

A Two-Chute Horizontal Mill at Newtown, Co. Tipperary

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The discovery of what proved to be a two-chute horizontal mill was reported to the National Museum of Ireland on March 25, 1970, by the Secretary of Tipperary County Council N.R., Nenagh, and was investigated the following day by the writer who was assisted by Etienne Rynne, then Lecturer (now Professor) in the Department of Archaeology, University College, Galway. The discovery was re-visited four days later, on Easter Monday, March 30, again accompanied by Professor Rynne and also by Mr. Patrick Finn (see footnotes 5 and 11 respectively). For a brief account of the horizontal type of mill see this Journal, vol. 12(1969), p. 12.

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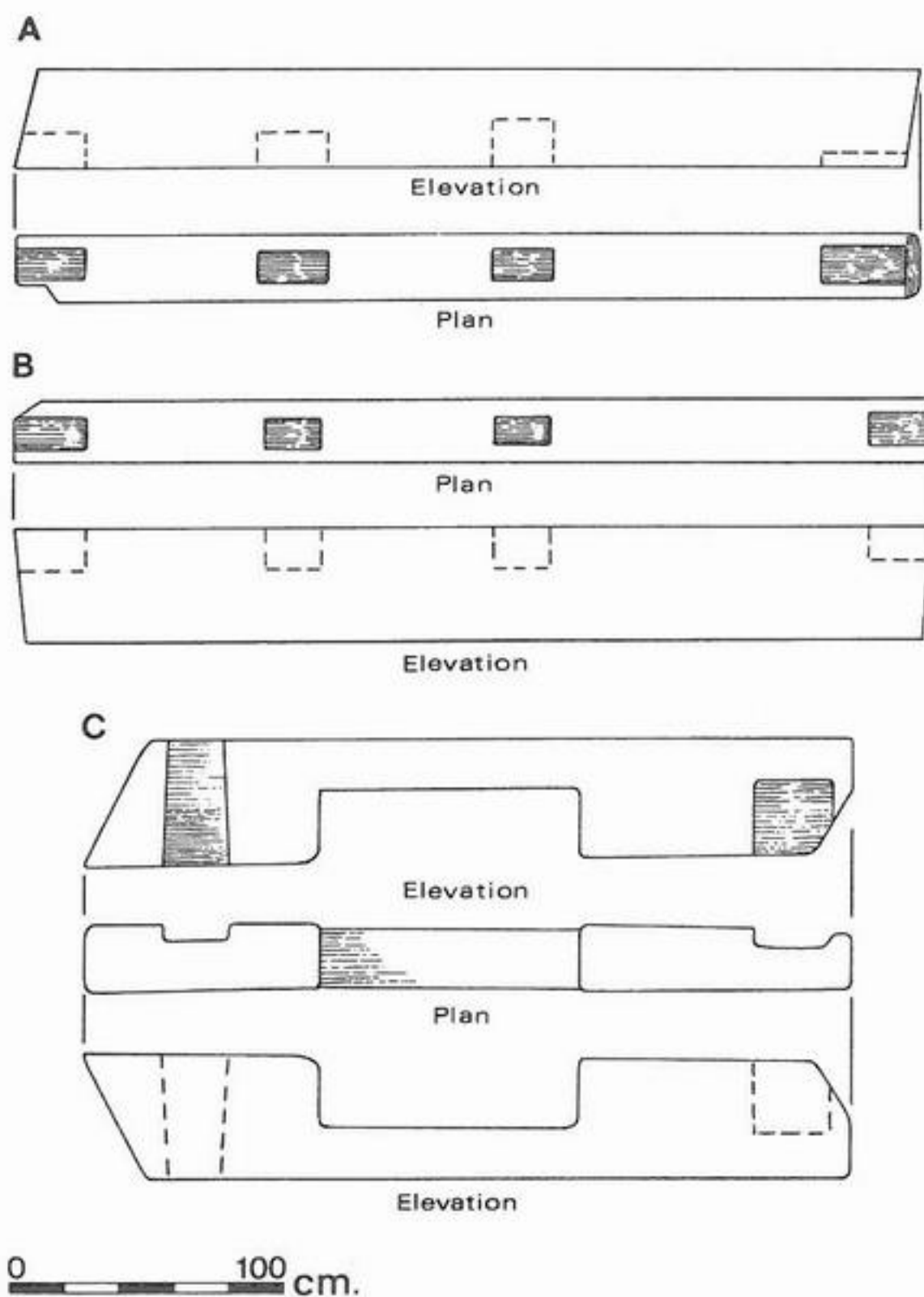
The site lay in Newtown townland and its location will be found on the Ordnance Survey six-inch scale sheet number 4 for Co. Tipperary, 6.5cm. from the northern margin and 12.2cm. from the eastern margin. The remains came to light when a field drain was being deepened by a mechanical excavator on the lands of Mrs. Quirke in Newtown which were on lease to Mr. Michael Brophy, Lisballyard, Rathcabbin, Co. Tipperary, who rendered every possible assistance in the investigation. The mill was situated on the upper part of a wet and somewhat boggy area which sloped from north to south to a small stream called the Pallas River running from west to east at the bottom of the slope. The drain, which divided two fields, curved from the north in a general south-east direction to join the river at a point about 120m. distant from the mill site. Where it remained undeepened, the drain appeared as a small shallow grass-grown trench about 45cm. wide and 25cm. deep. Before turning south-east down the slope, it ran in a west-east direction along the southern boundary of a series of fields, its average width in that part of its course being about 60cm. and its average depth about 30cm. At no point was there any trace of what might be interpreted as ancient embankments or any other evidence that it had functioned as a mill race. At the site itself there were no surface indications of a pond nor of a tail race between the mill and the river. The latter has been deepened in recent years, the bed being lowered to a depth of about 90cm. The bottom of the channel was about 60cm. wide and at the time of our investigation the depth of water in it scarcely exceeded 8 or 10cm.

