A tour in Wales by James Watt Jr, Thomas Beddoes and Thomas Wedgwood, September 1797

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By Tim Fulford

In 1797 the doctor, chemical experimentalist and political campaigner Thomas Beddoes (1760-1808) was treating, in Clifton, Bristol, two young men who were his friends as well as his patients. James Watt Jr (1769-1848) was the son of the engineer and chemist James Watt. Like Beddoes, he had been a radical reformer who admired the French Revolution. After travelling to Paris in 1792 to present to the Club des Jacobins an address from the Manchester Constitutional Society, he was denounced in parliament byEdmund Burkeas a traitor. He left Paris in the wake of the massacres there for Italy, and returned to Britain later in 1794 as it became apparent that the prosecution of leading radicals for treason would fail. Thereafter, he became a manager of the family engineering firm, Boulton and Watt. With James Watt Sr, he helped Beddoes to found, in Clifton, a Pneumatic Institution designed to test whether the recently discovered gases oxygen and hydrogen might be effective in curing diseases (chiefly consumption/TB and palsy/paralysis). Watt advised on the subscription drive and supplied breathing apparatus invented by his father. The Institution opened in 1799. Watt spent much of 1797 in Clifton, under treatment by Beddoes with nitrous acid for what he suspected was a sexually transmitted disease. Suffering from a rash of red and yellow spots, and internal pains, he was, however, well enough to dine with friends in Bristol and Bath. One of these friends was another of Beddoes's patients, Thomas Wedgwood (1771-1805), the son of the pottery magnate Josiah Wedgwood. Having inherited part of Josiah's enormous wealth, Thomas, a scientific researcher who worked on the light emitted by heated bodies and on photography, became a major financial supporter of the Pneumatic Institution. He was also a philosopher who investigated the role in perception of emotion. In 1797 he visited Alfoxden in Somerset, hoping that Wordsworth and Coleridge would put into practice his ideas about the emotional education of young children. He was unable to take this project forward himself because he was afflicted by a serious stomach complaint that left him unable to digest food and caused bouts of depression. On Beddoes's recommendation, he and Watt Jr would spend the winter of 1797-98 recuperating from their illnesses on the Cornish coast. From there, in January 1798 Wedgwood wrote offering a lifetime annuity to enable Coleridge to take forward the kind of philosophical researches that he himself had to lay aside.

The tour of Wales was rapidly conceived and relatively brief. It was, however, unusual in that it did not follow the already standard tourist route along the lower section of the River Wye – either on horseback or foot from Chepstow to Tintern Abbey or by pleasure boat from Monmouth downstream to the river's mouth. Instead, the three men went along the valley of the Usk to Abergavenny and Brecon, then crossing the hills to Builth Wells and following the upper Wye upstream to Rhayader, from where they crossed the inland moors and mountains to the well-known tourist site, Devil's Bridge. Stopping at Hafod, the house of Beddoes's patient Thomas Johnes, with its picturesque grounds, the travellers then returned to Usk and back to Clifton.

The tour was undertaken for three reasons. First, Beddoes wanted to alleviate his patients' depressed state with a change of scene whilst himself enjoying a break from his busy medical practice. Second, Beddoes and Watt were keen geologists, involved in the controversy of the time – whether the strata that compose the earth's surface are of marine or

igneous origin. They knew that the distribution of rocks and order of strata in Wales had been little studied. Third and most significant, Beddoes wanted information about the health of Welsh cottagers that might confirm or disprove his theory about the relationship of lifestyle and disease. A pioneer of statistically-based preventive medicine, Beddoes viewed the dramatic increase in the prevalence of consumption as a result of the modern, urban habit of living in warm, poorly-ventilated rooms. He suspected that a less luxurious outdoor life such as that pursued by farm labourers was likely greatly to lessen the chance of contracting consumption. He also suspected that exposure to effluvia from animals – fumes from their dung, or from their carcasses – might confer some protection against the disease (he interviewed butchers and noted that consumption was uncommon amongst them; he also placed consumptive patients in cowhouses in the hope that the manure would benefit their lungs). The Welsh tour was an opportunity to question the rural poor about their illnesses and to view their living conditions.

25.[1] Went in Wedgwood's ~~chaise~~ gig to Cote house & thence in his Chaise to the New Passage called 12 miles from Clifton. Paid 7/6 for our passages in the mail boat. Took a chaise to Usk 12 miles. Drank tea there & went on to Mr Green's at Llansantfred where we found Mackintosh & stopped supper. Proceeded to Abergavenny 11 miles from Usk. Took Green's chaise & four post horses in the next stage to Brecon 20 miles. Got there about 4 o'clock in the morning. Went on to Bualt 12 miles. 26. Breakfasted there. Could get no chaise to go on to Rhayder & the Landlord asked 6d a head per mile for post horses. Resolved to go on foot & hired a horse & man to carry our baggage for 5/. A few miles from Bualt we entered upon the shistus mountains, which alternated with various varieties of shistus & of a nondescript fossil[2]

