

## The Pictish brooch from Aldclune, Blair Atholl, Perthshire

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### ABSTRACT

*The early ninth-century silver penannular brooch from Aldclune is fully described and its manufacture assessed in detail.*

### DISCUSSION

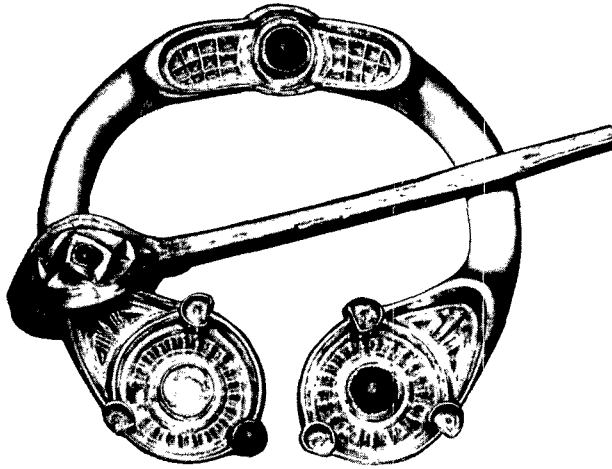
As the excavation report on the fortified site at Aldclune near Blair Atholl (*Discovery Excav Scot 1980*, 82–3) has had to be delayed, the following report submitted to the Scottish Development Department (Ancient Monuments) on the penannular brooch found there in post-occupation detritus (including metalwork debris) is now published separately with the Department's agreement.

After conservation the finely preserved penannular brooch (illus 1 & 3) is a notable addition to the Pictish series which D M Wilson (1973) has surveyed and illustrated fully. To judge by its bold design it comes among the latest in the typological development of the series, which then seems to disappear while still vigorous. Cast in silver, gilded in the decorative panels, it is medium sized (almost 62 mm by 65 mm), and retains four of its inset jewels of glass, all detailed further on.

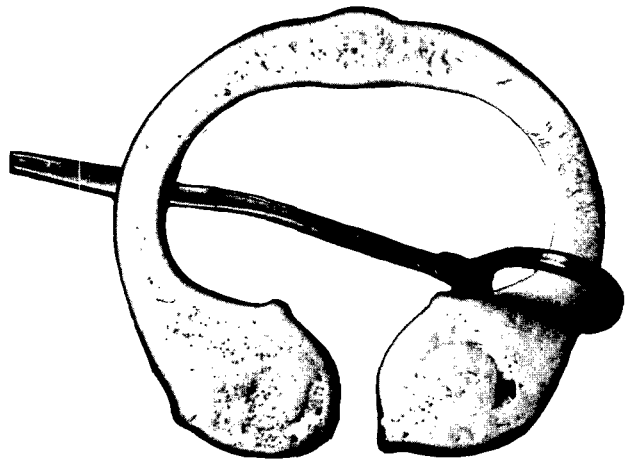
The brooch-sequence appears to show that after some of the highly decorated ornaments of the Hunterston or 'Tara' type (Stevenson 1974) had been given a rosette-like lobed disc as central feature on their triangular pseudo-terminals, a fashion of simplification among the Picts led progressively to true terminals consisting of this rosette on its own, then to atrophy of the outer lobes into winged bird heads, leaves or horns, and finally to the disc alone. The decoration on the hoop, becoming similarly simplified, was more quickly eliminated except for the elongated cartouche opposite the terminals; in contrast the crescentic or thumbnail-shaped extension of the terminals at their junction with the hoop, assimilated in form to the lobes and serving as a buffer to the pin, tended to be emphasized and extended. Though broad and convex this junction lobe is often conveniently called a cusp, in the rarer sense of a projection rather than a point where two arcs meet at an acute angle. Several brooches have small circular jewels in the angles between the lobes, beginning with the rosette on the 'Breadalbane' brooch's pseudo-terminals, but only on the Aldclune brooch so far do they survive round a bare disc.

