in other parts of Britain (Cramp 1984a: 23–33). For example, in the first volume of *The Corpus of Anglo-Saxon Stone Sculpture*, Rosemary Cramp identified the origins and chronological developments of various 'schools of carving' in Anglo-Saxon Northumbria, based on general stylistic observations about sculptural ornament in this region (Cramp 1984a: 23–33). Cramp used three methods to identify links between ecclesiastical sites. First, she identified specific pattern types



within classifications that were common at an originating site, such as interlace ‘pattern F’, which was found at Monkwearmouth but rare elsewhere (Cramp 1984a: 23–4). The occurrence of this interlace pattern at another centre outside Monkwearmouth might well indicate a link between the two sites, however, as we have seen with key pattern, it is the artistic handling of tiny details within a pattern that is diagnostic and not necessarily the pattern type itself. Second, Cramp noted stylistic ‘parallels’ in patterns on different sites, such as the plant-scrolls at Escomb and Jarrow. She did not discuss whether these parallels were simply visual and impressionistic, or rooted in deep, subtle structural details (Cramp 1984a: 26). Third, Cramp also argued that modern specialists can differentiate between artistic hands by comparing the level of competence in the ‘layout and cutting’ of patterns on Anglo-Saxon sculpture (Cramp 1984a: 27, 38). She did not, however, outline her criteria for judging competence or which details of the patterns revealed artists’ skills or lack thereof. In the author’s opinion, it is best not to judge the comparative qualities of early medieval sculptures, as we do not know enough about Insular artists’ own aesthetic values and what they deemed competent or incompetent. Previous formal analyses of pattern, therefore, have not identified the deep, subtle structural details that most clearly differentiate the work of different artists.

This article is therefore most similar in approach, though not in method, to the work of Laila Kitzler Åhfeldt on the medieval picture stones of Gotland. Kitzler Åhfeldt scanned the incised faces of the picture stones with a 3D scanner, and from these scans created digital models that recorded the stones’ surfaces and ‘cutting lines’ (Kitzler Åhfeldt 2012: 183). These scans provided cross-sections of the incisions, each containing the ‘sequence of impacts’ that were formed as the carver’s chisel proceeded across the stone (Kitzler Åhfeldt 2012: 187). At this point, Kitzler Åhfeldt had not yet developed her research to identify single artists or workshops (ie a group of colleagues who trained and carved together), but she could identify differences in wider regional habits among

Gotlandish carvers (Kitzler Åhfeldt 2012: 187). However, she acknowledged the potential for her research to be developed further in this area. Although Kitzler Åhfeldt argued that her method of scanning cannot be applied to relief-carvings (Kitzler Åhfeldt 2012: 193), Megan Kasten of the University of Glasgow has developed a similar method of scanning grooves in more extensive, deeper styles of carving closer to relief on monuments from Govan, Scotland (Kasten forthcoming). Nonetheless, this current study of key pattern addresses only what can be seen with the naked eye. However, it shares with Kitzler Åhfeldt’s approach a focus on very small-scale aspects of carved ornament which were minute, personal and – once the artist(s) were trained – potentially automatic. In Insular key pattern, these micro-details are the artistic fingerprints of an individual artist or team trained in the same approach.

#### ARCHAEOLOGICAL AND HISTORICAL EVIDENCE FOR A PICTISH PRESENCE IN WESTER ROSS

The links between Applecross, Rosemarkie and Nigg harmonise with other archaeological and written evidence for a Pictish presence in the region of Wester Ross and Skye. Stones bearing incised Pictish symbols were found at Gairloch and Poolewe in Wester Ross, at Tote, Fiscavaig, and Tobar na Maor, in Skye, as well as on Raasay (Fraser 2008: 90, 94, nos 122, 125, 131–4). Both Douglas Mac Lean and James Fraser have discussed medieval textual evidence that records the movement of the Pictish kindred of Cano, son of Gartnait from Skye to Ireland in the mid-7th century (Mac Lean 1997: 174–5; Fraser 2009: 204–5). While their movements predated the sculptures at Applecross, Nigg and Rosemarkie by approximately a century or more, they demonstrate that it was easily possible for all three sites to communicate and share personnel in the 8th or 9th centuries. Lastly, as Isabel and George Henderson have observed, the form of the cross slab itself was most common in Pictland and distinctively Pictish, while the contemporary Irish and Anglo-Saxons favoured free-standing