The deepening of the drain had been begun at its junction with the river, and the mill timbers had been encountered by the mechanical excavator in working up the slope. Excavation had been suspended when a chute (at first believed to be a coffin) was uncovered. At the time of our arrival one of the side sleeper beams had been removed and thrown up on the spoil-heap which also contained a considerable number of fragments of worked timber. The beam supporting the fore end of the chute had been slightly displaced but the chute, with its lid, was still in place on it. Owing to the depth at which the timbers lay, the exceedingly restricted space in the bottom of the drain and the inflow of water, it proved impossible to examine the timbers *in situ*. The mechanical excavator was, therefore, used to lift out, first, the chute and then its supporting beam. The area to the south or downstream side of the beam was then examined for the presence of floor-boards. Some fragments of transverse planking were observed but it was apparent that whatever flooring

there had been had been completely shattered by the machinery before the work had been halted. In order to locate the other sleeper beam, the excavator was employed to cut back the west side of the drain and the upper surface of the beam came to light at a depth of 130cm. below ground level. Its exposure was completed by hand, and it was measured and photographed *in situ*. Since, however, the water rising around it made complete examination impossible, it was finally lifted out by the excavator for more detailed recording. The area between the sleeper beams yielded the stump of a rectangular post with a foot tenon and another was found in the spoil heap. Also in the spoil heap were found two large badly damaged lengths of timber which proved to be the remains of a second chute.

The general disposition of the timbers corresponded with that familiar from other mill sites. Two long sleeper beams, which formed the foundation of the mill building, lay parallel to each other on either side of the water channel. Their upstream ends butted against the large transverse beam, a recess in the upper edge of which housed the fore ends of the two chutes with which this particular mill was equipped.

The west sleeper beam (A), that found *in situ*, was of rectangular section, 330cm. long, 22-25cm. wide and 35-37cm. thick. Both ends sloped slightly out of the vertical, the



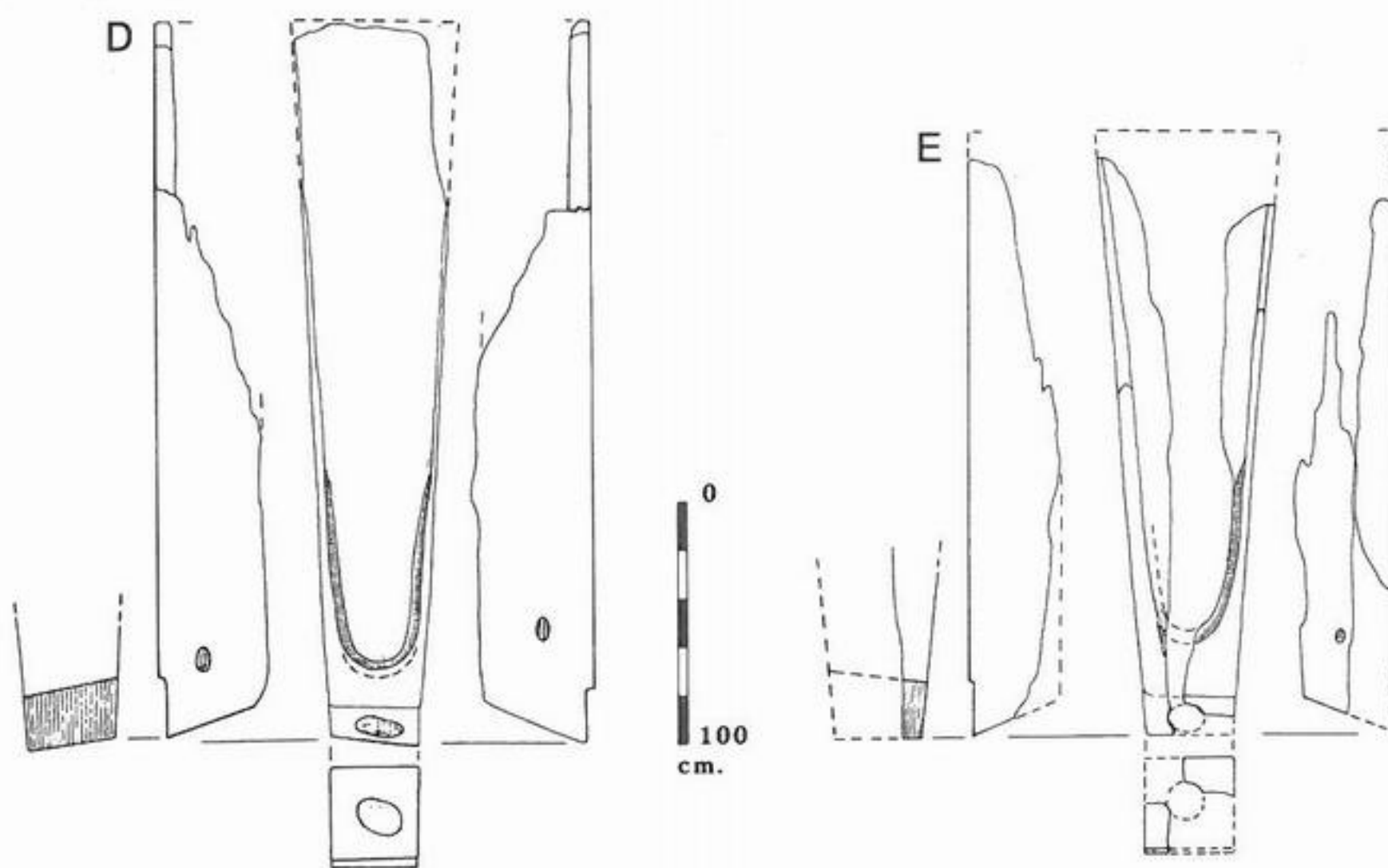
Illus. 1. Plans and elevations of Sleeper Beams A (top) and B (middle), and of Chute-supporting Beam C (bottom).