Attention may be drawn to minor peculiarities in the Aldclune decoration, generally modifications of design elements recognizable in the other known, really rather scarce, 'Celtic' brooches and metalwork. The low mouldings within the margins of the main fields are closely covered with a double row of punched dots, reminiscent of the pointillé outlines of the incised circles on St Ninian's Isle bowl no 1, and of the nicked or beaded borders of that hoard's brooch no 18. The collars around the larger glass jewels instead of an even edge have one minutely scalloped, possibly to harmonize with the pointillé mouldings. The small collets have not been treated in this way; no functional explanation

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(a)



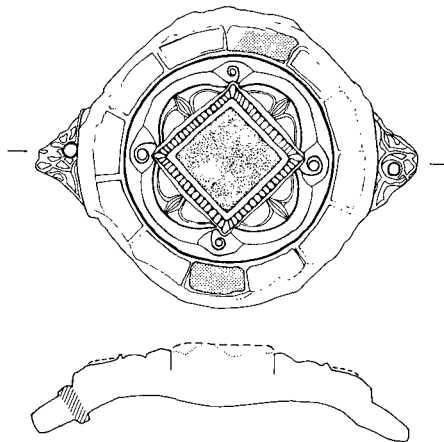
(b)



(c)

ILLUS 1 Front and back of the brooch from Aldclune, Perthshire, and the back of its pin (NMAS FC 304) (scale 1:1)

is offered for their squaring on one side. Features within the cusps – two small bosses, a median ridge and feather-like triple ridges – might be a reworking of parts of a bird-head design such as on the terminals of St Ninian's Isle brooch no 18. It is also noticeable that the main ring in the discs consists of neat conical bosses rather than the radial ribbing or billets found at earlier stages in the brooch series. The arcs projecting from the centre of the cartouche have been treated more emphatically than the similar feature on St Ninian's Isle brooches nos 22 and 25, by being raised and boldly scalloped. Instead of the usual interlace of oblique lines the cartouche contains rectangular grid patterns executed in the same chip-carving technique: perhaps this squaring-up was related to the tendency in contemporary sculpture to place peltoid spirals vertically and horizontally instead of obliquely, and towards Greek-key patterns. In contrast the decoration of the head of the pin, though also chip-carved and so with various angles and slanted surfaces, is largely formed of swelling Celtic curves. A strong possibility, supported by metal-analysis, is that the pin is a contemporary replacement from another brooch. It has some resemblance to a heavy ornament of gilt bronze set with amber and rectangles of tin or a tin-rich substance, said to have been found in the West of Scotland (illus 2: *Proc Soc Antiq Scot*, 61 (1926–7), 22–3); a similar unusual arrangement of curves there forms a quatrefoil design perhaps related to that of some brooch terminals but more sophisticated (cf Irish or Pictish harness-mounts found at Gausel, Norway: Mahr 1932, pl 34).



ILLUS 2 Heavy mount from 'West of Scotland', bronze gilt with amber centre (NMAS IL 363) (scale 1:1)

The divergent views on how far brooches were manually decorated after casting were kept in mind during the technical examination. Evidence found supports the conclusion that all the detail (other than the glass insets and gilding of course) was on the model. It seems that this was of wax, but a novel conclusion is that this incorporated some small shapes of metal, sheet and tube. These were not in the cast so the process was not *cire perdue*; the mould will have been two-piece as normal on metalworking sites of the period. A possible example of a similar procedure is on the back of the much more elaborate but probably contemporary Irish brooch from Roscrea, Co Tipperary, in the form of frames which imitate twisted metal strips (Ryan 1982, 11, pl 9).

As regards dating, the find of moulds for simple lobed and horned brooches at the Brough of Birsay in Orkney is thought to be immediately pre-Norse (Curle 1982). The typologically later brooch

from the Croy hoard in Inverness-shire was associated with a mid-ninth century Anglo-Saxon coin. It has disc-ends held in a lobe modified into the stylized reminiscence of open jaws; the illustration of it and the lobed brooch found with it in Wilson's pl 38a and c (1973) is, one should note, enlarged unlike the third, 38b, its actual diameter being 83 mm not 107 mm. More naturalistic gaping jaws without a disc occur at the Brough of Birsay (Curle 1982, ill 41). From these comparisons the Aldclune brooch may be judged to have been made early in the ninth century.