TABLE 1  
Applecross Fragments 5.1–5.18

<i>Fragment no.</i>	<i>Dimensions (mm)</i>	<i>Condition of ornament</i>	<i>Ornament type</i>	<i>Location on Applecross cross slab</i>
5.1	215 × 75mm	Lightly worn	step pattern; key pattern	Cross-head ring
5.2	140 × 65mm	Lightly worn, contains edge-moulding	interlace	Interlace frame surrounding key pattern field in bottom section of slab
5.3	99 × 90mm	Half of face shattered, surviving area very worn but still clear, contains edge-moulding	key pattern	Top edge of the key pattern field located directly below lower cross-arm
5.4	167 × 56mm	Lightly worn	key pattern	Key pattern field in bottom section of slab
5.5	170 × 63mm	Lightly worn, contains edge-moulding	key pattern	Bottom edge of the key pattern field located directly below lower cross-arm
5.6	77 × 54mm	Very worn but still clear, stone stained	interlace	Central circular field of cross-head? (Matches 5.14)
5.7	104 × 65mm	Majority of face shattered, surviving area very worn but still clear	key pattern	Top area (away from edge-moulding) of the key pattern field located directly below lower cross-arm
5.8	113 × 29mm	Lightly worn, contains edge-moulding	key pattern	Bottom edge of the key pattern field located directly below lower cross-arm
5.9	113 × 44mm	Very worn but still clear	interlace	Central circular field of cross-head? (Matches 5.14)
5.10	141 × 65mm	Lightly worn	interlace	Interlace frame surrounding key pattern field in bottom section of slab
5.11	133 × 32mm	Very worn but still clear	zoomorphic	Separate monument
5.12	137 × 18mm	Badly worn and unclear, contains edge-moulding that divides two pattern fields	key pattern?	Uncertain area of Applecross cross slab

TABLE 1  
Applecross Fragments 5.1–5.18 (cont)

Fragment no.	Dimensions (mm)	Condition of ornament	Ornament type	Location on Applecross cross slab
5.13	150 × 27mm	Badly worn and unclear, contains edge-moulding that divides two fields	key pattern?	Uncertain area of Applecross cross slab
5.14	122 × 48mm	Very worn but still clear, stone stained, contains edge-moulding	interlace	Central circular field of cross-head? (Curved edge-moulding matches Applecross 2)
5.15	122 × 80mm	Surface shattered, with surviving curved edge	none	Separate monument
5.16	500 × 290mm	Lightly worn, stone stained, contains two edge-mouldings	key pattern	Lower cross-arm. Small section contains bottom edge-moulding of cross-arm and a portion of the key pattern field located directly below lower cross-arm
5.17	73 × 43mm	Very worn but still clear	key pattern	Bottom area (away from edge-moulding) of the key pattern field located directly below lower cross-arm *NB: The author was unable to view this fragment in person, but was able to deduce its approximate measurements by comparing its spiral-shaped key pattern unit with the size of key pattern units from other fragments located in the same area of the cross slab.
5.18	88 × 58mm	Lightly worn	key pattern	Left edge of the key pattern field located directly below lower cross-arm *NB: The author was unable to view this fragment in person, but was able to deduce its approximate measurements by comparing its spiral-shaped key pattern unit with the size of key pattern units from other fragments located in the same area of the cross slab.

\*NB: Dimensions are approximate because the fragments have irregular, shattered edges. Maximum lengths and widths are rounded to the nearest millimeter.

