A Zoomorphic Penannular Brooch from Tullahennell North, Co. Kerry

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A zoomorphic penannular brooch from the early medieval period discovered recently in unusual circumstances in North Kerry is described and illustrated, with discussion on its date, decoration and iconography. The crosses/chi-rho monograms on its terminals are given particular attention and are compared with similar examples from Ireland. A date of around AD 600 is proposed for the brooch and the evidence for contemporary Christian settlement in the area of the find is detailed. Reports on the XRF analysis and conservation of the brooch are also included.

Discovery

On the morning of the 18 July 2009 Mrs Sheila Edgeworth was clearing out the ashes from her Stanley range at her home in Martara, near Ballylongford, when she noticed something stuck in the grate. She retrieved the object, which her husband, Mr Pat Joe Edgeworth, thought initially might have been part of a donkey's mouth-bit, but on later reflection thought it was probably some type of brooch. Local enquiries eventually led to a visit by Mr Maurice O'Keefe and Mr Laurence Dunne to the Edgeworth's home in October, who identified it as a zoomorphic pennanular brooch of early medieval date. Mr Dunne subsequently reported the find to Kerry County Museum who later acquired the brooch on behalf of the State (Plate 1).[1]

When the brooch was first inspected by museum staff in October it had obvious signs of having being burnt, in that it had a blackened appearance and had carbonised material adhering to it. The terminals on the back of the brooch also showed signs of recent scouring, as did a small portion of the pin, which was a result of some 'cleaning' prior to its reporting (Plate 2). It seems that the brooch was inside a sod of turf when it was unwittingly thrown into the range. Mr and Mrs Edgeworth mainly burn turf, which is cut from their own strip of bog in the nearby townland of Tullahennel North and their supply at that time had come from the previous seasons cuttings. Mr Joe Deegan, who had cut the turf, kindly showed the author where these had been made. Thus it was possible to identify, reasonably precisely, the location from where the brooch had come.[2] The turf was extracted from the bog to a depth of 1.2 metres using a track machine and was then processed into sods using a hopper. The survival of the brooch through this process, not to mention being subsequently thrown into a Stanley range, is remarkable. The brooch was analysed by Dr Paul Mullarkey and conserved by Ms Carol Smith of the Conservation Department in the National Museum of Ireland and their reports are reproduced at the end of this paper.[3]

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[1] KCM 2010:2. I would like to thank Dr Niamh Whitfield and Dr Paul Mullarkey for their constructive comments on an early draft of this paper.

[2] Tullahennel North, civil parish of Aghavallen, barony of Iraghticonnor, Co. Kerry, OS Sheet 2. The co-ordinates of the area of bog removed are X96341 Y144768, X96341 Y144775 and X96358 Y144767.

[3] Kerry County Museum is very grateful to the National Museum of Ireland for this work, and in particular to Dr Paul Mullarkey, Ms Carol Smith, Mr Rolly Read, and Mr Eamonn P. Kelly.

Plate 1. Front of brooch *(Photo: Bryan Rutledge)*

Plate 2. Back of brooch *(Photo: Bryan Rutledge)*

Description

The brooch is made of bronze[4] and consists of two main elements: a penannular brooch-head to which a pin is attached (Plate 1). The brooch-head was cast as one piece and comprises of a penannular ring with an animal-head at either end, beyond which are expanded terminals that are decorated on their front faces only. The penannular ring is circular in cross-section, while the expanded terminals are flat faced, i.e. rectangular in cross-section. The ring is now slightly misshapen, probably as a result of post-deposition factors, so that the two terminals are now no longer perfectly aligned. The brooch-head measures approximately 54mm in diameter, while it varies in thickness from 2.8mm at one of the terminals to 6.4mm at one of the animal-heads, with the penannular ring being an average of around 4mm thick. At the two-o-clock position, adhering to the front of the brooch is a globule of metal approximately 2mm in diameter.

The animal-heads protrude from the body of the ring and, thus, act as stops for the head of the pin. They are oriented towards and abut the terminals of the brooch, feature long facetted snouts and end in angular expanded tips. The two sides of each snout, which are separated by central ridges, are decorated with two opposing q-shaped devices. The exception is the inner side of the left animal-head, which features four interlocking triangles.

The expanded terminals are triangular-shaped and each is decorated with a cross within a border. Some of the metal of the terminals has been removed to form the crosses which are flush with the surrounding border. While the surfaces of the crosses are smooth, the surfaces of the sunken areas around them are rough and scored. The crosses are equal armed and feature expanded terminals and a stem at their bases. In the case of the example on the right, the right side of the upper terminal of the cross extends down in an arc to meet the upper part of the right terminal, thus forming a 'P' or 'rho'. The cross is, therefore, also a chi-rho (see below). The same feature may be seen on the cross on the left, except in that case the left side of the upper terminal meets the upper part of the left terminal.

The pin is 92.2mm in length and is rounded in cross-section, averaging between 3 and 4mm in diameter. The head of the pin has been flatted and bent around the ring of the brooch to form a loop. It is 9.8mm wide and 8.3mm in diameter and is decorated on the front with a ridge on each of its edges and a central rectangular-shaped panel with raised edges, filled with a herring-bone pattern. The pin bows inward before straightening for the remaining two/fifths of its length. It has been slightly bent along the latter section. At the back of the pin there is a slight concave indentation at the junction of the bowed and straight sections (Plate 2). If the pin is positioned horizontally on the brooch-head, this indentation occurs at the point where it would have crossed the ring when worn. The corresponding area on the ring of the brooch-head, above the left animal-head, has been worn flat (Plate 1).

