

A Medieval Boat from Kentmere, Westmorland

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THIS paper summarizes the results of investigations which led to the lifting of a medieval dug-out canoe from the bed of the Kentmere lake in Westmorland some seven miles NNW. of Kendal (FIG. 29) during 1955. The boat has been dated by the radio-carbon method in the Physical Laboratory of Trinity College, Dublin, to A.D. 1320 \pm 130 years. It is now reconstructed and is in the National Maritime Museum at Greenwich. The boat is of extreme interest in that a series of wash strakes were attached to the main body of the dug-out hull—a feature which is only rarely encountered in ancient times and hardly ever in the British Isles. The major portion of this paper, therefore, is devoted to a discussion of the implications of this kind of structure in the general history of European boat-building.

DISCOVERY, EXCAVATION AND DESCRIPTION

The boat (FIG. 30) was found on the floor of the lake (which was drained more than a century ago) by Mr. L. Ridding during excavations for diatomaceous earth by the Cape Asbestos Company on 5 May, 1955. The Company informed the British Museum of the find and readily gave permission for the Museum to excavate and remove the vessel to London. The generous support of the Company and of the then manager of the plant at Waterford Bridge (Mr. H. Elliott) at all stages of our investigation is most gratefully recorded here. The investigation was carried out by Mr. G. P. B. Naish of the National Maritime Museum, Dr. A. E. Werner of the British Museum and the author.¹ Dr. Donald Walker, then of the Sub-Department of Quaternary Research at Cambridge, took pollen samples from the deposit: his results will be recorded elsewhere as they are of little relevance to the present study.

The boat consists of a dug-out canoe, 14 ft. (4.25 m.) long and about 2 ft. (61 cm.) wide, to which are attached, on either side, five wash strakes and a bilge keel. The hull is of primitive form, being made from a single piece of oak. It has a flat bottom, a rounded stern and slightly pointed prow. Four naturally-grown crooks form ribs and were fastened by tree-nails to the bottom of the boat.

¹ The author and his two colleagues are grateful to the Trustees of the British Museum and of the National Maritime Museum for their assistance on this occasion. They must also acknowledge the help and assistance of Miss C. I. Fell, Mr. R. H. M. Dolley, Dr. J. E. Spence, Mr. Barty-King of the Cape Asbestos Company and many others who made the investigation possible. The boat was most generously given to the National Maritime Museum by Captain Leonard Wilson, the owner of the land. I must acknowledge my wife's assistance in preparing the final drawings. A short note on the boat by Miss C. Fell appears in *Trans. Cumberland and Westmorland Antiq. and Archaeol. Soc.*, n.s. LV (1956), 322 f.

One of the tree-nails was removed and examined: it was 5 in. (12.7 cm.) long by 1 in. (2.6 cm.) square. The head was square and about 2 in. (5.21 cm.) long. The shank was roughly octagonal. The ribs supported five strakes on either side and these were nailed together clinker-fashion by means of round-headed, square-shanked nails, the upper strake being attached to the ribs by tree-nails. The strakes were of oak and each consisted of two planks, scarfed in the centre. They