All fragments would have originally varied in depth between approximately 35–100mm (the total range of depths for Applecross 1, 2 and 3, which comprised the Applecross cross slab (HES (c)). Because of shattering and flaking, however, their current depths vary and so are not listed here. Fragments 5.11 and 5.15 likely belonged to separate monument(s). The depth of 5.11 is discussed separately in the text.

crosses (Henderson & Henderson 2004: 174–5). One should also add Iona, to the south-west of Applecross, to this list of sites and regions that preferred free-standing crosses. The form of the Applecross cross slab, as well as its key patterns, therefore pulls it into the Pictish orbit of Easter Ross.

## CONCLUSION

The early medieval monastery at Applecross was a major institution in the 8th and 9th centuries with connections that ranged from Ireland and western Scotland to Pictland in the east. The Applecross cross slab, now reconstructed even further with the discovery of new fragments, should be widely recognised as one of Britain’s art-historical treasures, with dense frames of complex abstract ornament that more than one scholar has rightly compared to the carpet pages of manuscripts such as the Book of Kells. In addition, the potential existence of another, unidentified sculpture from the site, surviving only in the newly discovered Fragments 5.11 and 5.15, further highlights Applecross’s important status in the Insular period.

When combined, the shared, overarching strategies for manipulating spiral shapes and negative lines in the key patterns on the Applecross cross slab, Nigg cross slab and Rosemarkie panel – in order to create visual effects and/or solve structural problems – are strikingly unique, deliberate, planned and thus reflective of a specific artistic habit. When all of these traits are considered together, there are no other comparable carved key pattern compositions elsewhere in northern Britain. This indicates that all three ecclesiastical sites shared a master carver or team of skilled personnel whose careers spanned both Easter and Wester Ross and who created some of the greatest surviving art-historical monuments in Britain.