Discussion

The globule on the front of the ring (Plate 1), like the animal heads, acts as a stop for the head of the pin, meaning that the brooch could only have ever been worn with the pin pointing to the right. The indentation on the back of the pin and the flattened surface on the right side of the brooch-head, which are, no doubt, wear features confirm this. The

[4] See XRF analysis below.

brooch was fastened in place by feeding the pin through the cloth of the garment before passing it through the gap in the brooch-head and locking it with the back of the pin resting against the front of the ring.[5]

While the brooch-head was cast in a mould, most of the decoration appears to have been carried out by hand after casting.[6] Interestingly, the decoration on the inner side of the snout of the animal-head on the left seems to be unfinished (Plate 1). The intention appears to have been to decorate it in the same manner as the other sides, with opposing q's. However, although the process of cutting away the metal was begun, forming a series of triangles, it was never finished. The crosses on the terminals were also made post-casting. The scored surface around them is keying for enamel that is now lost. Red enamel was commonly used in the decoration of these brooches and its original presence on this brooch was also indicated in the XRF analysis by Paul Mullarkey. His work also revealed the original presence of tinning on the surface of the brooch, which would have given it a silvery appearance.[7] Thus, the brooch would have been far brighter and more colourful than it is today. Both the enamel and the tinning may have been lost through post-depositional processes while it was in the bog, or perhaps, as a result of the temperatures it was exposed to in the fire. The temperature of the range is unlikely to have reached higher than 900 or 950 degrees Celsius.[8] However, given the general condition of the brooch it seems improbable that it was exposed to these temperatures. One possible scenario is that the brooch settled into a bed of ash within the range, which insulated it from the higher temperatures of the fire.

What is of particular note regarding this brooch is the fact that the crosses on its terminals are also chi-rho monograms, i.e. XP, the first two letters of Christ's name in the Greek alphabet. The 'X' in each case is formed by the cross itself, while the 'P' is formed by the arc features which connects the upper and right terminals of the cross on the right, and oddly, in reverse, the upper and left terminal of that on the left. An explanation for the latter is probably a desire to balance the ornament.

Provenance

Despite the overwhelming evidence for settlement in Kerry during the early medieval period, only three brooches of this date are known from the county. One of these is a silver pseudo-penannular brooch of ninth-century date, which was found 'near Tralee' in 1856.[9] The second is a zoomorphic penannular brooch from the south of the county, while the Tullahennel brooch brings the total to three. Given the paltry number of brooches from Kerry it seems very unlikely that the Tullahennel brooch was produced in the county. Indeed, the vast majority of zoomorphic penannular brooches have been found in Leinster and Ulster and the workshop that produced it may well have been located somewhere in those two provinces.

The other known example from Kerry, which incidentally also came from a bog, is from Shronebirrane on the Beara peninsula. However, it is very different in form, with

[5] For example see Niamh Whitfield, 'More Thoughts on the Wearing of Brooches in Early Medieval Ireland', in C. Hourihane (ed.), *Irish Art Historical Studies in honour of Peter Harbison* (Dublin, 2004) pp 70-108:fig. 7a.

[6] This is also a feature of the 'Londesborough' disc-headed pin (British Museum 1888,0719.100) as noted by Fiona Gavin and Conor Newman, 'Notes on Insular silver in the 'Military Style'', in *Journal of Irish Archaeology*, vol. xvi (2007) pp 1-10:6.

[7] See XRF report below.

[8] I am very grateful to Mr Arthur Voigt of Bord na Móna for this information.

[9] British Museum 1888,0719.104, see R. MacAdam, 'African and Irish Fibulae', in *Ulster Journal of Archaeology*, vol. 5 (1857) pp 246-248:248, fig. 8.

much smaller terminals, and is earlier in date, having been dated to 'around the first half of the 5th century' by Conor Newman, although it too was originally decorated with red enamel and may also have originally been tinned.[10] Notably, William O'Brien recently excavated a contemporary habitation site in the nearby Barrees Valley on the same peninsula.[11]

However, one thing that connects the two Kerry zoomorphic penannular brooches is their location, both being found not far from the coast. Indeed, there is a clear, if sparse, distribution of zoomorphic penannular brooches along the Western seaboard, with examples from the coastal areas of counties Cork, Clare, Mayo and Donegal.[12] This implies that the distribution of these particular brooches may have been as a result of coastal traffic, and given that Tullahennel North is adjacent to the Shannon estuary, such a scenario seems the most likely explanation for its presence there.

The most closely related brooch to that from Tullahennel North is an example of unknown provenance from the Petrie collection in the National Museum of Ireland.[13] This brooch seems to have been produced by the same workshop and features almost identical stemmed crosses on its terminals, the only difference being that these crosses do not form a chi-rho. Furthermore, the crosses have a background of red enamel and there are also traces of red enamel on the animal-heads. Unfortunately, the lack of any information on the provenance of the Petrie collection brooch gives us no hint as to where the north Kerry example may have been produced.

