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BARTHELEMY FAUJAS DE ST. FOND (1741-1819)

Author of "A Journey to England, Scotland and the Hebrides"

by

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Born in the Rhone valley of France, Faujas trained for the Law, but having come under the influence of the great French naturalist, Buffon, and having sufficient private income from the family estates of St. Fond, he abandoned a legal career and turned to natural history himself. With Buffon's influence he obtained the post of Assistant Naturalist at the Museum d'Histoire Naturelle at Paris. Later he become a Royal Commissioner of Mines, and finally Professor of Geology (at a time when there were no Professors of Geology in England).

As a naturalist in the late eighteenth century Faujas was able to range over the whole breadth of science, and studied topics in what would now be regarded as zoology, botany, physics, chemistry and mineralogy and geology. He also dabbled in aerial navigation and wrote a treatise on balloons! As a geologist he was interested in both academic and applied sides and promoted or advised on several schemes for extractive industries.

In 1778 Faujas prepared a treatise on the extinct volcanoes of Vivarais and Velay in France, only recently recognised as such by Guettard. This was at a time when it was hotly argued throughout Europe as to whether Basalt in non-volcanic regions was evidence of previous vulcanicity or a chemical precipitate from sea-water which was usually called "trap". By demonstrating beyond doubt the volcanic land-forms present in Central France Faujas confirmed that the basalt there, at least, was evidence of previous vulcanicity.

About this time Faujas's curiosity was aroused by reading accounts of the basaltic hills of the Western Isles of Scotland and he set out to see for himself the fabled Isle of Staffa. He spent three months in Britain from August to October 1784, during which he consulted a number of notable scientists in London and elsewhere, and toured through England and Scotland, visiting Derbyshire on the return journey as a result of meeting Whitehurst (the Derby clock-maker cum geologist) and discussing the toadstone.

Faujas's itinerary took him up the then Great North Road as fast as was possible in those days, e.g. he covered the ninety-six miles between Ferrybridge and Newcastle in one day starting at 5 a.m. and arriving at 9 p.m. Although making a number of shrewd geological observations as far as the border, he became confused with southern Scottish geology, and referred both greywacke sandstones and true basalt to "Basalt" both being aqueous precipitates. This both confused two rock types and was clearly contradictory to concepts of a previous volcanic origin of basalt. This conflict remains throughout his works - some basaltic lavas he recognised as such, others he did not. Later in his tour he recognised the basalts of Mull and Staffa as truly volcanic

and thus was the first to do this. His account of the flea-ridden houses on Staffa is truly entertaining! Returning via the west coast route, he stayed at an extortionate pub in Manchester before spending a few days at Buxton and Castleton - of which more below.

He returned to France in November 1784 and, as far as is known never came to Britain again. During his tour he kept a diary and this was almost ready for publication when the French Revolution broke out in 1789. Although an aristocrat his value was realised by the Revolutionary Government and he retained his post. The work "A Journey through England and Scotland to the Hebrides in 1784" was published in French in 1797, and translated anonymously into English in 1799. A slightly revised translation, with footnotes, and an introduction by the famous Scottish geologist, A. Giekie, was published in 1907. Giekie had long been interested in the Hebridean volcanic rocks, hence his interest in Faujas as the first man to recognise them for what they were.

On Derbyshire Faujas recounted that he first visited Whitehurst in London. Whitehurst was the author a few years earlier of "Inquiry into the Original State and Formation of the Earth" (1778) which had an appendix with the first description and diagrams of the disposition of strata around Matlock. Faujas's interest in meeting Whitehurst, lay in his having recognised the Toadstones as basaltic lava, the productions of "subterranean combustion". There is little doubt that if Faujas had not met Whitehurst he would have missed Derbyshire out of his tour!

Derbyshire was dealt with in Chapters XVII (Buxton), XVIII (Castleton) and XIX (Derby) in Volume 2. Taking seven hours over roads "neither agreeable nor commodious" to reach Buxton from Manchester, Faujas met a Dr. Pearson, a friend of Whitehurst, who guided him round the supposed remains of volcanoes in the district. He also took Faujas to see the fluorspar workers making vases, etc., and Faujas has left a useful first hand account of this craft, including comments on child labour, and on the trick of pouring molten lead into fractures and then selling the articles as being particularly rare with galena in place! He noted black marble ornaments from "the hills around Buxton" and also, wrongly, gypseous alabaster, for which the nearest source would be around Chellaston, Derby.

After comments on the Buxton Baths and accommodation, Faujas turned to lithology and noted how gritstone, flagstones and shale (slate) lie on one side of Buxton and limestones on the other. He commented briefly on dark and light limestones, quarries in each, their use in building, also on rottenstone (used in polishing tin, copper, crystal, etc.,), on small mines of coal nearby, on cawk (barytes), tufa, calamine, copper, blende and Derbyshire Diamonds (which he mistakenly identified as fluorspar instead of quartz). Thermal waters at Matlock were listed, and an intermittent spring at Tideswell. He listed natural grottoes and caverns, including those at Castleton, Poole's Cavern, Eldon Hole, Burmforth Hole, Lathkill and Hosen's Hole (can anyone identify the last named?) Of Poole's Hole he gave a longer description and mentioned the women outside attempting to sell him bad stalactites! The length was given as 2,085 feet "including certain inconvenient passages". He saw

the quarries on the hill above and observed how the inhabitants lived underground in hollowed-out lime hillocks.

