

Fossil Tree Stumps at Saltcoats

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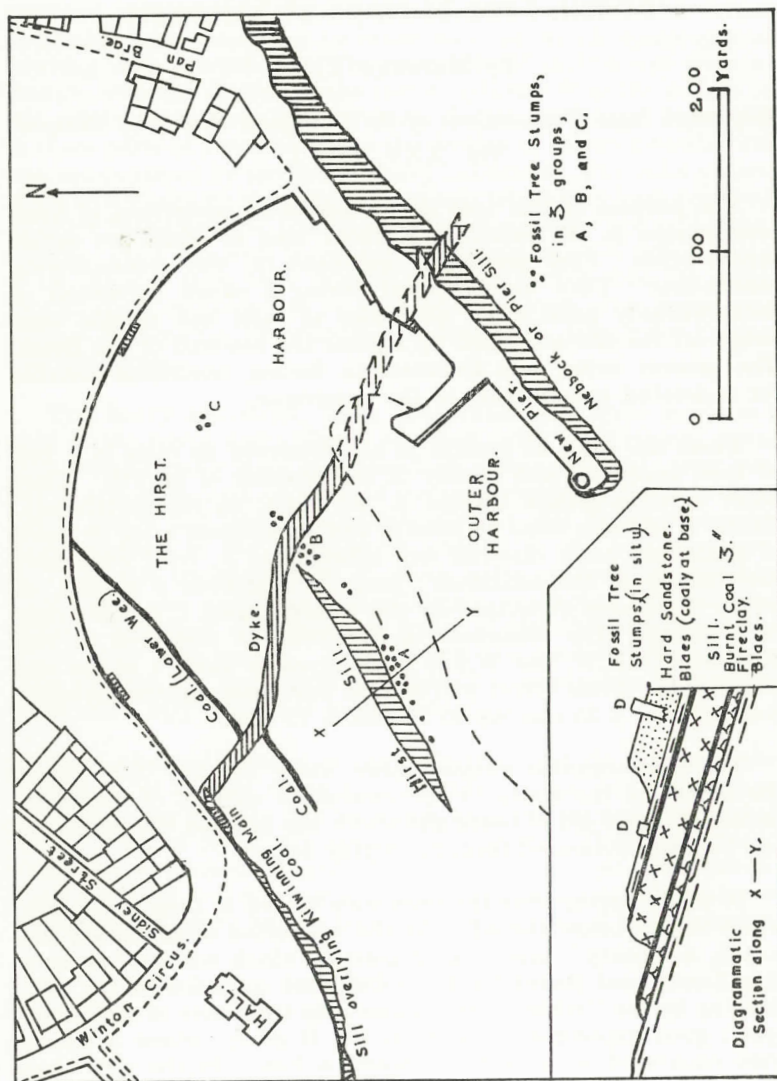
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The purpose of this note is to describe an occurrence of fossil tree stumps in the Saltcoats Harbour area of which no earlier record exists. Their position is indicated on the accompanying sketch-map. They were exposed during a recent succession of south-westerly gales when quantities of sand and shingle were swept off the site and piled up against the sea-wall of the Braes. The present writer was fortunate in finding conditions suitable for a detailed examination of the occurrence.

There are some 30 stumps in all, preserved as casts in a bed of hard sandstone and mostly in the position of growth. They occur in three groups lettered A, B, and C on the sketch-map. Group A includes some 18 stumps and in addition a log or piece of stem with coaly material still adhering to it, lying embedded horizontally in the sandstone; group B comprises 8 stumps, of which three were excavated by the writer; group C consists only of 3 stumps. The diameters of the trees, as measured in two directions (N.N.W. and W.S.W.), are given in Table 1 at the end of the note. From this it will be seen that these dimensions range from 33 cms. x 35 cms. up to 75 cms. x 75 cms.

The diagrammatic section drawn along the line X-Y shows the nature of the strata in the immediate vicinity of the trees, including a thin sill of teschenite which has invaded the sediments and burnt or indurated them in varying degree.

It would appear that the trees were rooted in their seat-earth, which is just below the sill. As the vegetation accumulated and rotted, a "peaty" layer was deposited, which we now see as a thin 3-inch coal (burnt by the subsequent intrusion of the sill). Judging by the "ribbed" appearance, the trees were of sigillarian-type; good exposures are seen in the B group, where 3 trunks were excavated to a depth of about a foot. In the soft blaes around the stumps there are abundant plant remains—*Calamites*, *Stigmaria*, etc. The normal development of a coal-seam was suddenly stopped by a rapid subsidence of several feet. Mud gathered round the trunks; the trees died; the upper parts of



the stems snapped off; the soft heart-wood rotted away to leave a hollow stump; further subsidence, and deposition of sandy material with infilling of the hollow stumps, produced the carts, with "coaly bark", which we now see.

The dyke, the sills, and the dip of the strata (15° to the south-east), combined to play a vital part during Glacial times in protecting the soft shales and sediments of the Hirst from the destructive effects of ice-action.

Since the exposure can only be seen for about an hour at Low Water, it can never be displayed as beautifully as the Fossil Grove in Victoria Park, Glasgow. To excavate down to the roots would lay them open to attack by sea and sand.

It is important to note in connection with the Saltcoats occurrence that its stratigraphical position is near the base of the Productive Coal Measures, about 90 or 100 feet above the Kilwinning Main Coal. The fossil trees here are accordingly some millions of years younger than the *Lepidodendron* trees of Victoria Park.

TABLE 1. DIMENSIONS (in centimetres)

Group A :—			
69 x 56.	75 x 75.	53 x 47.	57 x 52.
55 x 45.	37 x 32.	38 x 49.	33 x 35.
53 x 42.	53 x 49.	64 x 49.	47 x 53.
52 x 44.	75 x 62.	52 x 50.	50 x 50.
62 x 45.	39 x 32.	Log—1½ m. x c. 30 cms.	
Group B :—			
40 x 39.	40 x 40.	45 x 44.	37 x 40.
40 x 40.	50 x 50.	39 x 39.	47 x 50.
Group C :—			
55 x 60.	53 x 58.	53 x 50.	

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