inclination being in the same direction in both. Four rectangular mortices had been sunken into the upper surface, all of them being appreciably nearer to the inner than to the outer face of the beam. Two of the mortices, those at each extremity, were open at their outer ends. That at the downstream end was about 30cm. long, 14cm. wide and 5cm. deep; that at the upstream end was 25cm. long, 12cm. wide and 13cm. deep; the former being 3cm. from the inner and 4cm. from the outer face of the beam; the corresponding measurements in the case of the latter being 4cm. and 9cm. Of the two inner mortices, one was 98cm. distant from the mortice at the downstream end, measured 22cm. long, 11cm. wide and 17cm. deep, and was 4cm. from the inner and 6cm. from the outer face of the beam. The remaining mortice was 63cm. distant from that at the upstream end, measured 25cm. long, 12cm. wide and 13cm. deep, and was 4cm. from the inner and 6cm. from the outer face of the beam. At the upstream end the width of the beam had been reduced from 25cm. to 18.5cm. for a distance of 14cm. by cutting back the outer face in order to enable this end of the timber to be fitted into a vertical slot cut to receive it in the beam supporting the chute. (Illus. 1, top).

The east sleeper beam (B) was 23cm. wide and 41cm. thick. It was slightly longer on top (335cm.) than at the bottom (327cm.), so that both ends sloped outwards to the top. Like its fellow, it was provided on the upper surface with four mortices, placed similarly to those in the other beam. That at the downstream end was 22cm. long, 12cm. wide and 12cm. deep; its outer end was open and it lay on the median line of the beam, being about 4cm. from both the inner and outer faces. That at the upstream end was 27cm. long, 13cm. wide and 15cm. deep; it was 5cm. from the inner and 6cm. from the outer face of the beam and its outer end was open. Of the two inner mortices, one was 117cm. distant from that at the downstream end, measured 20cm. long, 10cm. wide and 15cm. deep, and was 5.5cm. from the inner and 7cm. from the outer face of the beam. The fourth mortice was 65cm. distant from that at the upstream end, measured 20cm. long, 12cm. wide and 15cm. deep, and was 5cm. from the inner and 6.5cm. from the outer face of the beam. As was the case in the other sleeper beam, the width at the upstream end had been reduced for housing in a vertical slot in the beam supporting the chute. This had been accomplished by chamfering the outer corner for a distance of 10cm., thus reducing the end of the beam to a width of 17cm. (Illus 1, middle).

The beam supporting the chutes (C) was a massive plank of rectangular cross-section which stood on edge transversely across the channel and at right angles to the sleeper beams. It had minor irregularities of outline, the east end sloping inwards out of the vertical, the upper corner at the west end being cut off at an angle and the depth varying from 46cm. at the eastern end to 42cm. at the western end. The overall length was 280cm.; the bottom was flat and of an average width of 25cm. At a distance of 28cm. from the eastern end, a vertical slot had been cut into the downstream face. This diminished in width from 24cm. at the top to 20cm. at the bottom. The depth also diminished from the top where it was 7.5cm. to the bottom where it was 1.5cm. This configuration was designed to correspond to the sloping end of the east sleeper beam and to ensure its maximum engagement in the slot. The matching slot at the western extremity of the beam was nearer the end, lying about 7cm. distant from it. It did not extend the full depth of the beam, ending about 15cm. short of the bottom edge. It was 30cm. wide on top and 27cm. at bottom. The depth decreased gradually from the top where it was 5cm., to nothing at the bottom. This configuration mated with that of the upstream end of the west sleeper beam which sloped inwards from top to bottom but, unlike its counterpart on the east which housed the full depth of the sleeper beam, only something more than the upper half of the end of the beam was engaged in this slot. (Illus 1, bottom).

The larger and most perfect of the two chutes (D), that discovered *in situ*, was hollowed out of a single length of oak. It was approximately rectangular in section and tapered in width from the rear to the fore end. The latter was solid and pierced by a central hole on the level of the floor of the interior. The front face sloped backwards and, in consequence, the length of the chute on top was less than its length at the bottom, 285cm. as against 300cm. The external width at the rear end, which was gapped and broken, was 55cm., and at the fore end 38cm. At the rear, the side wall on the right-hand side, looking towards the fore end, was missing for a distance of 70cm., and on the left-hand side for a distance of 80cm. The external height at the fore end was 46cm., and the maximum surviving height of 50cm. occurred at a distance of 100cm. from the fore end. The solid front end of the chute extended back for a distance of 19cm. from the upper leading edge. The interior of the wall of the chute was rebated to form a ledge at its top to support the lid. This ledge was most pronounced at the solid fore end where it attained a maximum width of 7cm.; this extra width was partly achieved by undercutting the wood above the ledge to form a pocket. As the lid was flat below and convex above and had a relatively sharp edge, it fitted snugly into this pocket and was thus prevented from being forced up by the pressure of the water when this was admitted into the chute to operate the millwheel. From the fore end the ledge gradually narrowed on each side towards rear, finally disappearing at a distance of 95cm. from the upper leading edge of the chute. The maximum depth of the ledge occurred at the fore end where it lay 8.5cm. below the upper surface of the timber. On account of irregularities in the upper edge of the chute, its depth elsewhere varied from 4cm. to 7cm. The front face of the chute inclined backwards at an angle of about 75 degrees. From top to bottom, the sloping face measured about 43cm. and it was 38cm. wide above and below. The hole which pierced it was an irregular oval, 20cm. wide and 15cm. high, positioned slightly nearer to the upper than to the lower edge of the face. (Illus 2, left).



