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Bogland and the Canal Burst at Edenderry

Is bogland good or bad terrain for canal construction? This question was for long a matter of controversy. In 1846 the engineers responsible for the Ballinasloe branch (opened in 1827), Bernard and M. B. Mullins, wrote a paper on the subject: Origin and Reclamation of Peat Bog. Here is a quotation from the section Canals in Bog.

The process of canal making through bog is a subject demanding special consideration and inquiry; so much depends on local circumstances that no rigid system of operations applicable in all cases can be specified — the position of the bog, its depth, its contiguity to recipients for drainage, the level of the substratum upon which it rests in reference to the level of those recipients, the level at which the canal is intended to enter the bog, the depth of cutting to be removed, and the nature of the bog, whether firm or flow, are considerations which must influence the course to be adopted.

Smeaton, the ablest Civil Engineer of his day, having been consulted in the year 1773 by the Grand Canal Company on the extension of their canal, fell into a grave error in advising "To avoid bogs if possible, but of all things going deeply into them". In our times we are taught by experience to inculcate contrary doctrine.

Bog lands are, in our opinion, particularly favourable to canal extension; the site of the canal is purchaseable at a low rate, it is cheap and facile in execution — always presuming that the line is judiciously chosen and skilfully worked; it is perfectly retentive, does not gutter the slopes at the water's edge as in clay and gravel banks; and the elasticity of the towing paths is such, that they continue for years without repair if used exclusively as trackways. Moreover, a line of canal passing through bog furnishes the means of reclamation on an extensive scale, as well in the preliminary course of draining as in the conveyance of manure for its cultivation. The increase of fuel, and the employment which its manufacture would afford to the working classes in its vicinity, are great inducements to give a decided preference to bog lands for the site of a canal, other requirements being suitable.

We are not surprised at Smeaton's advice to avoid bogs if possible, seeing the principle advocated by him of not going deeply into them. The canal from the Forth to the Clyde, thirty-five miles in length, passing partly through bog, was commenced by this celebrated Engineer in 1768, and was not finished until 1790, having cost the large sum of £280,000.

Bogs do not constitute the master difficulty of canal making, as is sufficiently attested by the history of the greatest undertakings of that description. The canal at Languedoc required the great genius of Vauban, and the munificence of Louis the Fourteenth, to carry it through its difficulties. Peter the Great was obliged to abandon the projected canal from the Don to the Volga after a very large sum had been expended on it, owing to the unskilful laying out of the line. These examples, which might be multiplied, will suffice for our purpose.

That portion of the Grand Canal passing near the town of Edenderry, in the King's County, furnishes a two-fold instance of the difficulty of making a canal through bog, where the level of the substratum is below that of the adjacent river, and of the ill effects of not going deeply into the bog. It was supposed that the level chosen, which afforded from six to nine feet depth of cutting, was such as would enable the undertaking to be completed at the least possible expense, assuming that the depth of cutting (allowance being made for subsidence), would give a finished canal of the required dimensions, namely, twenty-four feet width of bottom, forty-six feet wide at top, and eight feet in height from bottom of canal to upper surface of trackway. The excavation and drainage were carried on concurrently, and that which was expected to be an unusually cheap reach of canal in shallow cutting, ended, after several years of unremitting labour and enormous expense, in the formation of a bank on either side, forty-five feet high for a distance of eighty perches, so that the canal with the carrying up of its sides and bottom to the required level, containing six feet of water, was in the centre of a high artificial embankment, having a base of fully four hundred feet. Indeed the difficulties were so great, that it was more than once contemplated to abandon the line, and to make a new cut; but through the influence of the proprietor of the town of Edenderry, an example has been furnished for the benefit of the engineering world, at least of an error of the gravest character having been carried to a successful termination.

The following process was adopted in making this canal. Parallel drains, at ten perches from the centre line on either side, were made, and at two perches distance from these, and from each other, a series of parallel drains, to the extent of thirty-four perches from the centre line on either side, were then made, embracing a breadth of sixty-eight perches; these were crossed at right angles, at two perches distance from each other, so that the area of the bog, from the ten perch-drain to the thirty-four-perch drain, on each side of the embankment, was divided into squares or ramparts of four perches area each. The drains of those squares were continually widened and sunk, and the spoil thrown on the ramparts. When the spoil became dry it was wheeled together with an eighteen-inch lift of the ramparts, into the embankment in which the material was firmly trampled and chopped, and while all the dry ramparts were so disposed of a new set were being similarly prepared by sinking the drains. The formation of the canal thus pro-

ceeded until the navigation was opened. Great quantities of clay were then boated from the lining of the bottom and sides, soling the trackways, and covering the whole surface of the banks, as well to give weight and strength, as to secure them against fire and waste in summer. The material being dry and light, the surface was set on fire many times, and was liable for the same reason to be carried away by the winds; the banks were, however, perfectly retentive.

