

THE MACHINE OF PERPETUAL MOTION IN NORTH-WEST WALES

David Gwyn

One of the most poignant moments in Edmund Hyde Hall's *Description of Caernarvonshire*, that otherwise sober and informative account of the county's situation in the early years of the nineteenth century, comes when he made his way to the parish of Bryncroes in deepest Llŷn:

'While visiting at Gelliwig I heard of an attempt made or making to discover the perpetual motion by a poor man resident in a wretched hovel wretchedly situated. The ambition of making this discovery is not uncommon, I understand, in this part of the world, and more than one adventurer is engaged in the enterprise. I was eager to examine the machinery and to learn the process, though my faith in its success, as may easily be supposed, was not very abundant. We accordingly explored the spot, found the house, and rapping at the door found that the man was in the agonies of death. Oh ambition!'¹

There is no further indication as to the identity of this individual, nor to the device he hoped to create. What is clear

¹ Hyde Hall, E., *A Description of Caernarvonshire* (Caernarfon, Caernarvonshire Historical Society, 1952), p. 300. CRO: XPE/51/2 (Bryncroes parish registers) unfortunately does not allow us to confirm this individual's identity. Possible candidates among those who died in the year 1809 are John Hughes (joiner), Daniel Evans (schoolmaster) and Will Mark (mariner).

is that he was not alone, though maybe it should surprise us that the only ‘adventurer’ to whom Hyde Hall refers should have been working in a rural area of the county rather than in a town or one of the industrialising areas of north-west Wales.

There are a few other references to such attempts in the area in the late eighteenth and early nineteenth centuries. Some are only tantalizing hints – in 1788 a child was born in Amlwch in a house known as ‘Perpetual motion’.² A slightly more detailed description is Robert Roberts *Sgolor Manwr*’s description of his grandfather’s quest for such a device in the mid-1840s.

‘I think that he was a man of powerful intellect, though a little eccentric and given to fancies. Like many other men naturally clever, he had not been successful in his worldly affairs; he had begun as the owner of a small farm, and had tried shop-keeping and failed; he then built a mill and lost by that; and last of all he had returned to farming. He had no better success at that employment, but fortunately his son grew up and prevented the last failure by taking the management into his own hands. Now that the old man was free from the care of business, he amused himself with carpentering and the making of various fanciful machines. Among others he had a plan for discovering the perpetual motion, which had cost him a vast amount of useless labour. This machine was to me an object of endless

² LIRO: Amlwch parish register, 1 May 1788, Evan son of John Williams, Perpetual Motion, by Catherine his wife.

wonder and admiration, and many a stolen visit did I pay to the old man's sanctum to inspect it and other such curiosities.³

Another is the biography of Griffith Williams (1824-1881), who grew up on the slopes of Llechwedd y Cyd, at Ffestiniog. As a child he became fascinated by the water-wheels which operated the Welsh Slate Company's quarry on the other side of the valley. From building miniature versions of these machines, by the time he grew into his teens he had convinced himself of the possibility of turning them into a machine of perpetual motion. Friends and neighbours crowded into his workshop to see the prototype, and money was offered to help bring it into being. Inevitably, it failed to work, and Williams derived some consolation from tinkering with the machines in the quarry, where he had more success, before finding his true vocation as a Congregationalist minister.⁴

Speculating as to the form of a technically unfeasible device can only take one so far, but it is possible to make a number of suggestions as to what these machines might have been. Robert Robert's grandfather had been a miller, and Griffith

³ Robert Roberts, *A Wandering Scholar: The Life and Opinions of Robert Roberts*, ed. John Burnett and H.G. Williams (Cardiff, 1991), pp. 117-8.

⁴ Owen, R., *Cofiant a Phregethau y Parch. Griffith Williams, Talsarnau* (Ba1a, Davies ac Evans, 1886), 16-7. The *DWB* also refers to the Rev. David Lloyd (1752-1838) of Llanbister in Radnorshire as a deviser of perpetual motion machines, as well as cleric, poet and musician, and Wynford Vaughan Thomas' *Madly in all Directions* refers to one Edward Lloyd, who is buried at Glyndyfrdwy, as having made such a machine in the shape of a drum.

Williams evidently worked with water-power. So it is almost certain that their machines were water-driven, and in all probability a wheel operated some sort of a pump which in turn was meant to supply the water back to the wheel. A possible, but less likely, alternative is that the pump was driven by a column-of-water engine, a device broadly similar in conception to the steam engine, from which it is derived, but using water-pressure to operate the cylinder instead of steam. This would effectively create a mirror-image machine, one cylinder driven by water, the other driving water. High-pressure water-engines were being devised by Richard Trevithick in Cornwall around the end of the eighteenth century, just as he was also experimenting with high-pressure steam. But low-pressure single-acting machines had been known since the mid-century.

In this connection it is interesting to note that the hydraulic ram, normally credited to Montgolfier of balloon fame in 1797 or a Mr Whitehurst of Derby in 1772, may have been known, indeed devised, in Wales before the end of the eighteenth century.⁵ These devices operate by water flowing through a chamber passing out to waste until pressure snaps an impulse valve shut, causing a momentary rise in pressure which opens a delivery valve, thereby pumping water either a short distance or a short rise. These are not, of course, machines of perpetual motion, but the fact that they could raise and distribute water solely by the force of the impellent stream was impressive in itself, and they have been known to operate unattended for

⁵ Stephen Hughes, *Copperopolis: Landscapes of the Early Industrial period in Swansea* (Aberystwyth, 2000), pp. 142-3.

half a century. It maybe that the belief in perpetual motion derived not from the counter-rational pre-modern world, but from the general acceptance in the eighteenth century of mechanistic explanations of the universe derived from René Descartes and Isaac Newton.

Perhaps members of the Welsh Mills Society may consider that the august pages of *Melin* should not be taken up with such fanciful matters as machines of perpetual motion. But it would be worth-while seeing whether fellow mill-enthusiasts have come across other references to these things, to establish whether it was a commonplace activity across Wales and if we can learn anything more about these ‘adventurers’ and the intellectual milieu in which they lived.