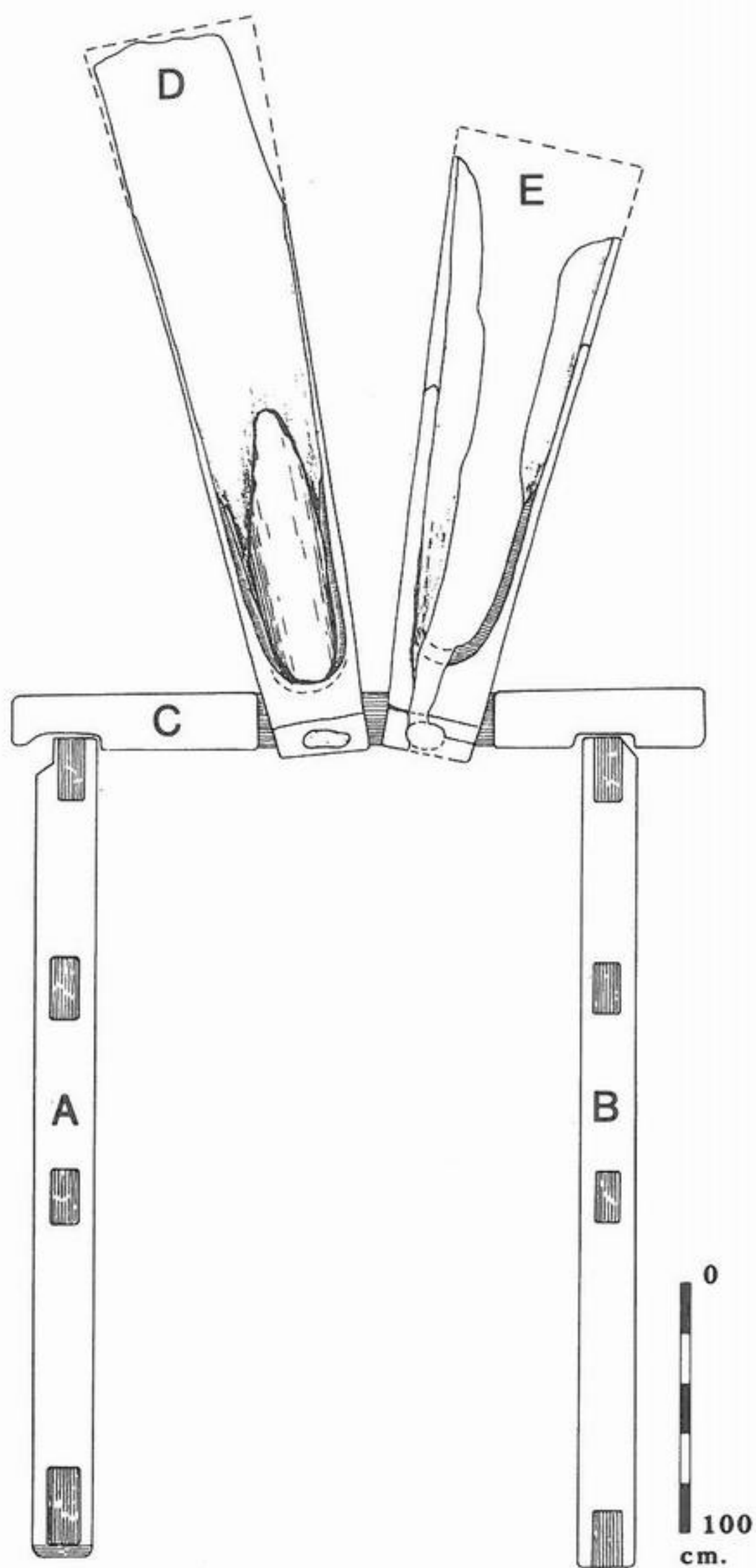
Illus. 2. Plan and elevations of Chutes D (left) and E (right).

The underside of the fore end had a feature of particular interest. The wood had been cut down across the full width of the chute to a depth of 4cm. to form a step or ledge which obviated all risk of the chute slipping forward in the recess in the supporting beam. The cut-down area extended back for a distance of 25cm. on the right side and for 22cm. on the left side, as a result of which the step did not run across the bottom of the chute at right angles to its long axis but in a slanting direction. The angle of the slant was further accentuated by the fact that the front face itself of the chute was not at right angles to the long axis since its right hand edge would have had to be moved forward a distance of 3.5cm. in order to bring it into that position. The angle of this ledge indicates that the chute, when set in place in the recess in the supporting beam, did not lie at right angles to the beam but had its fore end deflected towards the left (east) side of the wheelhouse, throwing its jet of water in the same direction.

Two other minor features of the chute are of interest in that they also occurred in a mill chute at Knocknagranshy, Co. Limerick (*Nth. Munster Antiq. J.* 12(1969), 21, Fig. 2). These were two small oval hollows situated one on each side of the fore end. That on the right side was 10cm. long, 4.5cm. high and 5cm. deep, and was at a distance of 22cm. from the sloping front face and 16cm. above the bottom of the chute; that on the left side was 10cm. long, 5cm. high and 5cm. deep and was at a distance of 36cm. from the front face and 19cm. from the bottom.

As has been already stated, the lid was in position when the chute was discovered (Illus. 3). It appears to have suffered very severely from decay around its edges and effectively covered only a relatively small area of the front part of the chute. What remained of it was of an elongated egg-shape, convex on the upper surface, very slightly concave below. Its maximum length was 112cm., its maximum width 29cm., its thickness increased from 2cm. at the more pointed (rear) end to 9cm. in the centre, from where it decreased to about 5cm. at the broader end; this latter end rested on the part of the ledge which ran around the front part of the interior of the chute.

The second chute (E) had been broken by the mechanical excavator prior to our arrival and the remains of it were salvaged from the spoil-heap. It was apparent that it had been split longitudinally into several parts, three of which were recovered; the central section was mostly missing. One of the extant fragments consisted of the left side and comprised about one-third of the fore end, a narrow strip of the bottom and part of the side wall. The other fragment consisted of the right side of the chute and comprised a wide strip of the bottom, a large section of the side wall and part of the fore end. The third portion consisted of portion of the bottom. Fortunately, the fragments retained sufficient features to establish the character of the original chute. It was at least 240cm. long and excavated out of a single length of oak. It was approximately rectangular in cross-section, the flat bottom having an average thickness of 10cm. Like the other chute, it had a solid fore end with a backward-sloping front face. The solid portion, which was about 28cm. long, was pierced by a hole for emission of the water. It was originally provided with a lid, the ledge for which remained on portion of the left side. The ledge was 6cm. wide at the fore end where it was 8cm. below the top of the solid portion, the wood being somewhat undercut at this point to form a pocket for the reception of the edge of the lid, as in the other chute. At a distance of 75cm. from the solid portion, the width of the ledge had decreased to 5cm. while its depth below the top of the side of the chute had increased to 9cm. The underside of the solid part of the fore end was stepped in the same fashion as the other chute, the ledge running at an angle across the bottom of the chute so that when it rested in contact with the edge of the recess in the supporting beam the long axis of the chute was deflected to the right (west). (Illus. 2, right).