These observations were incidental to his main purpose - the toadstone. First he noted that there are different kinds and that the miners had special terms for each. Toadstone proper, he noted, was brown to black in colour with globules of white spar - what would now be called "fresh amygdaloidal basalt". "Cat-dirt" was the greenish variety which falls to earth on exposure to air, roughly equivalent to the "palagonite tuffs" of today, though also including basalts altered by mineralising solutions. "Channel", he said, was the thick bedded compact material without globules of spar, such as the Tideswell "dolerite", though later he confused channel and cat-dirt together. A variety called "black clay" is soft dark toadstone in the Gregory Mine at Ashover. Faujas also commented that the terms "dunstone" and "blackstone" were used elsewhere in England and "Whinstone" in Scotland, but he pointed out that "blackstone" can mean any dark stone, including limestone and that its use is misleading (Dunstone in Derbyshire means "Dolomite"). He extracted from Ferber's (1790) and Whitehurst's (1778 and 1786) comments on toadstone and their adjacent strata as seen around Winster, and Ashford, and repeated after Whitehurst, the downward succession of strata, first limestone, first toadstone, second limestone, etc., down to fourth limestone. He noted that the mineral veins were usually cut off on reaching a toadstone, but that the miners sometimes sank through the toadstone to reach the continuation of the vein below. Most of these observations were second-hand, and for his particular purpose Faujas and Pearson visited a "Small Isle in the River Wye, formed entirely of Toadstone divided into prisms". This was roughly where the Buxton sewage works is now. Here his observations of fact are accurate but his prejudice against identifying this undoubted lava flow as volcanic is too strong, and he calls it "Trap" - the contemporary 18th century name for basalt thought to be an aqueous precipitate. "There is nothing volcanic hereabouts", he said, though without much discussion of evidence.

At Castleton, after twelve miles of detestable and fatiguing road, Faujas first visited the Devil's Bottom Cavern, now known as Peak Cavern. The rope-works was in full production and two cottages housed some "very pretty girls". Further in he got the full treatment of ferrying across the Inner Styx, a choir in the Orchestra Chamber, and tadpoles produced as "black fish living in the underworld".

In the village he saw the Blue John Fluorspar being worked, and noted vases being sent to Birmingham for gilding (presumably by Matthew Boulton, though curiously he did not mention Boulton in his account of his subsequent visit to Birmingham). Of the lead mines he said they were not very rich and employed about sixty people. Odin Mine and its explosive slickensides were noted, and the latter explained after Whitehurst as the escape of compressed air, though Faujas was not entirely satisfied and suggested collecting the gases released for analysis.

From Castleton he investigated a recent discovery of lead ore in toadstone, and together with a miner, Elias Pedley, he visited a level

"about a mile east of Castleton and upon a narrow road 200 feet above the plain". The level had been driven apparently horizontally through limestone into a bed of "channel" toadstone, in which the vein of lead had been followed for ninety feet. Although too poor to work, the miners had hoped to penetrate it into limestone with a good vein beyond. It would be highly interesting to see this level today, but I have not traced it. From his description it is either on the Siggate or across Pindale on Jack Bank. If the latter it is probably buried in quarry debris. Any hillocks with decomposing toadstone on the Siggate might give a clue. Faujas rightly concluded that this level demonstrated that the vein was younger than the toadstone, but somehow he managed to twist this into saying that it proved the non-volcanic origin of the toadstone, a completely false non-sequential argument.

Satisfied with what he had seen, Faujas returned to Buxton and then went to Derby, where he saw Brown's marble and spar works and little else. He also had his pet dog stolen, so he did not think much of Derby. The rest of his tour is of no interest regarding Derbyshire, but we may lament that the box of specimens he collected was lost en route to France. If he had re-examined these in later years he might have revised his ideas.

Faujas's work may be summarised as regards Derbyshire as enlightening on the fluorspar trade, and on two of the show caves, observant on the lives and habits of those people he met, and a clear insight on such lead veins and minerals he saw in the district. His main purpose showed the curious conflict of accurate description of the varieties of toadstone (including comparisons with actual lavas) and his refusal to accept the evidence of his eyes that it was volcanic. Limited as these several observations are on Derbyshire history, Faujas must be credited with accurate detailed recording of what he did see, particularly as he apparently spent less than a week in Derbyshire! It is not known whether Faujas saw Whitehurst again on his return to London, but it may be noted that Whitehurst's book was issued as a second edition in 1786 (two years after Faujas's visit) and it reiterated his theory of volcanic origin of toadstone, without discussion of Faujas's ideas.

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