The distribution pattern of Pictish brooches (Wilson 1973; Stevenson 1959) is no doubt unrepresentative of the original area of their use and manufacture, because archaeological excavation hitherto, and the pressures of Norse raiding, have been peripheral to the agricultural heartlands of the Picts. Aldclune produces a welcome second dot in Perthshire for the distribution map (Wilson 1973, fig 14). Actually a closer find spot may be given for the two brooches from 'near Perth' (one gold encrusted, his no 12, the other typologically odd but genuine, his pl 43). Though only 'Perthshire' in *Proc Soc Antiq Scot*, 10 (1872-4), 27, this was originally 'said to have been found near Cluny Castle', between Blairgowrie and Dunkeld (Minutes Soc Antiq Scot 9 December 1872). In addition the rich brooch, ancestral to the series, called 'Breadalbane' though unlocalized, could well have also been found in Perthshire: the seller in 1917 was The Hon Thomas George Breadalbane Morgan-Grenville-Gavin (*Proc Soc Antiq London*, 32 (1919-20), 66), who was a great-great-grandson of the first Marquess of Breadalbane through the Dukes of Buckingham. According to Christie's catalogue (5 July 1917) the arms and armour then sold had been in the collection of the second Marquess (d 1862) and had been inherited by the seller through that Marquess's nieces, neés Pringle. Many of these items were certainly Breadalbane property from the 16th and 17th century. (I am indebted to Dr D H Caldwell for tracing genealogical and other information.)

## DESCRIPTION AND TECHNICAL CONSIDERATIONS

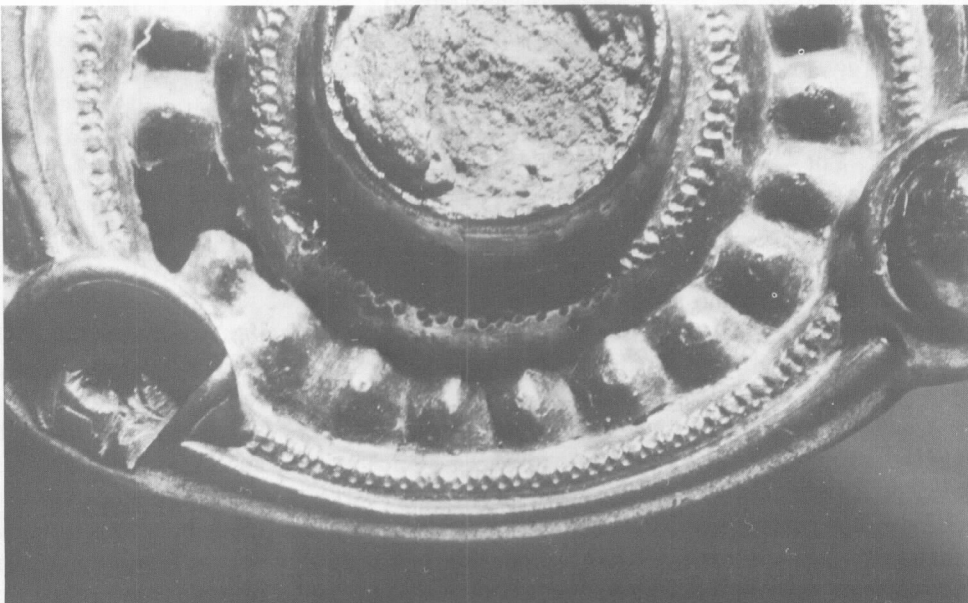
In the following study I have had the benefit of a scientific report by Dr J O Tate of the National Museum of Antiquities' laboratory as well as measurements and other observations by him, also of discussion with him and Mr E R K Hamilton, formerly silversmith with Messrs Hamilton and Inches. They do not concur with all my tentative conclusions.

The brooch as analysed is of good quality silver with mercury gilding on the panels and inside their frames. The body is cast, smoothly polished in front, its inconspicuous imperfections mainly on the inner surface of the frames. The hoop is plano-convex, averaging about 2 mm thick, 7 mm wide and 65 mm across, rather scratched, and considerably worn (down to 1.7 mm) where the stalk of the pin habitually rubbed towards the wearer's left when the terminals were downward (cf Wilson 1973, fig 19); the whole of that half of the brooch is fractionally more solid than the other half. The back has occasional air-bubble holes, and the unevenly rounded surface that results from an open mould but which must reproduce the back of the pattern or model around which the final closed clay mould for casting the silver was made. It was normal for such a mould to be in two halves to allow the model to be removed before casting. Some arcs and smooth areas on the back (illus 1) may have been caused by pressure when the design was being worked up in the front of the model blank, or by contraction of the metal during solidification owing to the difference between thicker and thinner areas.