Illus. 3. Reconstruction plan of mill-timbers showing arrangement of Beams A, B and C, with Chutes D (with lid) and E in position.

As the angle of the ledge in the other chute indicates that it was deflected in the opposite direction, the fore ends of the chutes would have converged had both been mounted in the recess in the supporting beam (Illus. 3). As the recess was large enough to have accommodated both chutes, it can be confidently assumed that they were mounted in this manner. The angle of convergence was designed to throw the jets of water from both chutes onto the same side of the wheel. The presence of the two chutes poses a number of questions which cannot at present be answered: whether they were used simultaneously or separately; whether the jets were focussed on the same or different points of the wheel; the method employed to regulate the admission of water to the chutes, and the advantages of operating with two chutes instead of with one.

It is worth noting that the presence of stop ledges on the undersides of the troughs led to the omission of certain features which are normally characteristic of the recess in the supporting beam. The floor of the recess usually slopes downwards from the upstream to the downstream face of the beam, obviously to conform to the slope of the bottom of the chute when the latter had been set at the optimum working inclination. To obviate the risk of the chute slipping forward with the consequent displacement of the point of impact of the water on the wheel, the ends of the recess usually converge in the downstream direction so that they gripped the sides of the tapering fore end or, at least, facilitated the wedging of it in the desired position. As the ledges on the Newtown chutes effectively prevented any forward movement, even when the chutes were tilted to their working angle, neither the usual sloping floor nor the converging ends were present in the recess.

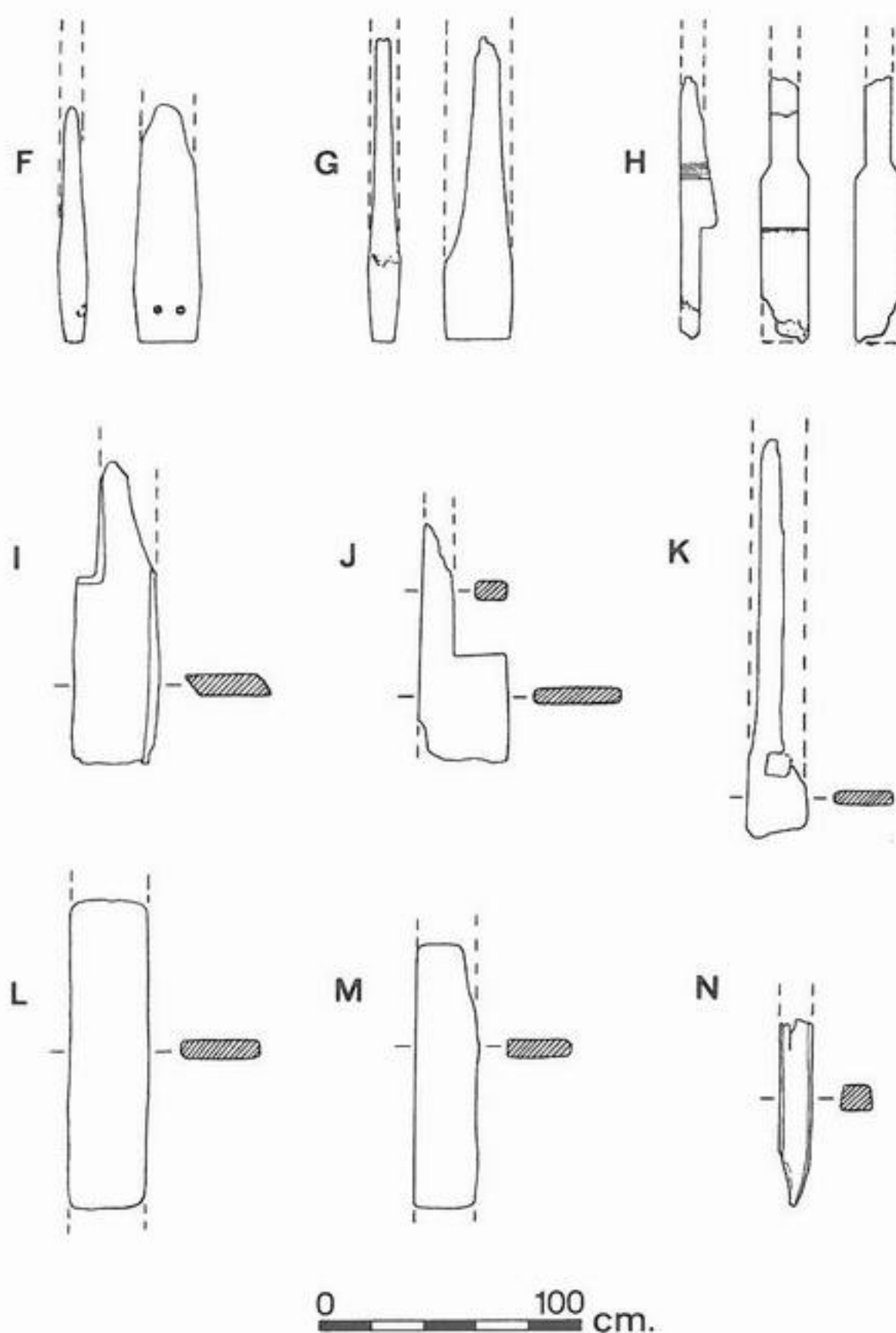
Among the other identifiable timbers found (Illus. 4) were portions of two uprights, the lower ends of which had been worked into tenons. These were found to fit some of the mortices in the sleeper beams and it is, accordingly, probable that they were two of the main uprights which supported the superstructure of the building. One of these (F) was of rectangular cross-section, 90cm. long, 25cm. in maximum width and 12cm. in maximum thickness. The tenon, which was in better preservation than the rest of the timber, was 21cm. long, 23cm. wide and 8cm. thick. The part above the tenon tapered to the top in both width and thickness, as if it had been subject to gradual decay, which might have happened if it had stood exposed to the weather for a considerable time after the building had become ruinous. This interpretation seems to be confirmed by the fact that its maximum width and thickness occurred immediately above the tenon, to which level the post might have been permanently submerged in water or buried in damp soil. Two small holes, 5cm. apart, 3cm. in diameter and 3cm. in depth, had been bored in a downward-sloping direction into one of the wide faces of the tenon. It is likely that these were intended to receive pegs driven through corresponding holes in the wall of the mortice in which the tenon engaged, but no holes for this purpose were observed in any of the mortices in the sleeper beams.