Iconography and dating

Crosses are relatively unusual on zoomorphic penannular brooches, as the terminals are mainly decorated with abstract ornament. Including the example from the Petrie collection, discussed above, there are seven further zoomorphic penannular brooches from Ireland that also feature well-defined crosses on their terminals against a background of red enamel. Most of these were collected in the nineteenth century and, unfortunately, their find locations in most instances were not recorded. Three other examples, now in the National Museum of Ireland, were formerly in the Dunraven collection,[14] the Killua castle collection,[15] and the Dawson collection.[16] Another example, said to be from Co. Antrim and from Lord Antrim's collection, is now in the Ashmolean

[10] Conor Newman, 'The Iron Age to early Christian transition: The evidence from dress fasteners', in C. Bourke (ed.), *From the Isles of the North: Early Medieval Art in Ireland and Britain* (Belfast, 1995) pp 17-25:21-2.

[11] William O'Brien, *Local Worlds: early settlement landscapes and upland farming in south-west Ireland* (Cork, 2009) p. 222.

[12] Howard Kilbride-Jones, *Zoomorphic Penannular Brooches* (London, 1980) fig. 19.

[13] NMI P732. The ring of this brooch measures 49.5mm in diameter, while the pin measures 87.7mm long. George Petrie's collection was acquired posthumously by the Royal Irish Academy in 1866 and its catalogue was prepared by William Wakeman with assistance from Petrie's daughter. The terminals of this brooch are illustrated in Günter Haseloff, *Email im Frühen Mittelatter* (Marburg, 1990) p. 158, no. 5. Michael Herity and Aidan Breen, *The Cathach of Colum Cille: An introduction* (Dublin, 2002) fig. 14d.

[14] NMI 1980:79, see Kilbride-Jones, *Zoo. Pen. Brooches*, p. 130, cat. no. 110, fig. 44. Haseloff, *Email*, p. 158, no. 1. Herity and Breen, *The Cathach*, fig. 14c. This brooch was previously on loan to Limerick Public Library with other material from the Dunraven collection and photographs of it remain in the collections of Limerick City Museum (Reg. nos. 5437 & 5438).

[15] NMI 1943:292, see Kilbride-Jones, *Zoo. Pen. Brooches*, p. 133, cat. no. 121, fig. 46. Haseloff, *Email*, p. 158, no. 3. Herity and Breen, *The Cathach*, fig. 14a. I would to thank Raghnall Ó Floinn for information on this brooch and the previous one. This brooch was acquired with other material from Prof. Macalister (NMI1943:289-301). Haseloff attributes it to 'Co. Westmeath', but that was the location of the collection rather than its find location, which is now unknown.

[16] NMI W358, see Raghnall Ó Floinn, 'Penannular brooch', in S. Youngs (ed.), *The Work of Angels': Masterpieces of Celtic Metalwork, 6th – 9th centuries AD* (London, 1989) pp 31-2. Haseloff, *Email*, p. 158, no. 4. Herity and Breen, *The Cathach*, fig. 14b.

Museum, Oxford,[17] while the current location of a brooch from Lord Digby's estate in the barony of Geashill, Co. Offaly is unknown.[18] Apart from the Tullahennel brooch, the only other zoomorphic penannular brooch that features crosses which also form chi-rho monograms is an example from Ballymoney, Co. Antrim, now in the Hunt Museum, Limerick, which has been dated to the sixth century (Plate 3).[19] While less definite than those mentioned above, crosses are also implied in the arrangement of the plates of *millefiori* on an enamel background on at least four other brooches, including the large well-known example from Ballinderry.[20] Equal-armed crosses with expanded terminals may also be seen on a hand-pin from Treanmacmurtagh Bog, Co, Sligo,[21] while crosses also decorate hand-pins from Long Sutton, Somerset and Norrie's Law, Fife.[22]