The pin was worked on both sides, its stalk 2 to 3 mm thick and some 4 mm wide, broadening to 4.4 mm where it rests on the hoop, and where there is much wear on the underside. It is possible that the pin was cast flat and then bent to form the hook beyond the oval head (illus 1), which resembles those of the St Ninian's Isle brooches. From the top of the curve to the point was originally perhaps 110 mm, but an estimated quarter has been lost off the end in antiquity. The silver of the pin is more highly alloyed with tin and has nearly one-third copper in the core. This may have been to stiffen it, or

may indicate a different origin. The pull of the cloth has bent the pin inwards and slightly downwards within the hoop. It has now become embrittled, resulting in a recent accidental break near the end of the hook where it is only 1.7 mm thick, revealing the surprising copper-coloured interior.

The outer wall of each cusp is smoothly moulded to rise 2 to 3 mm above the hoop, then slopes down, above an almost vertical inner face, to meet the approximately 2.2 mm high sides of the terminal disc where they are interrupted by a vertical stirrup-shaped collet. A third, equidistant, collet again straddles the outer rim, almost circular in both cases, one of them retaining its inset. In each terminal disc (diam 21–22 mm) there was a central glass stud (one missing) held by a plain bezel which has been rubbed inward in such a way as to produce a minutely scalloped edge. This is surrounded by three decorative rings: on either side of a ring of bosses a narrower convex moulding carries a double row of dots. It can be seen that part of one outermost row, to the left of the surviving stud in the edge, was worked at a different angle and perhaps more deeply than usual, so that it resembles a row of vertical teeth (illus 3); they have, one may judge, been pricked into some soft substance, corrugating the edge of the moulding as well as producing holes along the top. They were, therefore, certainly not punched in the silver, but solely worked into the model, and the 'teeth' would seem to indicate a model as tractable as wax, rather than lead. The bosses are unevenly spaced, crushed together sideways in the ring, 21 of them in the right terminal and originally 23 in the left; damage has removed one, leaving a very thin torn edge. They are not repoussé but solid. A small 'crater' central in the top of every one might be due to an irregularity in the top of a hollow cone pressed vertically into a solid moulded ring on the model and compressing the wax upwards. More probably the greater flow of material round the edge of the impression raised a rim inside the cone (as well as outside), which would have coalesced into a dome if the cone had been pressed down far enough to fill it completely – not possible owing to the extreme thinness. (Compare Professor Gaspar's figure showing cross-sectional views of impressions made by a ring-punch and the formation



ILLUS 3 Brooch from Aldclune: detail of dexter terminal, showing 'craters' and projecting 'pin holes' (scale c 6:1)

of a bead by a deep impression in soft steel: Dyer *et al.*, forthcoming, fig 2). The cratered effect can be reproduced in wax with a rod having a conical depression in the end if twisted to and fro while being pressed downward. Of other possibilities, the 'craters' are unlikely to represent air trapped during the final casting, for then they would have been to one side of the tips, to judge by the moulds from the Brough of Birsay which show that there the decorated surface was in the upper half of a mould set at a steep angle to its pouring-gate (Curle 1982, 37, ill 21; *Proc Soc Antiq Scot*, 105 (1972–4), 306, fig 3). Dr Tate has doubted whether the bosses are uniform enough to have been formed by a single conical stamp without additional tooling, and tentatively considered corrosion pitting through worn gilding – remarkably uniform and not occurring elsewhere. There are in fact hardly any casting flaws or pitting to be seen on the front surface of this brooch, except under considerable magnification; one is on the inner pointillé ring near the torn hole. One possible major flaw is in the outer edge of the collet beside the tear, part missing and rubbed smooth. The writer believes that the worst examples of 'wear' on the edges of some of the brooch-terminals in the St Ninian's Isle hoard are really due to deficiencies in casting.

On each cusp an outer pointillé moulding as in the discs surrounds the D-shaped space, which in turn is crossed by a slightly broader moulding less regularly dotted. On the triangles so formed there is a small boss in the apex near the hoop. Below each boss are three (or once four) plain ridges not quite parallel to the central moulding, and a long curved ridge linking their top and extending down above a triangular hollow into the exterior angle.