The second tenoned post was also of rectangular section and also tapered above the tenon. Its total length was 115cm., of which the tenon accounted for 29cm. The tenon was 25cm. wide and 11cm. thick, the maximum thickness of the post (12cm.) occurring immediately above it.

The other fragments found were less readily identifiable. They included part of what was, obviously, a structural member of the building (H). It was broken at both ends and the total length was 100cm. Part of it was 62cm. long and 18.5cm. wide; the remainder 32cm. long and 11cm. wide, the junction of the two parts being shouldered. One face of the timber was flat and it attained its maximum thickness of 14cm. at a point 42cm. from the wider extremity. Between the latter and the area of maximum thickness, the other face of the timber had been cut back to reduce its thickness to 7cm. The thickness of the remaining

section decreased from the maximum of 14cm. to 9.5cm. at the shoulders, the whole of the narrower part being of this thickness.

Five fragments (I-M) were parts of planks. One (I), found in the spoil-heap and broken at both ends, was of rectangular section and 9cm. thick where best preserved. The overall length was 115cm. of which a portion 71cm. long retained the characteristics of the original plank, having straight edges and a width of 33cm. Fragment J, also broken at both ends, had an overall length of 90cm. One portion, 42cm. long, was 34cm. wide and about 7cm. thick; the other, 50cm. long, was about 13cm. wide and 8cm. thick. It is possible that the original plank was of a uniform width of about 34cm. and pierced by a rectangular mortice, one side of which is represented by that segment of the present perimeter which runs at right angles to the long axis at the junction of the wider and narrower sections. Fragment K was part of a plank which lay transversely across the floor of the wheelhouse in the neighbourhood of the supporting beam of the chute. As it was accidentally brought up



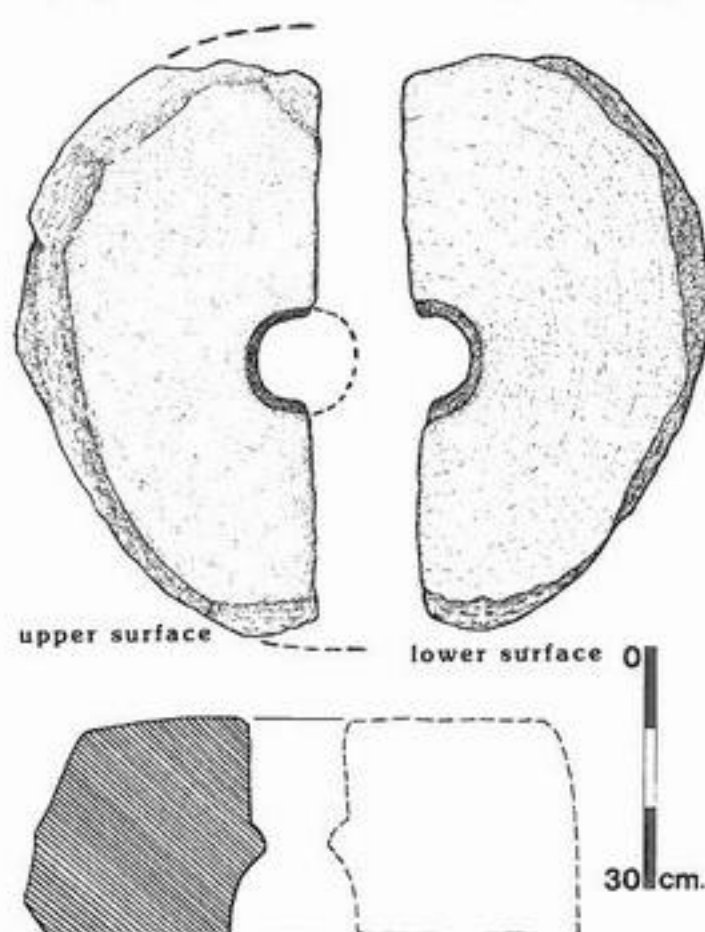
Illus. 4. Miscellaneous worked timbers (beams F-H, planks I-M, stake N).

by the mechanical excavator in the process of lifting out the supporting beam, it is uncertain whether it formed part of the flooring which would have been a normal feature of this area of the wheelhouse or whether it formerly fulfilled a function in some other part of the building. To judge from a small portion surviving at one end, it came from a plank about 24cm. wide, pierced by a mortice 10cm. long and 9.5cm. wide near one end. One end was broken and the plank had been split longitudinally by the machine between this end and the mortice. The surviving fragment was 152cm. long and its average thickness was 6cm. Plank L, which appeared to be intact at one end but broken at the other, was 118cm. long, 30cm. wide and 8cm. in average thickness. Plank M, which was broken at both ends, was 100cm. long, 24cm. wide and 8cm. in average thickness.

All the remaining fragments found on the site consisted of amorphous pieces and slivers broken or torn from larger timbers. The only exception (N) was part of a stake, the upper end of which was broken. It was 71cm. long, approximately square in section (10cm. by 10cm.), the lower 21cm. being brought to a point.