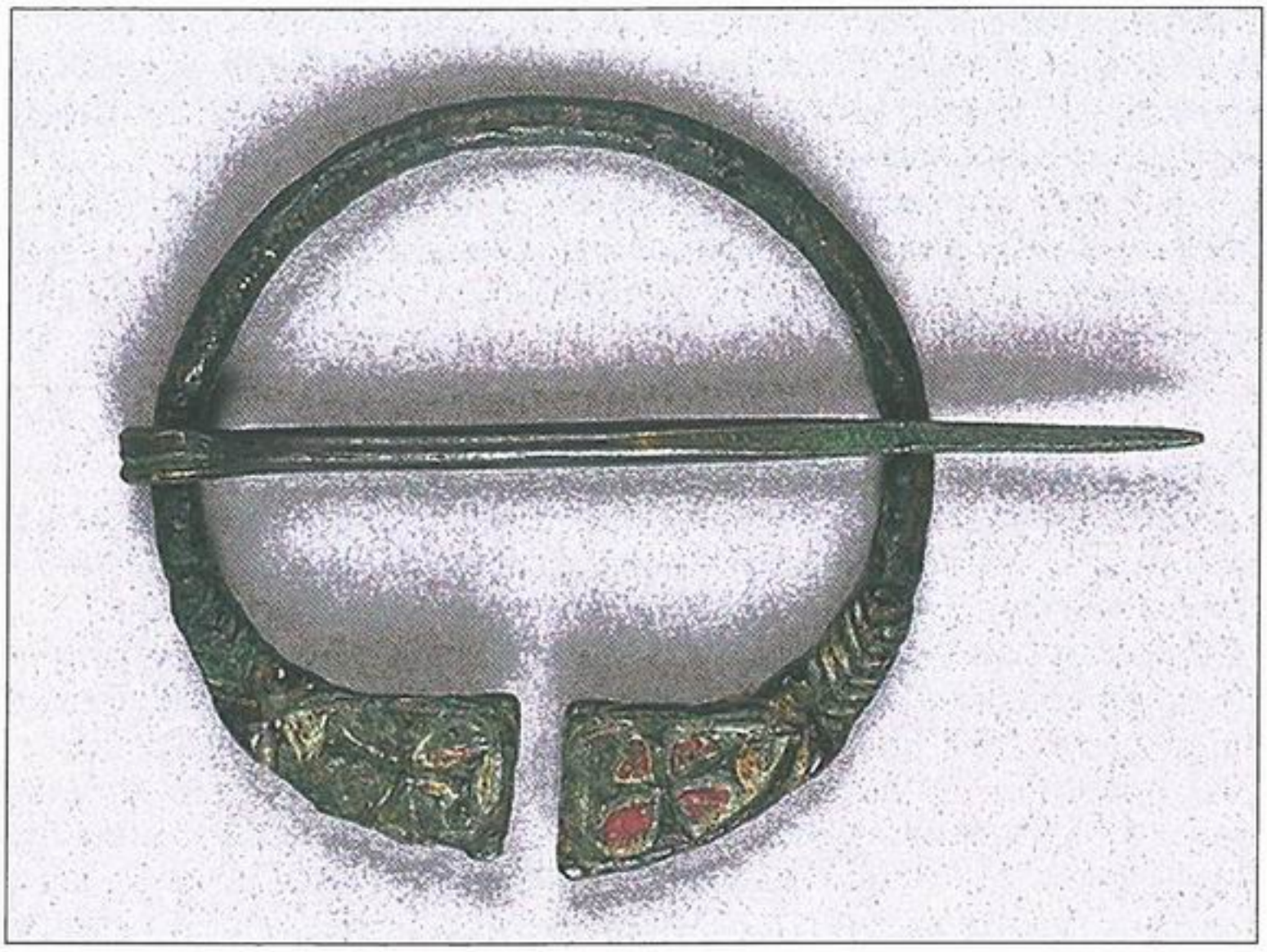

Plate 3. Brooch from Ballymoney, Co. Antrim *(© The Hunt Museum)*

[17] Ashmolean Museum, Oxford (1886-5819), see Kilbride-Jones, *Zoo. Pen. Brooches*, pp 134-6, cat. no. 128, fig. 47. Haseloff, *Email*, p. 158, no. 2. I would like to thank Eleanor Standley of the Ashmolean for information on the provenance of this brooch. The Lord Antrim collection, consisting of approximately 2,000 Irish antiquities, was donated to the Parks Natural Sciences Museum (now the Oxford Museum of Natural History) in 1880 and was later transferred to the Ashmolean in 1886, see M. Herity, E.E. Evans & B.R.S. Megaw, 'The 'Larne' Material in Lord Antrim's Collection at the Ashmolean Museum, Oxford', in *Proceedings of the Royal Irish Academy*, vol. 67c (1968/1969) pp 9-34:9-10.

[18] Anonymous, 'Proceedings at Meetings of the Royal Archaeological Institute, February 7th 1873', in *Archaeological Journal*, vol. 30 (1873) pp 181-85:184.

[19] Hunt Museum, Limerick HCA 509, see Raghnall Ó Floinn, 'Zoomorphic Penannular Brooch', in H. Armitage (ed.), *The Hunt Museum: Essential Guide* (London, 2002) p. 135. James Graham-Campbell, 'Dinas Powys Metalwork and the Dating of Enamelled Zoomorphic Penannular Brooches', in *The Bulletin of the Board of Celtic Studies*, vol. 38 (1991) pp 220-32:229, fig. 6. It is to be noted that this brooch was re-enamelled in recent times.

[20] Frank Mitchell, 'Catalogue entry', in P. Cone (ed.), *Treasures of Early Irish Art, 1500 B.C. to 1500 A.D.* (New York, 1977) p. 91, cat. no. 28. Kilbride-Jones, *Zoo. Pen. Brooches,* pp 120, 136-7, cat. nos. 89, 132, 133, figs. 40 & 48. See also Conor Newman and Niamh Walsh, 'Iconographical analysis of the Marigold Stone, Carndonagh, Inishowen, Co. Donegal', in R. Moss (ed.), *Making and Meaning in Insular Art* (Dublin, 2007) pp 167-183:179-80, fig. 11.

[21] Lasairíana Duignan, 'A Hand-Pin from Treanmacmurtagh Bog, Co. Sligo', in *Journal of the Royal Society of Antiquaries of Ireland*, vol. 103 (1973) pp 220-3. Herity and Breen, *The Cathach*, fig. 14e.

[22] Haseloff, *Email*, p.159, nos 8, 10 & 11.