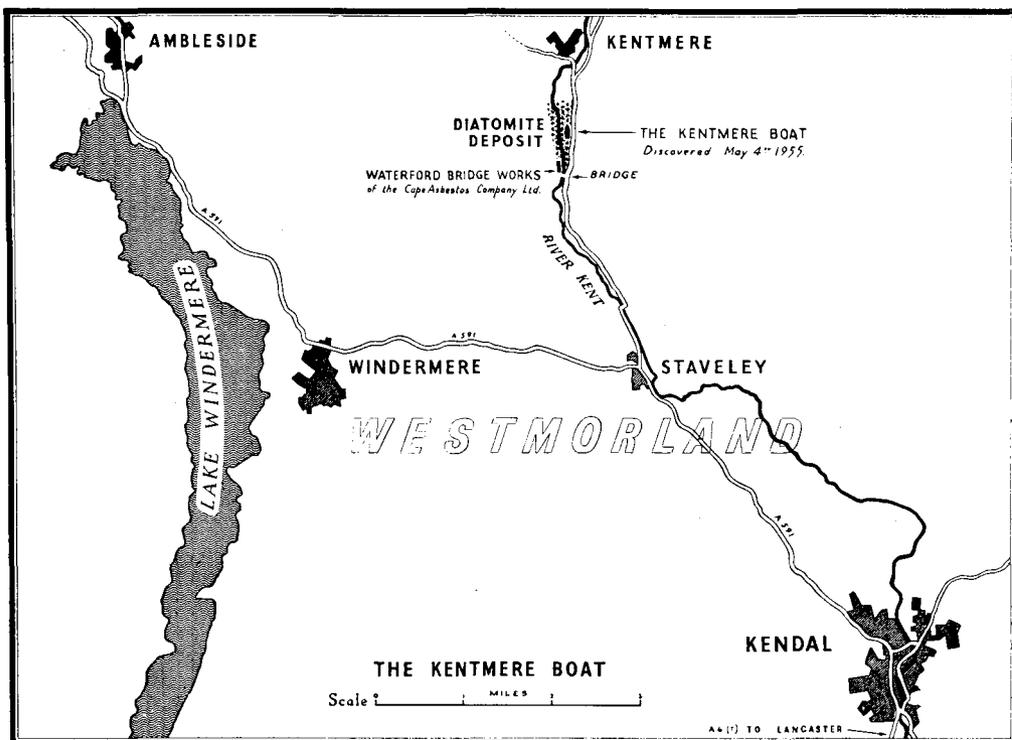


FIG. 29
KENTMERE, WESTMORLAND
Map showing find-spot of boat (p. 81)

had been split and adzed into shape and vary in width between 3 and 7 in. (7.6 and 17.8 cm.). The upper edge of each plank had been bevelled. The scarfing consists of a simple 4 in. (10 cm.) overlap and, as the joints occur roughly one above the other, the structure cannot have been very sound. The strakes were curved round the prow and stern and nailed to the rising portions of the dug-out hull.

A well-worn rowlock-hole was cut in a separate rectangle of wood and attached by tree-nails to the starboard gunwale of the boat. Its opposite number is missing: indeed the planks of the port-side of the boat were generally in a worse condition than the others. The rowlock was presumably associated with a central thwart—a rectangular plank which must have formed a seat for the oarsman.

At either end of the boat are shaped bow- and stern-sheets which presumably provided seats for passengers or fishermen. The stern of the dug-out hull had apparently split in antiquity and had been patched by nailing a sheet of lead over