Approximately half of an upper millstone (Nat. Mus. Reg. No. 1976:33) was later found at the site by Mr. Brophy. It is of an extremely coarse-grained sandstone. A layer of considerable thickness had been removed from the curved surface, probably by the mechanical excavator used to deepen the drain. The original diameter must have been at least 70cm. The thickness varied from 29cm. to 31cm. The hopper was about 15cm. in diameter and 10cm. deep. The pipe was 12cm. in diameter and 13cm. deep. There was a marked constriction, 9cm. in diameter, between the hopper and pipe. There were no traces of rynd slots. (Illus. 5).

Samples of the wood submitted to the Harwell Research Laboratory yielded the following dates: larger chute 1280 ± 70 b.p.; smaller chute 1190 ± 70 b.p.; beam supporting chutes 1310 ± 80 b.p.; sleeper beam 1160 ± 70 b.p. This series suggests that the mill was constructed some time about the first half of the eighth century, a date which fits comfortably into the series recently dated by dendrochronological methods [M. Baillie, *Current Archaeology*, 73(August 1980), 62].*



Illus. 5. Half of upper millstone, with cross-section below.

APPENDIX

Editorial Note: *The above report was virtually completed for publication [as promised in this Journal, 12(1969), 20, fn. 9] some time before the author's death in March 1986, but had been held up because the photographic record, with which it was intended to help illustrate the article, had somehow been mislaid since his retirement from the Directorship of the National Museum of Ireland in 1976. In preparing the article for publication it was found necessary to go through various notes and files, etc., retained by Dr. Lucas, including the daily accounts which he wrote most nights of his life. A check through the relevant*

*Radiocarbon dates for the mill at Knocknagranshy, Co. Limerick, published in this *Journal*, 12(1969), 12-22, found amongst the author's notes suggest a date perhaps a century later for it: chute 1200 ± 70 b.p.; beam supporting chute 1110 ± 70 b.p.

dates revealed some material relating to the discovery and much of interest, not only in demonstrating the value of such diaries but also something of the author's industry and approach to life and museum work. The complete, unexpurgated, entries for the three relevant days are therefore printed here; some explanatory footnotes are added.—E.R.

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March 25th, 1970—Wednesday.

While at home this morning received phone call from Head Attendant¹ reporting call from Sec., Tipperary County Council, N.R., in Nenagh, stating that 'an oak-lined passage with wooden coffin' had been found in drainage work near Rathcabbin. Told Murray to tell Raftery² to investigate. Raftery phoned to say he had phoned home of William Brophy of Lisballyard (owner of land on which 'coffin' had been found). Had spoken to Brophy's daughter who confirmed general details received from Co. Co. Sec. Later, I decided to visit Museum. As a result of further information from Murray, I decided that the site must be a horizontal mill, the 'coffin' being the chute, and made up my mind to investigate site myself. Phoned Raftery who was at home on half-day's leave. Told him I was almost certain site was horizontal mill and that I would examine it myself. Raftery had told Brophy (per daughter) that he would arrive at site tomorrow forenoon. Told him I would send attendant to fetch maps which he had taken home with him. Arranged to take labourer Martin³ with me and that I would collect him at Templeogue Bridge tomorrow at 9.30 a.m. Phoned Brophy from home about 6.30. Spoke with him about site. Told him I suspected it was a mill and that as I had to some extent specialized in them and had decided to investigate site myself. He asked me if I could come earlier than I had at first suggested as he had an appointment and yet would like to be at site when I arrived. Told him I would do my best.

Phoned Murray to ascertain where Martin lived. He referred me to Paddy Campbell,⁴ an attendant in National Museum and brother-in-law of Martin. He told me Martin's address in Templeogue and I drove there; met Martin and arranged to collect him at 8.30 a.m.

Phoned Athenry to see if Etienne⁵ would be free to come to help me record the mill tomorrow. Both Aileen⁶ and he were in Shannon but the girl took down my message and promised to give it to him when they returned. In fact I phoned again to see if they had come home but they were still not there.

March 26, 1970—Holy Thursday

Cold bright morning. Having stowed spade, shovels, yardbrush, trowels, etc., in car last night, I set off at 8.15 a.m. and collected Martin at Templeogue at 8.30. Drove to Tallaght—Naas—Monasterevan—Ballybrittas. Turned off and drove by Emo, Rosinallis,

¹Mr. Joseph Murray, Head Attendant for many years in the National Museum of Ireland.

²Dr. Joseph Raftery, at the time Keeper of Irish Antiquities, and later Director, in the National Museum of Ireland.

³The late Mr. Edward Martin, for long employed as a 'labourer', i.e. a general all-round helper, in the National Museum.

⁴Author of books on life in old Donegal, and occasional radio and television broadcaster on the same topic; also a well-known traditional musician.

⁵Professor Etienne Rynne, an archaeologist, for ten years (1957-67) in the Irish Antiquities Division, National Museum, before transferring to the Department of Archaeology, University College, Galway; resident in Athenry, Co. Galway.

⁶The author's daughter; married to Professor Rynne.

Kinnitty to Birr. Thence followed Portumna road. Soon after passing O'Meara's public house, turned up lane to S. Had to reverse to let out car. Driver turned out to be the man who owned the excavator and had found the mill. Name—Kenny [blank⁷] of Aglish, Roscrea. Drove up long lane to rising ground. At farmhouse met William Brophy. He and helpers were driving a litter of half-grown pigs from one shed to another. It was a demonstration of the obstinacy of pigs and the inefficiency of human beings. Of the latter, each was armed with a large sheet of rusty corrugated iron which he used in conjunction with those of the fellow helpers to form a sort of moving corral to keep the pigs together. He also employed it as a means of urging the pigs ahead by banging it against them. They had, evidently, been subjected to this treatment before as their ears were covered with cuts inflicted by the ragged edges of the iron sheets. The pigs, on the other hand, seemed one and all to be preoccupied with the urgent business of snuffing every fresh inch of ground over which they were driven and to be divided in their minds whether to go forwards or backwards. As Martin pointed out, it would have been ten times quicker to carry them, one by one, from one quarter to another and much less tiresome as well.

