Stone for the highways and streets

Although more mundane than the buildings of Sheffield, what lies underfoot is of great importance in considering the ease of travelling about the city, and controlling the flow of rainwater. Until concrete and tarmac became so widespread, durable stone was needed in large quantities, preferably from quarries which were close to the city centre. 39 of the quarries named in Hunt’s survey of 1858 are listed as supplying “pavers”, or “flags”, with units such as the Greenmoor Rock (Brincliffe Rock) providing particularly high quality material. Nowhere was this more true than the quarries at Greenmoor itself, to the north of Stocksbridge, which built up such a large trade to London, that there was even a dedicated wharf on the Thames, known as Greenmoor Wharf! Of all the quarries on Hunt’s list in the Sheffield area, this is the only one quoted as producing “first-rate flagstones”.

(John Farey’s account of “Derbyshire” shows how well-established the trade in paving stones from this region had become, as early as 1811: “Among the quarries, furnishing natural Paviors, those of the 4th Grit Rock [Greenmoor Rock] are the most perfect; and at South-Winfield Park (Coburn), Wingerworth (Bole-hill), Penistone (Hartcliff), Rainow Chapel (Kerredge), etc. are little, if at all, inferior to the famous quarries at Ealand-edge [Elland Edge] and Cromel-bottom, near Halifax, in Yorkshire, on this same Rock, whence the Foot-paths in London and most of the great Towns in the South of England are now supplied…” (Farey p 427)).

The flat surfaces on paving stones are produced in two ways. Some are “riven” with a chisel. This takes advantage of the parallel alignment of mica flakes on the bedding planes, which results in a nearly even, or slightly stepped surface. A freshly-laid slab is shown in the photograph below, which forms part of the Geological Walk at the British Geological Survey’s (BGS) headquarters at Keyworth in Nottinghamshire. Many examples may be seen on Sheffield streets, often with the stepped surface as illustrated, but sometimes with linear chisel marks where the mason has tried to improve on nature.

Another technique is to saw a flat surface, often using a Victorian technique (and sometimes with equipment of that vintage!), where steel shot is dragged along, in a water spray, by the cutting blades, to produce a slightly rough surface, to provide a better grip in wet weather. The second example below is of a freshly-laid pavement at the BGS, in this case using a sandstone with prominent colouration, known as Liesengang Rings. The origin of the rings is somewhat obscure, although it must relate to migration of iron compounds within the rock. Examples may be seen in Sheffield’s Peace Gardens, originating from the Rockingstone, of Namurian age near Huddersfield. When they were laid, some were as colourful as those at the BGS, but are now somewhat faded, or obscured by blobs of chewing gum.

Riven flagstone, from the Elland Flags, at the BGS Geological Walk

Liesangang Rings in the Midgley Grit, at the BGS Geological Walk
Most kerbstones and setts are shaped from the relatively coarse sandstones or gritstones, mainly found in the Namurian or the Lower Coal Measures rocks on the west side of the city. A few streets remain where the original setts form the road surface, although the majority have been replaced with tarmac, or covered over with a tarmac layer.

In 1858, Hunt recorded two quarries as producing kerbstones; the Duke of Norfolk’s quarry in the Silkstone Rock at Claywood, near the Cholera Monument, and Wadsley Quarry, in the Loxley Edge Rock. This was leased by the Sheffield Highway Board and produced 5230 tons in one year at the time of Hunt’s survey.

Intriguingly, one quarry, called Pitching Stone Quarry, by Hunt, was quoted as producing 8000 tons of stone in one year. It was leased by the Sheffield Highway Board to work “grit” from “Coal Measures” rocks, so it was probably used to supply rock for kerbstones, channel stones (gutters) and setts. The term “pitching” has two meanings: a) it refers to the way in which a squared sandstone block is trimmed to provide a pleasing finish in a stone wall: b) “pitching stones” were used embedded in sand and lime, or later pitch, to make the road surface itself. This meaning is the more likely in this case. Unfortunately, neither the landowner nor the location of this quarry are known at present.

In addition, Hunt recorded three quarries producing ganister from Coal Measures strata. Whilst some ganister was processed for use as furnace linings, much was crushed for roadstone, where its high crushing strength would have made it a durable material. Workhouse inmates seem to have been employed for this job, and 19th Century records refer to stone being transported to a Yard at the Workhouse (Sheffield Independent 1843).

More evidence of the sourcing of local stone for the highways comes from newspaper reports, such as the abstract of the accounts of the Surveyors of the Highways for the Township of Sheffield, 1832-33, in the Sheffield Independent of Oct 5th 1833:- “Thos Wragg for Edge and Channel stones from the Park Quarry £427. 11/7d”. (The Park Quarry was one of the quarries in the Park Hill area of Sheffield, now landscaped). The accounts also refer to buying limestone, boulder, pitching, square stones, flags, ganister and for ganister breaking. 4380 tons of ganister were bought for the highways in 1832/3.

A business card of 1859 confirms the source of such stone from quarries in this area of Sheffield and also names the quarryman as Robert Drury, as stated in Hunt’s national survey of quarries in 1858.
Robert Drury's business card, 1859. Y03150 www.picturesheffield.com

References:


Sheffield Independent of Oct 5th 1833
Sheffield Independent of April 8th 1843
Business card from Sheffield Archives and Local Studies Library.

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