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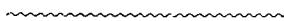
Principal Works: Volume 2

Samuel Smiles

Excerpt

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LIVES OF THE ENGINEERS.



LIFE OF JOHN SMEATON.

VOL. II.

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BANFF BRIDGE. [By R. P. Leitch]

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LIVES OF THE ENGINEERS.

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CHAPTER I.

SMEATON'S BOYHOOD AND EDUCATION.

THE engineer of the Eddystone Lighthouse was Brindley's junior by only eight years. They frequently met in consultation upon important engineering undertakings; sometimes Smeaton advising that Brindley should be called in, and Brindley, on his part, recommending Smeaton. They were, in fact, during their lifetime, the leading men in their profession; and at Brindley's death Smeaton succeeded to much of his business as consulting engineer in connection with the construction of canals and of public works generally.

Smeaton had the great advantage over Brindley of a good education and bringing up. He had not, like the Macclesfield millwright, to force his way up through the obstructions of poverty, toil, and parental neglect; but was led gently by the hand from his earliest years, and carefully trained and cultured after the best methods then known. But Smeaton, not less than Brindley, was impelled to the professional career on which he entered by a like innate genius for construction which displayed itself at a very early age; and, being permitted to follow his own bent, his force of character and strong natural ability, diligently cultivated by study and

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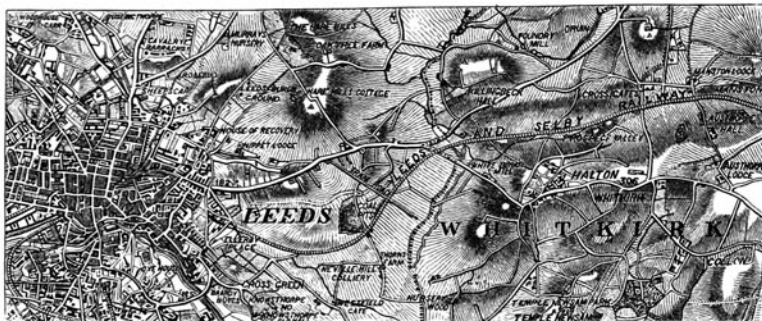
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[More information](#)

4 SMEATON'S BOYHOOD AND EDUCATION. PART VI.

experience, eventually carried him to the very highest eminence as an engineer.

John Smeaton was born at Austhorpe Lodge, near Leeds, on the 8th of June, 1724, his father being



SMEATON'S NATIVE DISTRICT [Ordnance Survey.]

a respectable attorney practising in that town. The house in which the future engineer was born was built by his grandfather John Smeaton, who is described on the tablet to his memory erected in the neighbouring parish church of Whitkirk, as "late of York." Leeds was then a place of small importance, compared with what it now is. The principal streets were those still known as Briggate, leading to the bridge; Kirkgate, leading to the parish church; and Swinegate, leading to the old castle. Beyond those streets there lay a wide extent of open fields. Boar Lane, now nearly the centre of the town, was a kind of airy suburb, in which the principal merchants resided; and the back of the houses in the upper part of Briggate, now the main street, looked into the country,¹ or "the Park," on which Park Square, Park Row, and Park Lane (now containing the principal architectural ornament of the place, the new Town Hall), have since been built. There were also green fields, with pleasant footpaths, between the parish church

¹ Whitaker's Thoresby, 'Loidis and Elmete,' p. 89.

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and the river side, through certain gardens, then, as now, named "The Calls," but gardens no longer.

The clothing trade of the town was then so small that the cloth market was held in the open air upon the bridge, where the cloth was exposed for sale on the parapets. The homely entertainment of the clothiers at that day was a "brigend shot," consisting of a noggin of porridge and a pot of ale, followed by a twopenny trencher of meat. Down to the year 1730, the bridge was so narrow that only one cart could pass over it at a time. But the number of wheeled vehicles then in use was so small that the inconvenience was scarcely felt. The whole of the cloth was brought to market on men's and horses' backs.¹ Coals were in like manner carried from the pits on horseback, the stated weight of a "horse-pack" being eighteen stone, or equal to two hundredweight and a quarter.² In the rural districts of Yorkshire manure was also carried a-field on horses' backs, and sometimes on women's backs, while the men sat at home knitting.³ The cloth-packs were carried by the "bell-horses," or pack-horses; and this mode of conveyance continued until towards the end of last century. Scatcherd says the pack-horses only ceased to travel about the year 1794.