Brophy then accompanied us to the site, leading us west towards Portumna for a couple of miles and then turning north along a narrow rutted lane with brambles scraping the car on either side. From this we branched off to one even narrower and more rutted but mercifully shorter. From it we drove across a field. The site lay in the next field, across a fence. I first tried to plot the position of the site on the O.S. 6" sheet with Brophy's help. It was not easy as many of the fields had been divided up by the Land Commission since the map was printed.

The site lay in a shallow drain which ran in a curving course from N. to S. across a field to join a small stream called the Pallas River. It was in the townland of Newtown. The excavator had worked up the slope from the river and had struck some timbers. Of these, one large sleeper beam with mortices had been lifted out and lay on the spoil dumped on the E. side of the drain. Other timbers had been broken to pieces and also lay scattered on the spoil heap. The chute, which had a lid or the remains of one, was still deep in the drain although not in its original position. Also displaced was the large oak beam with a recess in its upper edge which had supported the fore end of the chute.

Shortly after my preliminary examination of the site Etienne arrived—he had phoned the house after I had left and Cassie⁸ had given him what travelling directions she could. We spent the rest of the day measuring, drawing and photographing all the timbers. We employed the driver of the excavator to lift out the beam and chute and later to cut down the west bank to expose the sleeper beam which was buried under it. Brophy, who had revisited the site to watch our progress, invited us to his house for a meal before we left for home. We lunched off the sandwiches and coffee we had brought with us. It was sunny with passing clouds but very cold.

We completed our work about 6.30 and went to Brophy's home in Lisballyard. For a man who seemed to be in such comfortable circumstances, the house was out of keeping. It was a small three-roomed one, originally thatched. He had, I think, eleven children, some very young. All of those who were present spent the time watching the television set mounted in a corner of the kitchen. The three of us (Etienne, Martin and self) had a pleasant meal. Brophy was intelligent and looked much younger than he was. We all

⁷Mr. Ken Slevin, of Eglish, Roscrea (information from the *Midland Tribune*, 11/4/1970, where a very brief note accompanying two photographs of the discovery is published).

⁸The late Catherine Lucas (née Herbert), the author's wife.

left about 8 p.m.; parted with Etienne at main road and drove home without incident, dropping Martin in Templeogue.

March 30, 1970—Easter Monday.

Etienne and I both wished to see the mill site at Newtown again to examine the topography of the place and record some miscellaneous fragments of the timbers. Some weeks ago I had completed writing an account of the mill site at Boherduff⁹ which Ó Ríordáin¹⁰ and I had excavated many years ago. As there were some points about the site which I wished to check, I had written to the owner, Patrick Finn,¹¹ to tell him I hoped to call on Easter Monday. In the meantime, Professor and Mrs. T. Ó Máille¹² had invited Aideen, Etienne and ourselves to visit them tonight at 7.30. We decided the best thing to do was to call on Finn on our way to the Newtown mill and ask him to come with us. This we did and found him only too willing to come. The three of us drove to Portumna and on to Newtown. It was very cold but bright. Finn and I walked the land, following the course of the drain on which the mill stood. We could find no surface indications of a mill race. The drain itself was quite small, scarcely 2 feet wide and 6 in. deep. It ran E-W along the southern side of a field fence. If it ultimately joined the Pallas River, that must occur very far to the W. We walked to the river and followed it to the point where the drain on which the mill was situated entered it. The river itself had been deepened by about 2 feet in recent years. Etienne had, in the meantime, been recording some timber fragments. I photographed some of the main timbers anew.

We then returned to Loughrea, running into a few showers en route. We had drinks in the town and then drove on to Boherduff. Here I checked some measurements of the site of the mill. I was surprised to find that it lay much farther than I had imagined from Finn's house. It was by now biting cold with a whipping rain. Finn had preserved the main mill timbers in situ. Back in his house we had more drinks and the good talk went round. We left about 6 o'clock and hurried back to Athenry to change our clothes.

At 7 p.m. I drove Cassie, Aideen and Etienne to Galway, to Ó Máille's house, Cuilleann, Taylor's Hill. Commandant Connole and his wife and Tom O'Neill¹³ and his wife were also there. We left at midnight after a pleasant evening. There was a big hold up of traffic on the Galway side of Oranmore and an ambulance drove towards Galway at high speed. When at last we moved ahead we passed a wrecked car and saw the road littered with glass.

⁹Roughly between Kilchreest, Craughwell and Loughrea, Co. Galway. The mill-site is, regrettably, as yet unpublished though mentioned in connection with other adjacent ancient sites in E. Rynne, *J. Galway Archaeo. Hist. Soc.*, 34(1974-75), 102. Among Dr. Lucas' notes is a record of a radiocarbon date of 1090 ± 70 b.p. for the site, i.e. about 860 ± 70 A.D.

¹⁰Mr. Brendan Ó Ríordáin, at the time Asst.-Keeper, Irish Antiquities Division, National Museum, and at the time of writing Director of that Institution.

¹¹The late Mr. Patrick Finn was a gentleman, scholar and farmer who for many years had rendered much assistance to the National Museum regarding their queries and investigations concerning archaeological and folklife matters in the general region; see *The Connacht Tribune*, 6/4/1973 ("Patrick Finn: An Appreciation" by E.R.) and 16/5/1986 ("Pat Finn—remarkable Boherduff scholar" by Fr. Martin Coen), and also his Obituary by E[tienne] R[ynne], *J. Galway Archaeo. Hist. Soc.*, 34(1974-75), 104.

¹²Tomás Ó Máille, ag an am sin an t-Ollamh le Nua-Ghaeilge, Coláiste na hOllscoile, Gaillimh.

¹³Thomas P. O'Neill, at the time Lecturer, and later Professor, in the Department of History, University College, Galway.