The occurrence of the chi-rho monogram in Ireland has been independently reviewed by Ann Hamlin and Michael Herity.[23] Of the seven definite examples known on cross-inscribed stones in Ireland, four examples are in county Kerry: on the Iveragh peninsula at Ardmoneel; and on the Dingle peninsula at Arraglen, Coumduff and Kilshannig.[24] That at Arraglen also features an ogham inscription that commemorates a priest and has been dated to the late sixth century.[25] This dating corresponds with that for an inscribed stone with a chi-rho from St Just-in-Penwith in Cornwall.[26] In all the examples an upright cross forms the 'X' element, while the 'P' is represented by a small protrusion or hook on the right side of the upper terminal.[27] While the representation of the 'P' element on the Tullahennel brooch is different, the stemmed cross at Coumduff, near Anascaul in Kerry is remarkably close to those on the brooch (Plate 4). Other stones inscribed with the chi-

Plate 4. Chi-rho at Coumduff, Co. Kerry *(Photo: Lar Dunne)*

[23] Ann Hamlin, 'A chi-rho-carved stone at Drumaqueran, Co. Antrim', in *Ulster Journal of Archaeology*, vol. 35 (1972) pp 22-8. Michael Herity, 'The Chi-Rho and other early cross-forms in Ireland', in J.M. Picard (ed.), *Aquitaine and Ireland in the Middle Ages* (Dublin, 1995) pp 233-60. Some of those proposed by Herity, notably at Loher, Co. Kerry, Rathlin O'Birne, Co. Donegal and Caher Island, Co. Mayo are not convincing, see Michael Herity, 'Two Island Heritages in the Atlantic: Rathlin O'Birne, Donegal, and Caher Island, Mayo', in *Journal of the Royal Society of Antiquaries of Ireland*, vol. 125 (1995), pp 85-128.

[24] Judith Cuppage, *Archaeological Survey of the Dingle Peninsula* (Ballyferriter, 1986) pp 248-9, 280, 324, nos. 790, 831, 858, figs 137, 160, 171a, pl. XVIa. Ann O'Sullivan and John Sheehan, *The Iveragh Peninsula: An Archaeological Survey of South Kerry* (Cork, 1996), p. 253, no. 926, fig. 150.

[25] Fionnbarr Moore, 'The Ogham Stones of County Kerry', in G. Murray (ed.), *Medieval Treasures of County Kerry* (Tralee, 2010) pp 6-18:15, fig. 5.

[26] Charles Thomas, *Britain and Ireland in Early Christian Times AD 400-800* (London, 1971), fig. 56.

[27] This differs to an earlier version, an example of which can be seen on one of the ingots from the fourth-century Romano-British silver hoard from Balline, Co. Limerick, see S.P. Ó Ríordáin, 'Roman Material in Ireland', in *Proceedings of the Royal Irish Academy*, vol. 51 (1947) pp 35-82:47.

rho monogram are known from Cloonlaur, Co. Mayo and Inis Cealtra, Co. Clare.[28] The cross on the Inis Cealtra stone also features a stem, while that at Cloonlaur is situated above what appears to be a simple representation of a chalice and is accompanied by four additional crosses and a reversed alpha and omega. An alpha and omega may also be seen on either side of a cross/chi-rho monogram in the *Codex Usserianus Primus*, which is dated to the early seventh century.[29]

The only example of a chi-rho on a carved stone from Ulster occurs at Drumaqueran, Co. Antrim,[30] around four miles from Ballymoney, the recorded provenance for the only other brooch to feature the chi-rho monogram (Plate 3). Interestingly, this stone features a chi-rho on both of its main faces, with that on the east face carved in reverse, i.e. the 'P' element extends from the top left of the cross, rather then from the top right as on the west face. This feature is comparable to the arrangement on the Tullahennel brooch, which also features the chi-rho in reverse on one of its two terminals.

Ann Hamlin stated that:

> The occurrence of chi-rhos in Ireland and western Britain must be seen as one aspect of the active contacts by the western seaways between these areas and the Continent, particularly Gaul, but also Spain and the Mediterranean area.[31]

Indeed, imported pottery from the Mediterranean region of fifth and sixth-century date has been discovered on a number of archaeological sites in Ireland and western Britain, including the early Church sites of Caherlehillan on the Iveragh peninsula, and Reask on the Dingle peninsula in Co. Kerry.[32]

The stemmed crosses on the Tullahennel brooch are best paralleled on the Petrie collection brooch and on the stone at Coumduff, Co. Kerry, mentioned above (Plate 4). Notably, the latter cross also forms a chi-rho, but differs from those on the Tullahennel brooch in that the 'P' element of it is represented by a small circle on the right of the upper terminal. The crosses on the Dawson collection brooch and the Co. Offaly brooch, mentioned above, also feature stems, although these are less comparable. Other comparable stemmed crosses occur on the Dingle peninsula on ogham inscribed stones at Arraglen (mentioned above) and Maumanorig, as well as on stones at Kilvickadownig and, in a more elaborate form, at Reask.[33] The Maumanorig cross can be dated to the late sixth or seventh century on the basis of its ogham inscription.[34] The crosses on the brooch are also remarkably close to those that feature in initials in the *Cathach*, an Irish psalter from Co. Donegal, which has been dated to around AD 600.[35]

[28] Dáibhí Ó Cróinín, *A New History of Ireland Vol. 1: Prehistoric and Early Ireland* (Oxford, 2005), pl. 87c. Françoise Henry, 'The Antiquities of Caher Island, Co. Mayo', in *Journal of the Royal Society of Antiquaries of Ireland*, vol. 77 (1947), pp 23-38:35, fig. 8.