The Leeds men, it seems, were not considered so "quick" as those of Bradford, then a much smaller place and comparatively of the dimensions of a village; and it was long before they provided themselves with a

¹ This is clear from an allusion made by Thoresby to an Act passed in 1714, regulating the manufacture of broad-cloth, by which the length was increased from four or six-and-twenty to sixty and even seventy yards, "to the great oppression," says Thoresby, "both of man and beast in carriage."

² Smeaton's 'Reports,' vol. iii., p. 410. Mr. Smeaton says that before the invention of rail or waggon roads

at Newcastle, "all the coals that were carried down to the ships must have been conveyed on horses' backs." What was called "a bowl of coals," was reckoned a horse-load; and in Yorkshire (where the first waggon-way was laid within Smeaton's recollection) the load of coals and the "horse-pack" were readily substituted the one for the other.

³ Brockett's 'Glossary of North Country Words.' Newcastle, 1825.

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proper market for their cloth, first on Mill Hill, and afterwards in the Calls; finally, in 1757, erecting a large hall for the markets in the Parks, which is now known as the Coloured Cloth Hall. But even then the place remained comparatively rural in point of size and surroundings.



VIEW OF LEEDS, EARLY PART OF 18TH CENTURY. 1

[From Thoresby's 'Ducatus Leodensis.']

Smeaton was greatly favoured in his home and his family. He received his first education at his mother's knees, and when not occupied with his lessons he led the life of a healthy, happy country boy. Austhorpe was then quite in the country, the only houses in the neighbourhood being those of the little hamlet of Whitkirk, with the large old mansion of Temple Newsam, surrounded by its noble park and woods, close at hand. Young Smeaton was not much given to boyish sports, early displaying a thoughtfulness beyond his years. Most children are naturally fond of building up miniature fabrics, and perhaps still more so of pulling them down. But the little Smeaton seemed to have a more than ordinary love of contrivance, and that mainly for

¹ The principal buildings shown in the above view of Leeds, about the time when Smeaton was born, are the

Parish Church (described by Thoresby as "black, but comely"), St. John's Church, and Call Lane Chapel.

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[More information](#)

CHAP. I. SMEATON'S BOYHOOD AND EDUCATION.

7

its own sake. He was never so happy as when put in possession of any cutting-tool, by which he could make his little imitations of houses, pumps, and windmills. Even whilst a boy in petticoats he was continually dividing circles and squares, and the only playthings in which he seemed to take any real pleasure were his models of things that would "work." When any carpenters or masons were employed in the neighbourhood of his father's house, the inquisitive boy was sure to be amongst them, watching the men, observing how they handled their tools, and frequently asking them questions. His life-long friend, Mr. Holmes,¹ who knew him in his youth, has related that having one day observed some millwrights at work, shortly after, to the great alarm of his family, he was seen fixing something like a windmill on the top of his father's barn. On another occasion, when watching some workmen fixing a pump in the village, he was so lucky as to procure from them a piece of bored pipe, which he succeeded in fashioning into a working pump that actually raised water. His odd cleverness, however, does not seem to have been appreciated; and it is told of him that amongst the other boys he was known as "Fooley Smeaton;" for, though forward enough in putting questions to the workpeople, amongst boys of his own age he was remarkably shy, and, as they thought, stupid.