The bull's-eye design of the terminals is echoed by the setting of the jewels in the cartouche. Round the glass inset there is again a faintly scalloped bezel and then a pointillé moulding. The outer ring is formed in part by quadrantal arcs in the frame of the cartouche, their edge rising slightly higher in three scallops and projecting inwards and outwards. It is completed on either side by the pointillé curved lines at the base of the rows of four irregular squares which they contain. The interior of the squares is sunk in four chip-carved facets, or three where the curve truncates them. The bottom of these is extremely thin, as has been shown by X-rays.

A fine groove along the top of the cartouche's curved ends, uniformly 0.5 mm out from the interior vertical wall, and a similar groove round much of the rim of the right junction-lobe as well as a trace on the left, give rise to questions about the composition of the model. For, unlike the smoothly swelling surface of the outer end of these frames, they do not suggest an evenly tooled surface of wax, but rather a curved strip of metal set on edge. X-ray examination confirms that the grooves are superficial. The small collets on the terminals, rising sharply, if only fractionally, above the level of the ring of the discs, similarly suggest metal on edge – as if segments cut out from a D-shaped tube had been forced into the wax, and cleared inside by twisting a tool which has left a rough central depression and concentric grooves. The interior of the collets is gilded. Their edges are not crimped to hold the studs, but adhesive has not been ascertained.

The model for the pin also needs to be considered. Although in publishing the St Ninian's Isle brooches Wilson suggested (1973, 97) that the pins had not been cast but wrought by hand, because of the evidence of folded metal along the edges of their under surface, later examination showed that a sample pin had the crystalline structure of unworked cast metal (Stevenson 1974, 19n). So what had been folded was the model, and the chip-carved interlace ornament had not been laboriously chased in the silver. The upper and lower surfaces of the Aldclune pin have a central longitudinal groove with convex edges merging into the convex sides. The front groove is gilt, and contains a sharp ridge with bevelled sides which is, not very carefully, divided at the broadening into two for a length of 23 mm. Three very small nicks in one edge near the centre of the pin might be an ownership mark.

The head of the pin is, as usual in this brooch series, a broad oval, about 22 by 13.5 mm (illus 1). Within the convex margins, continuing those of the stalk, it is decorated in relatively high chip-carved

relief, from the upper edges of which the gilding has worn off: the sides of a pointed oval are made up of a sequence of arcs, short-long-long-short, forming between them sharp cusps in their outer bevel deepest and highest in the middle; across the centre a diagonal square with slightly convex sides contains a glass stud in an unscaloped collar; between the square and each pointed end of the oval there is a triangle, its curved base completing the flower-like circuit of the long arcs.

The inset *glass studs* of the brooch and pin were more or less hemispherical and in four sizes. Of those that remain the largest and second largest are in one terminal and the cartouche, both amber coloured, translucent and burnished; the iron shown in the X-ray fluorescent analysis may have been the colourant. The empty socket of the other terminal contains the remains of a disc of lead that underlay the glass. Lead discs similarly placed are recorded in slightly earlier metalwork, under the amber of the Hunterston brooch and under enamel on the Ardagh chalice (Stevenson 1974, 26–7; Organ 1973, 256). The one stud still surviving in the six marginal collets is translucent deep blue, also burnished; silver is present in its analysis. The amber-coloured stud on the pin-head is the smallest, and it has been differently attached, for there is a pin-hole 0.5 mm across through a 3.5 mm in diameter depression beneath it.

## ANALYSES

J Tate

Position	% copper	% zinc	% gold	% lead	% tin	% silver
Brooch ring	4.6	0.4	1.0	1.2	2.2	90.6
Pin surface	6.3	0.5	2.5	2.6	10.6	77.6
Pin section	28.3	≤0.2	2.2	2.2	8.4	58.3

The most interesting features are the difference in composition of the brooch and pin metals from the surface analyses and the huge depletion of copper from the surface of the pin. The extent of this depletion clearly makes it impossible to state the 'overall' composition of the pin (and perhaps the brooch?). Presumably the proportions measured from the section represent the initial alloy which was treated to remove the surface copper, thereby creating a far more silvery appearance. Under the microscope the depleted layer can clearly be seen extending to a depth of between 0.1 and 0.4 mm.

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