[29] Françoise Henry, *Irish Art in the early Christian Period (to 800 A.D.)* (Ithaca, 1965) p. 62, pl. 58.

[30] Hamlin, 'A chi-rho-carved stone'.

[31] Ibid., p. 24.

[32] Ian W. Doyle, 'Mediterranean and Frankish pottery imports in early medieval Ireland', in *Journal of Irish Archaeology*, vol. 18 (2009) pp 17-62:40-1, 55-6.

[33] Cuppage, *Arch. Survey Dingle*, pp 248-9, 327, 333-4, 342, nos 790, 861, 868, 874, figs 137, 196c, 201a, 205, pls 11, 37, 38 & 44. T. Fanning, 'Excavation of an Early Christian Cemetery and Settlement at Reask, County Kerry', in *Proceedings of the Royal Irish Academy*, vol. 81c (1987) pp 67-172:139-41, fig. 29A.

[34] Fionnbarr Moore pers. comm. 6/07/2010.

[35] Fols. 6r, 28v, 48r and 50v, see Herity and Breen, *The Cathach*, figs 10 & 11.

Therefore, the crosses/chi-rho monograms on the Tullahennel brooch are comparable with cross forms from primarily Christian contexts in Ireland and in Kerry in particular, which are mainly dated to the late sixth or early seventh century. One may conclude therefore that the Tullahennel brooch most likely dates from around AD 600.

Context

North Kerry has a high density of ringforts and a large number occur in the immediate area around the find location, with six located in the same townland and a further four in the adjacent townland of Tullahennel South, some of which could potentially date back to the sixth or seventh centuries.[36] The other recorded monuments in Tullahennel North include a holy well and a cillín.[37] Only one other archaeological object from Tullahennel is on record, which has been described as a 'wooden crooked scoop' and a 'wooden scoop or club', but which is of unknown age.[38]

The iconography on the brooch indicates that it came from a Christian context and may well have belonged to a cleric. The nearest ecclesiastical site of early medieval date is at Carrig Island,[39] which is only approximately five kilometres to the north-east. It lies on the southern side of the Shannon estuary, immediately across the water from Scattery Island, the well known early ecclesiastical site associated with St Senan. Interestingly, an early medieval decorative glass bead, dating from sometime between the seventh and the tenth centuries, was found on the shoreline of Carrig Island.[40] Moreover, three kilometres south-west of Tullahennel North an early medieval Christian cemetery was excavated by Niamh O'Callaghan at Farranastack. Fifteen grave cuts orientated east-west, some of which were stone lined, were excavated and, while no human bone was found in the graves, radiocarbon dates suggest that the cemetery dates from some time between the late seventh and the late ninth centuries, indicating that it post-dates the brooch.[41] A local association with St Lachtin, a late sixth/early seventh-century saint, whose name is preserved by the nearby later medieval Franciscan friary at Lislaughtin, may indicate that a church existed in the area from early times, perhaps at Carrig Island. It is tempting therefore to link the brooch with the ecclesiastical site on Carrig Island, although given the lack of any firm dating evidence for the latter, this remains speculative.

Furthermore, a substantial settlement was located near Ballybunnion during the Iron Age/early medieval period, which is approximately 11 kilometres west of Tullahennel North on the Atlantic coast. The remains of this settlement survive in the sandhills there and stone structures, cooking sites, middens and stone-lined graves orientated east-west have been recorded.[42] Numerous artefacts have been found amongst the sandhills,

[36] Tullahennel North: KE002-056, KE005-009, KE005-010, KE005-012, KE005-013, KE005-015. Tullahennel South: KE005-016, KE005-017, KE005-018, KE005-029. See Matthew Stout, *The Irish Ringfort* (Dublin, 1997), p. 92, fig. 23.

[37] Tullahennel North KE005-011 and KE005-014.

[38] Anonymous, 'Recent Acquisitions in University College, Cork, Museum', in *Journal of the Cork Historical and Archaeological Society*, vol. 45 (1940) pp 53-4:53, no. 11. While this is attributed to Asdee in the published account, its find location is more specifically given as 'Tullykinell, Asdee' in the Captain O'Connell archives in the Department of Archaeology, University College Cork. There is no townland in Kerry called 'Tullykinell' and one may confidently assume that it is Tullahennel that is being referred to, which is four kilometres south of the village of Asdee.

[39] Caroline Toal, *North Kerry Archaeological Survey* (Dingle, 1995) p. 208, fig. 94.

[40] National Museum of Ireland 1995:146; for comparable examples see O'Brien, *Local Worlds*, p. 264-5.

[41] Isabel Bennet (ed.), *Excavations 2003: summary accounts of archaeological excavations in Ireland* (Bray, 2006) pp 218-9.

