The Denny Bow

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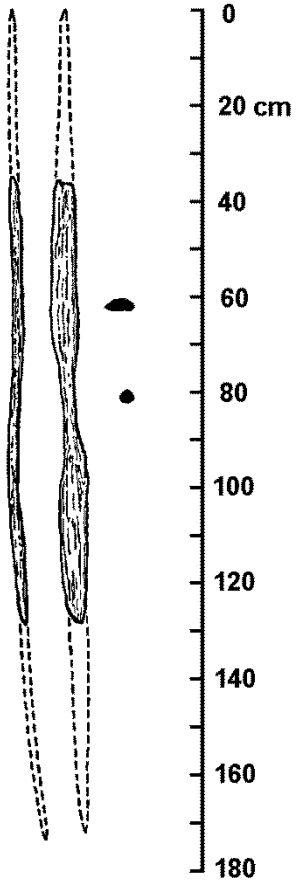
Made of oak around 1300BC this self bow was probably symbolic, representing the important activity of hunting or warfare, and owned by the "big man" in the community; it indicates a hierarchical structure to society.

Film : The Denny Bow

During the excavations preparatory to the construction of a new reservoir at Broadside near the River Carron west of Denny in 1889 a workman discovered what was clearly an ancient wooden artefact buried in the peat that covered the site (NS 768 832). The peat had created anaerobic conditions that led to its unusual preservation. It was handed over to Alexander Frew of the firm of Kyle and Frew, civil engineers, Glasgow, who were the consultants for the project. After cleaning it was identified as an ancient canoe paddle and kept in the Glasgow office. It was displayed at the January meeting of the Glasgow Archaeological Society in 1901, where it was recorded by CE Whitelaw. It was again on display in 1911 at the Scottish Exhibition of Natural History, but for most of the time it lay in a cupboard. That was until the 1920s when it was loaned to the newly formed municipal museum run by volunteers in Dollar Park, Falkirk. When Doreen Hunter was created the first permanent curator the wooden object was gifted by A Frew to Falkirk Museum in 1954. Tantalisingly the Museum Diary for that date records "Canoe paddle, one of a pair from Broadside Reservoir."



Illus 1: The Denny bow (after Feachem).

In 1963 RW Feachem was engaged in the final production of the RCAHMS inventory of the ancient monuments of Stirlingshire when two seminal papers were published on prehistoric longbows by Dewar and Godwin and by Clark. He noted a strong resemblance of the object from Denny to these bows (Feachem 1965, 53, where he incorrectly states it to be of pine) and arranged for it to be examined at Cambridge by professors Clark and Godwin, who confirmed his suspicions. Camilla Dickson identified the wood as oak and a sample was removed for radiocarbon analysis which produced a date of 1300bc (+-85). The resultant hole in the bow was then infilled to match the original.

The Denny bow represents a typical self-bow (ie a bow made from a single piece of wood) of Clark's Class B. However, the limbs are wide and flat, like the Neolithic Meare bow, and so strictly speaking it should not be called a longbow (the British Longbow Society states that the thickness [depth] of the limbs shall at no

point be less than three quarters of the overall width of the limb at the same point - Hardy, 1976, 9). In other words, a true longbow is a deep D-sectioned bow. Both ends of the bow are missing and the existing portion, of length 0.95m, shows slight warping. The stave is plano-convex in section with a thickness-to-width ratio of 2:3, which falls centrally within the range for Northern European "longbows". This is not surprising, as it is governed by the physical properties of the timber used. The width of the stave is 7cm and its thickness 3cm. The section of the handgrip is nearly elliptical, being 3cm by 2.5cm. Extrapolating the surviving portion using the visible tapers suggest an original overall length of around 1.70m.

To increase the durability by spreading the strain on the bow it is better for the limbs to be long and symmetrical. The Meare bow was 1.9m long. However the Rotten Bottom bow from Dumfriesshire was around 1.74m in length and thus comparable with the Denny bow.

The Denny bow is the only prehistoric one from Europe made from oak, prompting speculation that it was ceremonial rather than functional. The usual wood for such bows is yew, though ash appears occasionally. Wood from these trees has a toughness and resilience more suited for the purpose than that from oak. Long bows are usually made from billets split from large trunks.