At a proper age the boy was sent to school at Leeds. That town then possessed, as it still does, the great advantage of an excellent free grammar school, founded by the benefactions of Catholics in early times, afterwards greatly augmented by the endowment of one John Harrison, a native of the town, about the period of

¹ An eminent clock and watch-maker in the Strand, afterwards Smeaton's partner in the Deptford Waterworks. His 'Short Narrative of the Genius, Life, and Works of the late Mr. John Smeaton, C.E.,

F.R.S.,' published in 1793, contains the gist of nearly all the notices of Smeaton's life which have since been published; but it is a very meagre account of only a few pages in length.

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the Reformation. At this school Smeaton is supposed to have received the best part of his school instruction, and it is said that his progress in geometry and arithmetic was very decided; but, as before, the chief part of his education was conducted at home, amongst his tools and his model machines. There he was incessantly busy whenever he had a spare moment. Indeed, his mechanical ingenuity sometimes led him to play tricks which involved him in trouble. Thus, it happened that some mechanics came into the neighbourhood to erect a "fire-engine," as the steam-engine was then called, for the purpose of pumping water from the Garforth coal-mines; and Smeaton made daily visits to them for the purpose of watching their operations. Carefully observing their methods, he proceeded to make a miniature engine at home, provided with pumps and other apparatus, and he even succeeded in getting it set to work before the colliery engine was ready. He first tried its powers upon one of the fish-ponds in front of the house at Austhorpe, which he succeeded in very soon pumping completely dry, and so killed all the fish in it, very much to the surprise as well as annoyance of his father. But the latter seems, on the whole, to have been very indulgent, for he provided the boy with a workshop in an outhouse, where he hammered, filed, and chiselled away very much to his heart's content. Working on in this way, by the time he had arrived at his fifteenth year, young Smeaton had contrived to make a turning-lathe, on which he turned wood and ivory, and he delighted in making presents of little boxes and other articles to his friends. He also learned to work in metals, which he fused and forged himself, and by the age of eighteen he could handle his tools with the expertness of any regular smith or joiner.

"In the year 1742," says his friend, Mr. Holmes, "I spent a month at his father's house; and being intended

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9

myself for a mechanical employment, and a few years younger than he was, I could not but view his works with astonishment. He forged his iron and steel, and melted his metal. He had tools of every sort for working in wood, ivory, and metals. He had made a lathe, by which he cut a perpetual screw in brass,—a thing little known at that day, and which, I believe, was the invention of Mr. Henry Hindley, of York, with whom I served my apprenticeship. Mr. Hindley was a man of the most communicative disposition, a great lover of mechanics, and of the most fertile genius. Mr. Smeaton soon became acquainted with him, and spent many a night at Mr. Hindley's house till daylight, conversing on these subjects."



WHITKIRK, NEAR LEEDS.

[By E. M. Wimperis, after a Sketch by T. Sutcliffe.]

CHAPTER II.

SMEATON LEARNS THE TRADE OF MATHEMATICAL INSTRUMENT
MAKER.

YOUNG SMEATON left school in his sixteenth year, and from that time he was employed in his father's office, copying legal documents, and passing through the necessary preliminary training to fit him to follow the profession of an attorney. Mr. Smeaton, having a good connection in his native town, naturally desired that his only son should succeed him. But the youth took no pleasure in the law: his heart was in his workshop amongst his tools; and though he mechanically travelled to the office daily, worked assiduously at his desk, and then travelled back again to Austhorpe, he more and more felt the irksomeness of his intended vocation. Partly to wean him from his mechanical pursuits at home, which often engrossed his attention half the night, and partly to give him the best legal education which it was in his power to bestow, Mr. Smeaton sent his son to London towards the end of the year 1742, and for a short time he occupied himself, in conformity with his parent's wishes, in attending the Courts in Westminster Hall. But at length he could not repress his strong desire to follow some mechanical occupation, and in a strong but respectful memorial to his father, he fully set forth his views as to the calling which he wished to pursue in preference to that of the law.

The father's heart was touched, and probably also his good sense was influenced, by the son's earnest appeal; and he wrote back, giving his assent, though not without his strong expression of regret as to the course which