Previously to the opening, when the water had been let in temporarily, a breach occurred, the reconstruction of which (we had the direction of it) cost £10,000 in securing the embankment. This was done by wheeling dried bog material into the breach, firmly ramming it into its place, and incorporating it thoroughly with the broken sides. Forty years have elapsed since this was made good, and no similar disaster has since occurred.

But the Edenderry canal continued to give trouble. In V. T. H. and D. R. Delaney's book, *The Canals of the South of Ireland*, we read of a severe storm causing a breach near Edenderry on February 1849. This cost the company £9,514 in repairs and necessitated the laying down of 3,700 feet of railroad so that goods could be transhipped.

A worse disaster befell the, by then, impoverished company in January 1916. The breach again near Edenderry closed the canal for three months and cost £6,474 in repairs. In that year the tonnage fell, the revenue was reduced and the shareholders had to put up with a 2 per cent. dividend.

For *The Leinster Leader*, the breach was big news. A Special Correspondent reported in detail:

The scene of the canal burst at Edenderry has been visted by thousands of people during the past week, and visitors from all parts of the country have motored there to inspect the remarkable sight. They all of them admit that no description, however graphic, could have prepared them for what they saw — the havoc wrought by the muddy rushing water, the enormous force that must have pressed it outwards, the utter impotence of the protecting line to resist the pressure and the great cataclysm that resulted. What everyone seemed to consider especially remarkable was the fact that greater damage to the property was not done and that the only injury caused was by the flooding which has now greatly subsided.

There can be no doubt that if the breach had occurred in the middle of the night when people were in bed asleep, the results would have been far more serious. The great line of water lying between Edenderry and Ballycommon together with the branch line to Kilbeggan, constituting 21 miles in length altogether would have found its way through the

breach and flooded the whole country down to the River Boyne. As it was, a portion of the country between the canal and the River was flooded for a few days.

An interesting theory has been advanced to account for the canal burst. An English gentleman puts forth the suggestion that it may be due to an earthquake, the occurrence of which was recorded by scientific instruments in the English midlands. He says that such an occurrence, no matter where it happens, will disturb the earth's surface in widely severed places that possibly the canal burst in Edenderry and the land slide in Wales may be due to this cause. However, this may be, it is interesting to record that everyone who visited the scene says that the destruction resembles that which would be wrought by an earthquake, and, after all, the explanation may be the correct one. Those conversant with such matters however, state that the catastrophe was due to the fact that the canal bed gave way and that the water undermined the banks. In view of these conflicting opinions, a couple of significant circumstances may be mentioned. In the first place, the cavity made by the water in the immediate vicinity of the canal is about 15 feet under the bed of the canal — that is, a sheer drop of 15 feet from the latter to the former. In the second place, the canal banks on both sides are deeply fissured longitudinally in several places many hundred yards distance from the actual breach. Again the breach took place on exactly the same spot as the great breach of 60 years ago. You can see the great wooden piles that had been sunk that time. They are about 15 feet away from the edge of the canal and are still fresh and strong looking. Deeply embedded in the ground, they must have been capable of resisting enormous pressure. Yet here they lie tossed here and there like so many matches, their impotence being the most illuminating record of the mighty power that swept them away.

The chasm in which the water lies varies from 10 to 20 feet, in depth and is studded with miniature islands consisting of great slices of the bank, many of them 10 tons in weight.

It has been represented to me that I should insert a list of the names of those who worked so heroically and unselfishly at the work of damming the water at Colgans Bridge, and so prevented the great damage which would have been done had the 21 miles of water lying on the Tullamore side been released. For very obvious reasons I refrain from doing so. It would be very difficult to get a complete list in the first place and besides there would be the danger of apportioning praise unequally. It is sufficient to say to these men, over 100 in number, not alone the Canal Company but the people of Edenderry owe a very deep debt of gratitude.

A large number of men have started work on repairs and while it would be impossible to state definitely when traffic will be resumed, it

is believed that the line will be rebuilt in 6 months. People whose land has been flooded are making claims against the Company for the damage they have sustained.

We went to Murt Murphy of the 20th Lock, Lowtown, for a commentary on the Leinster Leader report. He was only a lad at the time but everyone in the Robertstown area talked of the Breach and what was merely a Seven Day's wonder for the public at large was for years a fireside tale in the Robertstown homes.

Murt Murphy's father and the Special Reporter agree about the spectacular nature of the Edenderry disaster. Mr. Murphy senior told how "lumps of bog rolled out bigger than Allen Chapel". He spoke of flooded fields reaching almost to the town of Edenderry, adding "never was there such a time for catching fish". Tradition has nothing to say about the Special Correspondent's earthquake but 'people believe that an underground river was responsible'.

There was one great discrepancy between the newspaper and local tradition: Murt Murphy is positive that the water from the canal as far as the Kilbeggan branch rushed out through the breach. He says that John Dunne of Ballyteague (whose son is still alive) was working a gravel boat on the Kilbeggan branch at the time and he declared that the water went from under him.

Some of the stranded boats used the Royal Canal to return to Dublin. When the Breach was repaired, the canal was refilled from the Prosperous reservoir which is now no longer used.