[42] G.R. Wynne, 'Traces of Ancient Dwellings in the Sandhills of West Kerry', in *Journal of the Royal Society of Antiquaries of Ireland*, 5th series, vol. 3 (1893) pp 78-80.

including beads and pins, as well as knives, hones and spindle whorls, over a large area in the townlands of Ballybunnion, Ballyeagh and Killehenny. Notable amongst this material is an 'ibex-headed' pin,[43] as well as Roman coins from the second and fourth centuries and imported pottery, which has been tentatively indentified as fourth-century eastern Mediterranean ware.[44] Dumbbell beads were also recovered from the sandhills,[45] with similar examples found by William O'Brien from the later phase of occupation at a site in the Barrees valley, dated to c.340-620 AD.[46]

Two burials from stone-lined graves in Ballybunnion, which were excavated by Raghnall Ó Floinn of the National Museum of Ireland, were recently radiocarbon dated to between the late sixth and late seventh centuries. A burial from a further stone-lined grave in the neighbouring townland of Ballyeagh, excavated by Mary Cahill of the National Museum of Ireland, was also recently radiocarbon dated and returned a date of sometime between the late fifth and mid to late seventh centuries.[47] Indeed, a plate from a double-sided bone comb from Ballyeagh, decorated with Ultimate La Tène ornament, which was originally dated by Etienne Rynne to the third or fourth centuries, is more likely to date from the sixth or seventh centuries.[48] Similar decoration occurs on a copper-alloy ringed-pin also from Ballyeagh, which was dated by Joseph Raftery to 'about 300 A.D.,'[49] but which again is more likely to date from the sixth or seventh centuries. The ornament on these two objects is closely comparable with that on the small Irish house-shaped shrines from Clonmore, Co. Armagh and Bobbio in Italy, which are dated by Cormac Bourke to around 600.[50] These objects were probably contemporary with the stone lined graves; indeed, much of the material recovered from the sandhills probably comes from this later phase of occupation.

Two long stone cist graves were excavated by Isabel Bennett at Dromkeen East near Causeway, about 20km south-west of Tullahennel North. These graves were orientated east-west and, although not radio-carbon dated, they probably date from somewhere between the fourth and the seventh centuries.[51] Another cemetery site in north Kerry was excavated more recently by Frank Coyne at Clogher near Lixnaw, which is approximately 20 kilometres south of Tullahennel North. These burials were also orientated east-west and produced radiocarbon dates centring on the late sixth century.[52] This evidence clearly demonstrates that contemporary communities in the area were burying their dead in the Christian manner at this time, i.e. inhumations orientated east-west devoid of grave goods.

[43] Joseph Raftery, 'New early Iron Age finds from Kerry', in *Journal of the Cork Historical and Archaeological Society*, vol. 45 (1940) pp 55-6.

[44] S.P. Ó Ríordáin, 'Roman Material in Ireland', in *Proceedings of the Royal Irish Academy*, vol. 51c (1947) pp 35-82:66 & 73, fig. 8. J.D. Bateson, 'Roman material from Ireland: a re-consideration', in *Proceedings of the Royal Irish Academy*, vol. 73c (1973) pp 22-97:48, 87. See also NMI 1978:326, which is on display in Kerry County Museum (L1992:95).

[45] NMI 1944:15 & 1944:533, which are on display in Kerry County Museum (L1992:58 & 65).

[46] O'Brien, *Local Worlds*, pp 224 & 249, pl. 66.

[47] NMI 1987:54 & 55; 1979:81. I would like to thank Mary Cahill and Maeve Sikora of the Irish Antiquities Division, National Museum of Ireland for permission to refer to these dates in advance of publication.

[48] Raghnall Ó Floinn pers. comm. 5/07/2010, NMI 1957: 240A, see E. Rynne, 'Three bone combs', in *Journal of the Royal Society of Antiquaries of Ireland*, vol. 88 (1958) pp 150-2.

[49] Raftery, 'Iron Age finds from Kerry', p. 55.

[50] Cormac Bourke, *Patrick: The Archaeology of a Saint* (Belfast, 1993) pp 14-16.

[51] Isabel Bennett, 'Excavation of two long stone cists at Dromkeen East, Causeway', in *Journal of the Kerry Archaeological and Historical Society*, vol. 19 (1986) pp 149-65.

[52] Excavation license number 04E0356. I would like to thank Mr Frank Coyne of Aegis Archaeology Ltd, the site director for this information, see Isabel Bennet (ed.), *Excavations 2004: summary accounts of archaeological excavations in Ireland* (Dublin, 2007) p. 186.

Conclusion

The Tullahennel brooch is a very welcome addition to the sparse number of early medieval brooches from county Kerry. It also forms part of a growing corpus of zoomorphic penannular brooches that feature overt Christian symbolism, highlighting the significance that different styles of dress and jewellery may have had in the period. The brooch was probably accidently lost in the bog rather than hidden, and it seems highly likely, given the symbolism, that it was worn by a cleric. Indeed, the brooch may have even denoted the ecclesiastical office of its owner. Intriguingly, the local area is associated with St Lachtin, an Irish saint who died in the early seventh century, which may indicate the presence of an early Christian foundation in the area at that time; perhaps located at Carrig Island. Indeed, the burial evidence from Ballybunnion and Lixnaw suggests that there were contemporary Christian communities living in this region of north Kerry. The crosses on the terminals are very similar to some examples carved on stones on the Dingle peninsula, indicating that the carvers of those monuments may have been influenced, not solely by the decoration in religious manuscripts, but by crosses on less sacred portable items such as brooches. Most importantly, the chi-rho monograms on the brooch are further evidence of a symbol that was used in Ireland during the early stages of Christianity, of which very few examples survive, and for which county Kerry boasts, by far, the greatest number.