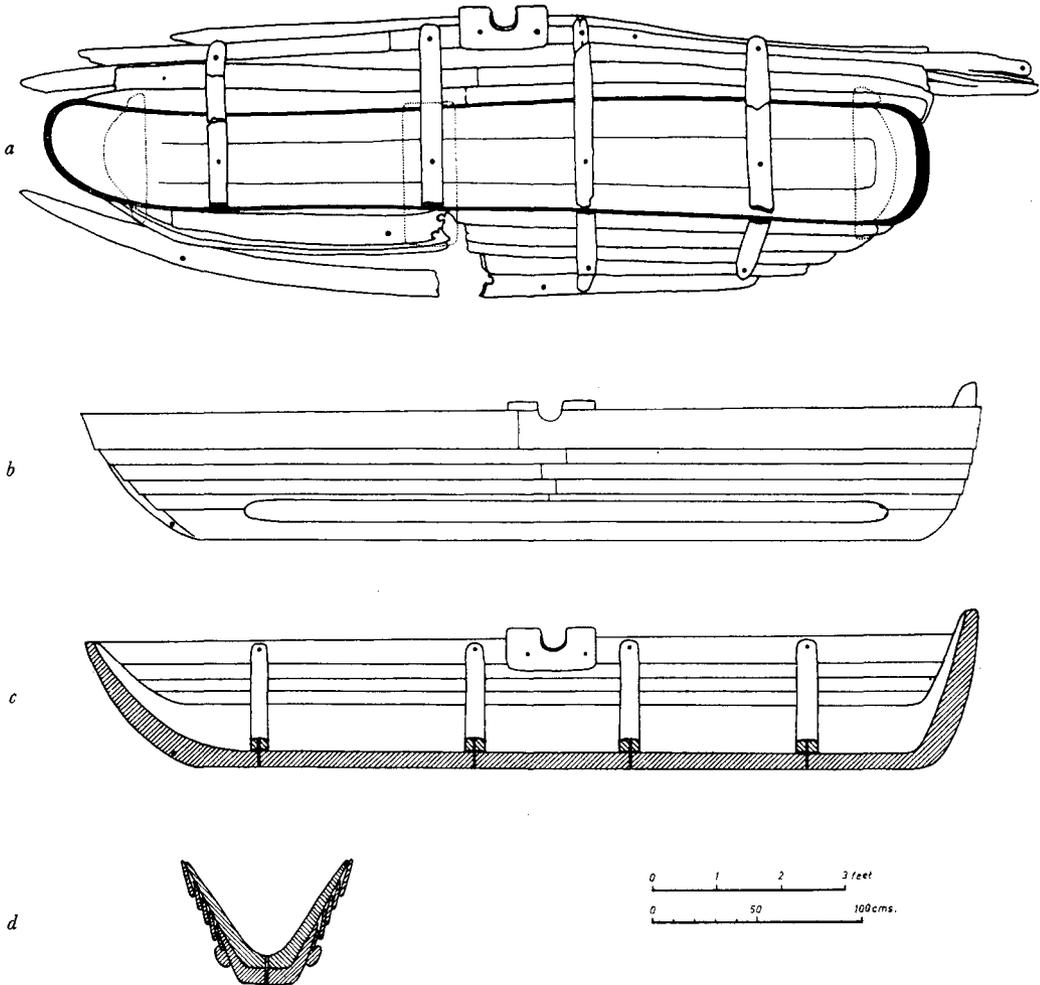


FIG. 30
BOAT FROM KENTMERE, WESTMORLAND

a. Plan made during excavation; *b.* Reconstructed side view; *c, d.* Sections through reconstructed boat

the split portion. The nails were square-shanked but, like practically every other iron nail in the boat, they were rusted entirely away.

The ribs (which were all damaged when found) were not the only means of supporting the strakes, for a pair of bilge pieces (rather like the rabbet of a modern wooden ship) formed a seating for the lower edge of the bottom planks. They were laid along about three-quarters of the length of the hull and were

attached to it by tree-nails. They presumably also functioned as stabilizers. These timbers are more or less triangular in cross-section and are roughly shaped from the trunk of a youngish tree.

The prow of the boat had a smoothly shaped lateral, linear protrusion, which was pierced at one point (presumably to allow for the passage of a painter).

DISCUSSION

The boat is of extreme interest for a number of reasons. Firstly, it is important because it has been possible to ascribe it to the medieval period by radio-carbon investigation: it is, therefore, one of the few dug-outs of this type which are known to belong to the middle ages. Secondly, it is of interest because of its geographical position, for it broadens our knowledge of water transport in the Lake District in the medieval period. Thirdly, it is important because of its structure. This composite boat constructed on a dug-out base is one of the links which naval historians have long been postulating and which has never previously been found in so convincing a form. It is unfortunate, however, that this example should be so small and prove to be so late in date. Its importance in this evolutionary context can, therefore, only be seen as marginal.

Its 14th-century date having been established, we can turn to the second of the list of reasons for its importance. Only one dug-out canoe has previously been recorded in the Lake District. This came from Whinell Tarn, near Kendal, and was reported to the Society of Antiquaries in 1888.² Mr. H. S. Cowper, who commented on its discovery, quoted the remark of a villager that it had been in use forty or fifty years previously. As far as I am aware, this is the last recorded use of a dug-out in England, but its late date need occasion no great surprise as we have a large body of evidence for the use of similar craft in northern and central Europe until well into the present century.³ It is interesting to find, therefore, a few miles away from the Kentmere boat the latest recorded example of the survival of this type of craft in England.

A large number of dug-outs have been recorded in the British Isles. In a survey of these boats made some forty years ago Sir Cyril Fox listed sixty-two examples from England and Wales alone,⁴ while many more have been found in Scotland and Ireland.⁵ In date they range from the mesolithic period to the 19th century and many must belong to the medieval period. One such medieval dug-out (an almost exact contemporary of the Kentmere example) is that from the Loch of Kilbirnie in Ayrshire, which was found together with late medieval

² *Proc. Soc. Antiq. London*, XII (1888), 226.

