

lar occurrence. The rains which fall on it (and frequently also the springs which flow from other strata over it), sink through its numerous fissures, and form subterranean streams flowing through the many caverns with which, as we have already noticed, it abounds. A bed of shale, which separates the limestone from the old red sandstone, throws out its springs abundantly. The following particulars are extracted from Mr. Greenough's Notes.

Springs rarely appear on the sides or summits of limestone hills, but break out in great numbers, and often with extraordinary impetuosity round their bases. Of this nature is the celebrated spring of St. Winifred at Holywell in Flintshire, situate in all probability at the point where the limestone first comes in contact with the coal-measures. The quantity of water thrown up by it is 84 hogsheads per minute, and though this stream has little more than a mile to run before it arrives at the sea, yet eleven mills are put in motion by it, of which three are placed abreast. There is another very powerful spring in the same neighbourhood dedicated to St. Oswald; and still another called St. Mary's Well rises at the temperature of 51°. The recollection of every one who has passed along the confines of the limestone district will supply him with many analagous instances. About Denton in Yorkshire, the roaring of the waters is incessant.

Some of these springs vary very little in quantity, either in droughts or after the heaviest rains; others again are intermitting. The most celebrated of these occurs at the foot of Giggleswick Scar on the road from Settle to Kirby Lonsdale. The ebbing and flowing well in Derbyshire is supposed by Mr. Farey to be artificial.

The hot springs at Buxton, Matlock, and Clifton are upon these beds.

There is no water more apparently pure and pellucid than that which is furnished by this limestone, which however holds a considerable quantity of calcareous matter in solution. The iron manufacturers always use it in preference for grinding their tools, conceiving that it is less liable to produce rust than any other. If obliged to use other water, they put a piece of lime into it before they venture to dip their steel. Where the current is slow, the calcareous matter subsides; hence the stalactites so common in limestone caverns; hence the property which several streams possess of incrusting substances over which they flow; such as the streams at Smedley's mine near Matlock (*Phil. Trans.* vol. 8. p. 406.), at Alport near Youlgrave, Little Longsden, Crossbrook dale, Slatey and Stoney Middleton in Derbyshire.