XRF Analysis of the Tullahennel Brooch

PAUL MULLARKEY*

The brooch was analysed using a Spectro Midex EDXRF (energy dispersive x-ray fluorescence) spectrometer using a Molybdenum anode. The diameter of the tube collimator and the measurement spot size is 0.7mm., and the distance from the sample surface varies from 2-5mm. The operating conditions for the X-ray tube were 45kV and 0.6mA at normal air pressure. Sample counting time was 180 seconds livetime. The principal elements analysed were copper, tin, zinc, lead, silver, arsenic and antimony.

Methodology

The brooch was analysed within the sample chamber and the measurement spot, which is highlighted by a laser, was viewed on an adjacent VDU, thus allowing for accurate positioning of the sample site. There was no sample preparation, such as polishing or abrasion of the surface, as it would have resulted in unacceptable damage. Results are affected by the surface conditions of the object, such as curvature, indentations, pitting and the presence of contaminants, surface dirt and corrosion products. However the brooch has been recently conserved which has left a somewhat clean, although pitted surface. Other factors affecting the results are the surface depletion and enrichment of copper, tin and lead, due to corrosion mechanisms during burial and the subsequent exposure to high temperatures while in the range. Therefore the results must be viewed as semi-quantitative.

Results and comment

A total of ten sites were selected for analysis on the artefact: two from the pin, two from the hoop and the remainder from the terminals. Due to invalid analyses from four sites the mean value was calculated from six sites for the brooch and two for the pin. The

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standard deviation from the mean was high (4.08) for the major elements as the readings were affected by surface phenomena. The reverse of the right terminal had some recent damage in the form of abrasions which revealed the underlying surface. An analysis taken from this site had a higher level of copper and a corresponding lower level of tin than the mean value. This analysis is more characteristic of zoomorphic penannular brooches which have levels of copper and tin in this range.[53] Therefore it was decided to include this reading separately in the table below.

	Copper	Tin	Lead	Zinc	Silver	Antimony	Arsenic
Brooch	75.23	21.23	1.83	0.64	0.09	0.06	0.07
Pin	79.64	12.50	4.86	0.77	0.35	0.05	0.13
Reverse of terminal	82.87	14.71	0.95	0.57	0.12	0.06	0.07
Terminal with tinning	61.04	32.19	2.07	0.98	0.18	0.06	0.04

In addition to establishing the alloy the xrf was also used to identify additional decorative techniques used to embellish the artefact, namely tinning and enamelling, which are usually found on this type of penannular brooch. There were no traces of enamel visible under magnification in the 'keyed' surfaces on the pinhead or terminals. The composition of these 'sealing-wax' red enamels is characterised by a high lead content and therefore if present, the xrf would detect a higher level of lead then that present in the metal substrate. A sample site analysed from a 'keyed' area on the left terminal confirmed that there was a noteworthy increase in the lead concentration.[54] Traces of a silver/grey overlay were visible along the edges of the left terminal and when this area was analysed there was a significant increase in the level of tin, which would demonstrate that the surfaces of the brooch were tinned in antiquity.[55] Since tin has a low melting point (c.230°C) and is present on the surfaces of the brooch it is unlikely that it was subjected to extreme high temperatures for any length of time as the tin would have vaporised. This would indicate that the brooch may have been concealed within a sod of turf which retarded the heat transfer to the metal while in the range. The loss of tin from the surfaces of the brooch may be due to abrasion and wear during use and subsequent corrosion during deposition.

Conservation Report for the Tullahennel Brooch

CAROL SMITH*

Condition Report

The brooch was discovered in the grate of a range. It was probably lifted from the ground in a sod of turf and subsequently burnt in the range. The finders may also have cleaned the object prior to handing it in to the Kerry County Museum as there are a number of

[53] From unpublished xrf data in the NMI.

[54] The mean value for lead was calculated as 1.83. The lead reading for lead from this sample site was 3.20%.

[55] See *Terminal with tinning* result in the above table.

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scratches on the reverse of the terminals and the pin. Some of the surface of the brooch is quite blackened while in other areas the patina is lost revealing the underlying metal. There appear to be soot-like deposits in the grooves and recesses of the decoration and some possible orange iron corrosion products. Dr Paul Mullarkey carried out an XRF analysis of the brooch which revealed evidence that the brooch was tinned and enamelled.

Material: Bronze
XRF: Job number 317 – see results above
Notes: Most of the blackened surface will be left intact as it is part of the history of the object and it won't cause any further harm to the brooch.

Conservation Treatment
Treatment Report: The brooch was photographed and an XRF analysis carried out. The orange iron hydroxide-like deposits and the soot-like deposits in the recesses of the decoration were removed by mechanical means using a scalpel and an air abrasive with soft powder (baking soda), low powder flow (2 on a scale of 1-10) and low air flow (2.5 bar). The entire surface of the brooch was then further cleaned using a very fine glass bristle brush. The original surface survived in some recessed areas. The brooch was coated in 20% Incralac in Acetone with Gasil used as a matting agent. The entire surface was then coated in Renaissance microcrystalline wax to produce a more matt finish.