Alum Mining

(An extract from a chapter of the book "Great Ayton – A History of the Village by Dan O'Sullivan")

One of the most fascinating features of the countryside around Ayton is its industrial archaeology, that is, in particular, the many remains of the various mining industries which at one time or another provided employment within the village. The Jurassic shales and sandstone of Cliff Ridge aind Gribdale contain bands of ironstone, jet and alum, as well as the intrusive whinstone. The oldest of these industries is probably alum. This mineral has been used since ancient times for many purposes including medicinal (as a cure for haemorrhages, nits and dandruff, among other things). Its main uses since the middle ages have been, firstly, to increase the suppleness and durability of leather, and, secondly, in the textile industry, as a mordant, to make vegetable dyes fast. Alum mining has been practised in North Yorkshire ever since alum was first discovered in the hills around Guisborough by Sir Thomas Chaloner the younger in the 1590s. From the early seventeenth century until the 1860s it was extensively mined at Guisborough and along the East Cleveland coast. The actual extraction of alum from the shale was a long and expensive process, and it took an average 50 tons of shale to produce one ton of alum.

In the mid-eighteenth century the market price of alum was particularly high, reaching a peak of £24 per ton in 1765. It therefore became commercially viable to mine in places where this had not been so before, and several new mines were opened, including one east of Ayton at Ayton Bank, just north of Hunter's Scar and above Gribdale Terrace. ArthurYoung, who toured the North of England in 1771, investigating the state of industry and agriculture, has left this account of the Ayton industry:

> *At this town is an allom-work, which employs 30 or 40 hands: The process is this;* ***it*** *is fixed under a large rock of allom stone where they dig it:They first throw it into a heap upon a small bed of whins or dry rubbish, which fixes it, and the sulphureous nature of the ore is such as renders it very easy to burn in a vast heap. When calcined, they throw it into cisterns of water, to steep for eight or ten days, after which they run* ***it*** *off and steep* ***it*** *again as much longer; this renders it liquid. It is then run down from the rock in troughs into a cistern at a distance, and from that by other troughs into the boiling-house, where it falls into the boilers, which are of lead upon an outside of iron: In these* ***it*** *boils four and twenty hours, after which they run it off into a settler, and then into coolers for four or five days; here they let off the liquor, and the settlings are the allom in a coarse state - This they boil again till* ***it*** *is fit for the market; a common selling price is £18 per ton. The men are in general paid by the day, at 1s. 4d.; but if they work by measure, they earn is. 1s 6d*

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By 1769 the price of alum had gone down to £14 a ton and the new mines were forced to close down during the 1770s. Only larger mines, such as those at Kettleness, Loftus and Boulby, survived this slump. It was these violent fluctuations in the market that spelt the end of the Ayton alum industry after such a brief life. Another factor was distance from the sea. The cost of bringing coal to the alum works and taking away the finished product meant that Ayton could not compete with mines on the coast. There was, however, one rather unexpected hazard which coastal industry might occasionally be subject to, and this was the danger from enemy privateers during one of the several eighteenth century wars between England and France. Ralph Jackson was a partner in the Boulby alum works, and there is an account of one such incident in his diary:

> *1st August, 1781. I dined and drank tea at Brother Wilson's at Ayton ... . On my road there in my Chaise I was overtaken by Ceo. Dodds Jnr. with a letter from his Father containing an Account of a Privateer attempting to cut off our Sloop Violet yesterday evening, she was loaded with coals. The Master, Robert Jackson, ran her on shore 200 yards Westwards of the outmost mooring Post at our Allom works, at about Low Water mark and there scuttled and sank her; as soon as he and his men left her she was boarded by the Privateers People in two boats, who ransacked her, but on being fired upon from the Cliff by neighbouring Farmers and Fishermen from Staithes, with SmallArms, and one of their Men killed or wounded, they left her and proceeded to Skinning grove where a Sloop (the Lapel, belonging to Lord Mulgrave) and some fishing boats had taken shelter. She fired many Shot, large and small, but none of them did damage to the Inhabitants. Several large Shot were also fired at Boulby, some of which went over the Allom House, and one weighing 534 pounds was taken out of the rubage heap between the House and the Works.*