Illus 2: Detail of the central handgrip of the Denny bow.

The much earlier Meare bow which was made of yew was also considered, when first found in 1961, to have been for ceremonial purposes due to the absence of wear and the almost immediate breakage of a reconstruction when used. However, re-examination of that bow did find some wear at the notches, where it would be most evident, and a later good quality reconstruction demonstrated the practical utility of its design (Prior 2013). That latter replica followed a detailed examination of the original wood used which evidently came from the outer edge of the heartwood of a young tree (80-100 years old). In relation to the Denny bow Gordon and Webb pointed out that the judicious employment of cleft lengths of young oak trees "using the last inch of heartwood right up to the very edge of the sapwood, which is perishable, can produce an elasticity not normally expected of oak." This would suit the description of the cellular structure of the oak provided by Dickson: "A transverse section of the wood demonstrated that it was strongly ring-porous with tyloses filling the large vessels. The late wood vessels were in radial lines surrounded by xylem parenchyma. The rays were both uni-seriate and also compound, whilst the longitudinal section showed them to be partially heterogeneous. These features characterise the wood as a species of oak, and

the presence of compound rays and radial late wood vessels…" Oak, such as that used in the Denny bow, has the added advantage of containing few knots, which might otherwise provide a point of weakness. It should be noted that when the natural properties of the wood are used to their maximum effect the convex face of the bow was the back of the bow, which faces away from the archer when the bow is strung. Such bows were the culmination of years of experience in manufacture and design. The Neolithic bowyers were highly skilled individuals, and the bows that they produced highly prized.

These Neolithic makers would have used flint tools, finishing and smoothing the surface with soft sandstone. Even so, it has been suggested that a bow could be made in a single day, though the timber would need to be cut in advance in order to allow it to season (unseasoned wood would dry out, changing the shape of the bow and its tillering).

According to Clark woods other than yew were only used where the climate was too cold for yew to make substantial growth. This may have been the case in central Scotland at the time, though a bow found in 1990 at Rotten Bottom near Moffat (now in Moffat Museum) and dated to 4040-6640BC was made of yew (Sheridan 1992). In the medieval period yew trees at Neidpath were highly prized for bow making (having their own taxus - Taxus Baccata Neidpathensis). Today yew trees are common features of the old parish churchyards and are prolific in Callendar Woods. Their longevity was noted when pointing out the traditional site of the 1298 Battle of Falkirk on Grahams Muir where an old yew tree marked the location.

The yew has been considered as a sacred tree in many societies (Philpot 1897) which may be because of its association with archery. In churchyards its longevity and evergreen nature represented everlasting life, undiminished by the seasons. Foremost amongst the sacred trees of Britain is the oak and it is possible that the old English word for oak 'drew' was the derivative for druid. Bows themselves have been revered as objects in their own right (Piggott 1968) with their power over life and death. So it is possible that the Denny bow was a symbol of power as well as a practical weapon. Highly polished it would have looked magnificent and provided its owner with a means of asserting his status. It could well have belonged to the 'big man' or chief of the Denny area, reflecting the structured hierarchical nature of society at the time.

How did the bow end up in a peat bog in the Carron Valley? The most likely answer is that it broke during use and was discarded. The Rotten Bottom bow had a broken notch which would have rendered it unusable and might account for its disposal on the open heathland where it was being used to hunt game – a landscape similar to that at Denny. On the other hand, it has been suggested that the Meare bow was deliberately broken in two or 'ritually killed' to take it out of normal usage and out of the bounds of this realm before being deposited as a votive offering. Finer weapons of this period were often placed in 'special' watery locations away from settlements (Levy 1982). This might explain why both ends of the Denny bow are missing.

Despite recent discoveries, the Denny bow is one of very few prehistoric examples known from Britain.

Material	Name/site	Age bc	+-
yew	Rotten Bottom	4040-6640	
yew	Meare Heath	2690	120
yew	Ashcott Heath	2690	120
yew	Cambridge Fens	1730	110
yew	Edlington Burtle	1320	110
oak	Denny	1300	85

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