Dip of the strata to the north west, in some places but different in others. We arrived at Rhayader Gowey about 7 in the evening having walked about 14 miles from Bualt following the course of the Wye. Fair Beauty of the young Women

27 Walked up the valley of the Illon which falls into the Wye a mile from Rhayader. Visited several of the cottages, found the inhabitants to possess large families in general healthy. No consumption.[3] Scarlet fever had got in amongst them & had killed 8. Returned back upon the highest ridge of the hills, whence had a good view of all the adjacent country. Saw Plinlimmon. The huts or cottages were in general very dark, but tolerably well furnished the house much smoked, but furniture, dishes &c, kept pretty clean. Some houses without chimnies. Children very beautiful. – Hills all consist of varieties of shistus with veins of quartz.[4]

Dined at Rhayader. Visited some of the poor inhabitants

28. Took a chaise from Rhayader to the Devils bridge, 4 horses for 3 miles to the top of the hill & 2 for the remaining 16 miles. – Wild and desert country as far as the stone Bridge 6 miles from Devils Bridge lead mines. Galena[5] in quartz. Shistus mountains continue all the way. New Inn, four miles from Devils bridge. Arrive at Devils bridge about 4 o'clock & find the house occupied by Lady Tufton & Co.[6] Go down to see the bridge. Descent to the water's edge. Fine quarry of roof slate (shistus tegularis). Basons scooped out by the stream of the Fynnach over which the bridge is built. height 100 to 114 feet after dinner go to see the cataract, which appears to fall at several times altogether [ ][7] feet. One of the falls (the last but one) is 120 feet. Precipitous sides of the rock. Clothed with wood. Descend ~~to the~~ steep side to the bottom of the valley, where the cataract ends.

29. Have much difficulty to get a chaise & cannot set out before 9 oClock for Tregarron. Road through Hafod. Romantic grounds & house, about 4 miles from Devils bridge. High hilly country to Tregarron 15 miles but better inhabited, than what we passed through the preceding days. Dined at the Crown Inn. Mile. Go on in the chaise to Llanpeter 11 miles. sleep there

30. Take on same chaise to Llandovery 18 miles where breakfast. ~~We Tak~~ discharge postillion. Find chaise here & go on to Trecastle 9 miles & thence to Brecon 10 miles. Country improving in cultivation as we go on. Leave the shistus mountains & come to sandstone. Take chaise & 4 to Abergavenny. Beautiful valley of the Usk Adml. Gells house,

Crickhowell. Dine at Abergavenny 20 miles from Brecon. Go on with chaise & pair to Usk & then to New Passage again. Long hill behind Usk which walk up. –

31. Cross the passage by 9 o'clock & arrive at Clifton by 12

Money advanced £ s

Watt 13 4

Wedgewood 5 8 6

Beddoes 7 8 6

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26 1

Cash in hand 8 19

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3 / 25 2

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Expences of each £ 8 7

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Editorial Notes

[1] Indicating the date.

[2] Travelling in the night, Watt had in fact just missed the crucial boundary of the sandstone and schistus regions, which lies between Brecon and Builth. Schistose rocks, here formed by the heating under pressure of greywacke strata, were of interest to him and Beddoes because both men were early proponents of James Hutton's geological theory, which argued that not all rocks were formed by sedimentary deposits at the bottom of oceans and that much of the earth's surface was produced by the elevation from below of igneous and metamorphic rocks formed by subterranean heat. It was not until 1799, when John Playfair abridged Hutton's *Theory of the Earth*, that these ideas began to gain wider acceptance. In the early 1830s, the boundary between Builth and Brecon became highly significant when, near Trericket Mill, on a tributary of the Wye, the geologist Roderick Murchison viewed a cliff in which both sandstone and schistus were exposed, and on that basis produced with Adam Sedgwick an account of the Silurian period, succeeding the Cambrian system – thus laying the foundation of the modern understanding of geological timescales.

[3] Beddoes commented on these visits in a letter of 4 October 1797 to Watt Jr's father: 'But does not luxury make tender those who would otherwise be robust? Our journey was in the highest degree satisfactory – our observations coincided perfectly with those of T Wedgwood in N. Wales – I think it probable that the inhabitants of the secluded valleys & hills are little subject to phthisis, toothache or indigestion. I speak of the little farmers who indeed are the principal inhabitants – such beauty & healthy bloom I never find' (Library of Birmingham

MS 3219/4/029/22). Beddoes published this tentative conclusion, adducing his observations in Rhayader and Wedgwood's in Tan-y-Bwlch, North Wales, in his *Essay on the Causes, Early Signs and Prevention of Pulmonary Consumption* (London, 1799), p. 64.

[4] In the Plutonist geological theory of James Hutton, of which Beddoes and Watt were advocates, such veins are a sign of metamorphosed rock having been injected into weaknesses in overlying strata – evidence of igneous rock formation.

[5] Lead sulphide: an ore of lead.

[6] Probably Lady Caroline Tufton (b. 1771), daughter of the 8th Earl of Thanet. Her party was occupying the Hafod Arms, the inn by the bridge that looks onto the falls.

[7] Here Watt has left a blank, meaning to fill in the number of feet at a later time.