³ E.g. Ph. Humbla and L. von Post, *Galtbäcksbåten och tidigt båtbyggeri i Norden* (Göteborgs kungl. vetenskaps och vitterhets samhälles, Handlingar, 5 foljden, vi, 1), fig. 8. J. G. D. Clark, *Prehistoric Europe* (London, 1952), fig. 154, plots recorded modern uses outside Scandinavia on a map and gives a number of basic references to modern dug-outs on p. 287. References to modern Scandinavian dug-outs—strangely neglected by Clark—are recorded in A. Eskeröd, 'Early Nordic arctic boats; a survey and some problems,' *Arctica* (Studia Ethnographica Upsaliensia, XI) 1956, pp. 57–87, and in A. Nilsson, 'Primativa båtar i Småland,' *Fataburen*, 1943, pp. 123–136.

⁴ C. Fox, 'A dug-out canoe from south Wales: with notes on the chronology, typology and distribution of monoxylous craft in England and Wales,' *Antiq. J.*, VI (1926), 121–151.

⁵ One of the best sources for this material is R. Munro, *The Lake-Dwellings of Europe* (London, 1890).

bronze cooking-vessels,⁶ but such a find is unique, for most canoes are found without associations,⁷ having been abandoned and sunk at their moorings. However, Munro pointed out many years ago that British dug-outs are often found in association with crannogs,⁸ many of which were in use until the late medieval period, and it must be presumed that many of the surviving dug-outs are of post-Roman date. It would be interesting, if expensive, to undertake a complete radio-carbon survey of dug-out canoes, for only thus, as in the Kentmere case, can the series be satisfactorily dated.

The Kentmere boat shows, therefore, that the dug-out form was known in the Lake District in the medieval period, while the Whinfall boat shows that the form survived at least into the 19th century. One must presume that on the minor lakes and tarns of this area the dug-out would be a useful craft, for both transport and fishing, from prehistoric times onwards.

How then does this craft fit into the sequence of known dug-outs? It is, in many respects, unique. No other boat, with so many strakes added to the dug-out body, is known from a European context, although ethnographical parallels can be found in contemporary primitive communities outside Europe.⁹ In European contexts boats are occasionally recorded with a single wash-strake—from Valbo, Gästrikland, Sweden, for example.¹⁰ More sophisticated, usually clinker-built, boats with a broad dug-out keel-plank, are also recorded in the western European corpus—for example, from Kalmar, Sweden,¹¹ and from Utrecht in Holland.¹² The former, which consists merely of a prow fragment, has been ascribed, for no really satisfactory reason, to the Viking period, while the latter has recently been redated by the radio-carbon technique to A.D. 920 ± 45 years.¹³ The Utrecht boat is a substantial clinker-built vessel, some 18 m. long. It is built up and strengthened with a series of substantial ribs and is a long way from being a dug-out.

Rib-like ridges cut out of the body of the trunk are a strengthening feature on the flat bottom of many dug-outs,¹⁴ but separate rib-members on the floor of a simple dug-out are unknown, occurring only in the tripartite dug-outs like that from Valbo.¹⁵ Ribs do occur, however, in a number of Finnish dug-outs, some of which have wash-strakes. The best example is that from Satakunta, Finland, which has six ribs.¹⁶

⁶ R. Munro, *Ancient Scottish Lake-Dwellings, or Crannogs . . .* (Edinburgh, 1882), p. 65. It is difficult to estimate the value of this association but we might accept it as likely to be true.

⁷ A dug-out from Jutland, Denmark, which is inscribed with early medieval runes—a useful dating—is illustrated by L. Jacobson and E. Moltke, *Danmarks Runeinskrifter* (Kjøbenhavn, 1942), figs. 153–5.

⁸ R. Munro, *op. cit.* in note 5, p. 479.

⁹ Cf., for example, B. Greenhill, 'The boats of East Pakistan. A preliminary study,' *The Mariner's Mirror*, XLIII (1957), 209 f.

¹⁰ Humbla and von Post, *op. cit.* in note 3, p. 18, fig. 9.