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## REFERENCES

- Allen, J R & Anderson, J 1903, reprinted 1993 *The Early Christian Monuments of Scotland*. Balgavies: The Pinkfoot Press.
- Archival Methods 2015 'Matting. Part 4. "Centered" and "Weighted" Mats', in *Archival Methods: Archival Storage and Presentation Products*. <https://www.archivalmethods.com/blog/matting-part-4-centered-weighted-mats/>. Accessed 12 October 2018.
- Bain, G 1951, reprinted 1973 *Celtic Art: The Methods of Construction*. New York: Dover Publications, Inc.
- Bain, I 1994 *Celtic Key Patterns*. New York: Sterling Publishing Co., Inc.
- Brennan, M 2011 'The Structure of Interlace in Insular Art, c. AD 400–1200', unpublished doctoral thesis, Bangor University.
- Clancy, T O, Butter, R, Márkus, G & Barr, M (a) 'Applecross, Parish', *Saints in Scottish Place-Names*. <http://saintsplaces.gla.ac.uk/place.php?id=457>. Accessed 5 March 2018.
- Clancy, T O, Butter, R, Márkus, G & Barr, M (b) 'Máel Ruba M Elganaig of Applecross', *Saints in Scottish Place-Names*. <http://saintsplaces.gla.ac.uk/saint.php?id=133>. Accessed 5 March 2018.
- Close-Brooks, J 1995 *Exploring Scotland's Heritage: The Highlands*, 2nd edition. Edinburgh: HMSO.
- Coldstream, J D 2008 *Greek Geometric Pottery: A survey of ten local styles and their chronology*, 2nd edition. Exeter: Bristol Phoenix Press.
- Cramp, R 1984a *The Corpus of Anglo-Saxon Stone Sculpture, Vol. 1: County Durham and Northumberland*, vol 1.1. Oxford: Oxford University Press.
- Cramp, R 1984b *The Corpus of Anglo-Saxon Stone Sculpture, Vol. 1: County Durham and Northumberland*, vol 1.2. Oxford: Oxford University Press.
- Fisher, I 2001 *Early Medieval Sculpture in the West Highlands and Islands*. Edinburgh: RCAHMS and the Society of Antiquaries of Scotland.
- Fraser, I (ed.) 2008 *The Pictish Symbol Stones of Scotland*. Edinburgh: RCAHMS.
- Fraser, J E 2009 *From Caledonia to Pictland: Scotland to 795*. Edinburgh: Edinburgh University Press.
- Groam House Museum 2013 *Groam House Museum: A Guide*. Rosemarkie: Groam House Museum.
- Henderson, G & Henderson, I 2004 *The Art of the Picts: Sculpture and Metalwork in Early Medieval Scotland*. New York: Thames & Hudson, Inc.
- Henderson, I 1982 'Pictish Art and the Book of Kells', in Whitelock, D, McKitterick, R & Dumville, D (eds) *Ireland in Early Medieval Europe: Studies in Memory of Kathleen Hughes*, 79–105. Cambridge: Cambridge University Press.
- Henderson, I 1990 *The Art and Function of Rosemarkie's Pictish Monuments*. Rosemarkie: Groam House Museum Trust. <http://www.groamhouse.org.uk/index.asp?pageid=639805>. Accessed 12 October 2018.
- HES (a) 'Applecross, Chapel', Canmore, Historic Environment Scotland. <http://canmore.org.uk/site/11736>. Accessed 12 October 2018.
- HES (b) 'Applecross, Parish Church, Churchyard, Cloch Mhor Mac Cuagan', Canmore, Historic Environment Scotland. <http://canmore.org.uk/site/11735>. Accessed 12 October 2018.
- HES (c) 'Applecross, St Maelrubha's Monastery', Canmore, Historic Environment Scotland. <http://canmore.org.uk/site/11734>. Accessed 12 October 2018.
- HES (d) 'Digital Image of Drawing Bd 12 of Burghead Symbol Stone', Canmore, Historic Environment Scotland. <https://canmore.org.uk/collection/1260168>. Accessed 12 October 2018.
- HES (e) 'Drawing of cross slab fragment, Drainie no. 14', Canmore, Historic Environment Scotland. <https://canmore.org.uk/collection/952430>. Accessed 12 October 2018.

- HES (f) 'View of Burghead no. 9 cross-shaft fragment, with key pattern', Canmore, Historic Environment Scotland. <https://canmore.org.uk/collection/1233138>. Accessed 12 October 2018.
- HES (g) 'View of carved fragments (4) from altar shrine, Drainie no. 18 (including scale)', Canmore, Historic Environment Scotland. <https://canmore.org.uk/collection/1233037>. Accessed 12 October 2018.
- HES (h) 'View of fragment of cross arm, Drainie no. 9, with key pattern decoration', Canmore, Historic Environment Scotland. <https://canmore.org.uk/collection/1233117>. Accessed 12 October 2018.
- Kasten, M forthcoming 'The Govan Stones Revealed: Digital Imaging in the Analysis of Early Medieval Sculpture', unpublished doctoral thesis, University of Glasgow.
- Kitzler Åhfeldt, L 2012 'Picture Stone Workshops and Handicraft Traditions', in Herlin Karnell, M (ed.) *Gotland's Picture Stones: Bearers of an Enigmatic Legacy*, Gotländskt Arkiv 2012 Reports from the Friends of the Historical Museum Association, vol 84, 183–94. Visby: Fornsalen Publishing, Gotland Museum.
- Mac Lean, D 1997 'Maelrubai, Applecross and the Late Pictish Contribution West of Druimalban', in Henry, D (ed.) *The Worm, the Germ, and the Thorn: Pictish and Related Studies Presented to Isabel Henderson, 173–87*. Balgavies: The Pinkfoot Press.
- Thickpenny, C 2019 'Making Key Pattern in Insular Art: AD 600–1100', unpublished doctoral thesis, University of Glasgow. <http://theses.gla.ac.uk/41009/>. Accessed 20 February 2019.