¹¹ H. Akerlund, *Fartygsfynden i den forna hamnen i Kalmar* (Uppsala, 1951), pl. 26, d (boat no. xxii).

¹² P. H. van der Wijk, 'Beschouwingen over het Utrechtsche Schip,' *Jaarboekje van 'Oud-Utrecht'*, 1933, pp. 28–47.

¹³ J. P. W. Philipsen, 'The Utrecht ship,' *The Mariner's Mirror*, LI (1965), 35–46.

¹⁴ Cf. O. Paret, 'Die Einbäume in Federseeerd und im übrigen Europa,' *Prähistorische Zeitschrift*, XXI (1930), 76–116, *passim*, and Fox, *op. cit.* in note 4, *passim*.

¹⁵ Humbla and van Post, *loc. cit.* in note 3.

¹⁶ Eskeröd, *op. cit.* in note 3, fig. 12.

The bilge-pieces of the Kentmere boat, which presumably functioned as stabilizers as well as a seating for the lowest strake, are found (in their stabilizing function) on a number of dug-out craft, although in a more substantial form.¹⁷ Thwarts are also known,¹⁸ as are most of the other individual features of the Kentmere craft, but all these parallels are highly unsatisfactory, as the evidence is fragmentary and derived from very diverse sources. The unique characteristics of the Kentmere craft make it useless to pursue such parallels further.

Some discussion, however, of the theoretical position of the Kentmere craft in the history of boat-building is, perhaps, warranted. In view of the lack of satisfactory parallels in this country, it might be possible to regard the form of the Kentmere boat as purely fortuitous, the result perhaps of an over-confident craftsman's failure to make an ordinary dug-out. On the other hand, the finding of this craft raises again the contentious problem of the origin of clinker-built boats. The most recent protagonists in this argument have been Humbla and Brøgger—two formidable naval historians. Humbla has argued¹⁹ that the clinker-built boat developed in northern Europe from the dug-out, by the addition of ribs and strakes to the main body of this primitive type of craft. He suggests that the iron-age Hjortspring boat is the direct descendant of a composite dug-out. Brøgger, on the other hand, has argued²⁰ against this thesis, as applied to Scandinavian examples, deriving the composite clinker-built boat from the skin boat. Neither of these arguments is susceptible of proof, although Eskeröd²¹ has recently re-argued Humbla's case in a most convincing manner, producing a considerable body of material to support his contention that Brøgger is wrong.

Eskeröd examines a number of dug-out boats from Sweden which have wash-strakes and, in the light of his arguments, it might be rational to view the Kentmere boat as a representative of a little-known class of vessel and not a merely fortuitous piece of bodging. Eskeröd argues that the frame structure of the skin boat has nothing to do with the framework of a clinker-built boat in that the archetype of skin boats—the Eskimo umiak—has no keel and is a bad sea-boat, quoting Nansen as his authority for this latter statement. Brøgger, unfortunately, is very sweeping in his discussion of this matter and does not document his sources: it is easy, therefore, to pick holes in his argument on a purely logical basis. The baldly stated claim that the dug-out is not a good sea-boat, for example, is contradicted in modern ethnographical evidence; for throughout the southern hemisphere there are examples of dug-out boats being used as sea-going vessels,²² although they usually—but not always—have outriggers lashed to them. Similarly his argument that the dug-out is an inland craft cannot be proved, for only rarely are conditions propitious for finding boats by the sea. In fact, we have no know-

¹⁷ E.g. on a dug-out from Norra Småland, *ibid.*, fig. 3, and, in a modern context, in Carelia, Clark, *op. cit.* in note 3, pl. vi, a.

¹⁸ E.g. Fox, *op. cit.* in note 4, fig. 9 (dug-out from Crossens).

¹⁹ Ph. Humbla, 'Stockbåtar,' *Från Gästrikland*, 1935. Cf. also Humbla and von Post, *op. cit.* in note 3.

²⁰ A. W. Brøgger and H. Shetelig, *The Viking Ships* (Oslo, 1951), pp. 28 ff.

²¹ *Op. cit.* in note 3.

²² Cf., for example, J. Hornell, *Water Transport* (Cambridge, 1946), p. 191 f.

ledge of prehistoric, northern European, sea-going boats of any period before the Hjortspring example. Brøgger, however, is arguing for Norway alone:

'So we seem to have reached this point at any rate: in Norway the log boat never gave any positive foundation for the development of the plank boat, although it may have one or two derivatives.'²³

To reach this conclusion he has to dismiss the North Sea examples:

'What we can say as regards certain of the Nordic countries . . . that the log boat never occurs in those districts where they had the most need of a *seagoing boat*. The position is not quite the same for countries verging on a shallow North Sea . . . where the sea has quite different physical and technical character from that of the ocean round the coast of Norway . . .'²⁴

If Brøgger's arguments are followed to their logical conclusion, it would mean accepting two independent developments of the clinker-built boat—from different prototypes—in areas not more than a thousand miles apart.

Let us examine this proposition. It is common ground that the clinker-built vessel is a distinctly northern European type, as against the carvel-built boat of the Mediterranean area. Further, we can say that the earliest evidence for this technique is found on the Hjortspring boat, which must probably be dated *circa* 200 B.C. The Hjortspring boat is typologically a very primitive form and, if it is typical of its period, must be very near to the origin of the clinker-built craft. The clinker-built vessel developed quickly throughout the Roman iron age into the early Viking period, when the use of mast and sail on a skilfully constructed large clinker-built ship enabled the Vikings to adventure boldly into the Atlantic. It is presumably also common ground that the types of boats used by the bronze-age rock engravers as models cannot be satisfactorily interpreted.²⁵ Further, while it is an undoubted fact that efficient and formidable seagoing sailing ships were in use off the coast of Brittany in the first century B.C.,²⁶ we have no evidence of a similarly advanced stage in Scandinavia until much later.

Here I part company with Brøgger's views. The vessels of the Veneti of Brittany, according to Brøgger, had no influence on the evolution of Nordic boat building.²⁷ He does not substantiate this bold statement, but it does not seem to me unlikely that once sails had appeared in Atlantic waters—a fact recorded by both Caesar and Strabo—they should not have spread to the north. Similarly I do not see any reason why the clinker-built boat should not have been developed from the dug-out canoe in the North Sea region and spread thence to Scandinavia. It is an undoubted fact, as has been shown here, that dug-outs—not infrequently—do have wash-strakes attached to them and, although there are no firmly-dated examples from a sufficiently early period for us to prove that they were the origin of the clinker-built boat,²⁸ the possibility of such an origin seems reasonable. If clinker-built sailing vessels were developed in the North

²³ Brøgger and Shetelig, *op. cit.* in note 20, p. 34.

²⁴ *Ibid.*, p. 33.

²⁵ Pace S. Marstrander, *Østfolds Jordbruksristninger-Skjeberg* (Oslo, 1963), p. 111 f.

²⁶ Caesar, *De Bello Gallico*, III, xii; Strabo, IV, IV, 1.

²⁷ Brøgger and Shetelig, *op. cit.* in note 20, p. 56 f.

²⁸ T. I. Itkonen, *Suomen ruuhet* (Helsinki, 1941), quotes a possible early-iron-age example from Vihanti, Österbotten, Finland. Unfortunately, the boat no longer exists.

Sea region, there seems no reason why they should not have appeared off the coast of Norway at the beginning of the first millennium of our era, during a period when archaeological finds emphasize the importance of the western sea-route from Germany to Norway,²⁹ and provided the inspiration for the vessels which developed into the great longships of the Viking age.

This argument has led us far away from the Kentmere boat, but the fact of its discovery enables one to raise again some of the arguments concerning the origin of the clinker-built boat. The increasing knowledge of dug-out vessels in historical contexts in northern Europe encourages a re-examination of this type of craft. It is obvious, for instance, that more attention should be paid to constructing a chronology of these vessels by means of radio-carbon dating, while certain basic assumptions concerning the structure of dug-outs might also be questioned. It is possible, for instance, that the ridges on the floor of many of these vessels should be interpreted as skeuomorphic ribs; and should one possibly consider more seriously the use of such craft in the open sea? There are many imponderables here, but many interesting problems wait to be solved.

²⁹ Cf. H. Shetelig, *Classical Impulses in Scandinavian Art from the Migration Period to the Viking Age* (Oslo, 1949), p. 17.