

List of Corals from Withycombe.

vc., very common; c., common; r., rare.

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| 1. <i>Fenestella antiqua</i> , c. | 8. <i>Amplexus (tortuosus?)</i> , r. |
| 2. <i>Stromatopora concentrica</i> , c. | 9. <i>Cyathophyllum (Damonniense?)</i> , r. |
| 3. <i>Favosites cervicornis</i> , vc. | 10. <i>Cyathophyllum Boloniense</i> , vc. |
| 4. <i>Favosites reticulata</i> , vc. | 11. <i>Cyathophyllum cæspitosum</i> , vc. |
| 5. <i>Alveolites suborbicularis</i> , c. | 12. <i>Heliophyllum Halli</i> , c. |
| 6. <i>Alveolites (species?)</i> , c. | 13. <i>Endophyllum abditum</i> , r. |
| 7. <i>Syringopora (undescribed)</i> , r. | 14. <i>Cystiphyllum vesiculosum</i> , vc. |

The Withycombe Corals are of various colours, red, yellow, grey, and black, and are usually more or less impregnated with iron. Red and yellow specimens are the commonest, and the latter generally show the structure best, which is also the case with the Carboniferous Corals of Clifton.

With reference to the shales which occur in the Withycombe Limestone, I may mention that Spirifers are common in the quarry referred to above, and in another, on the left side of the valley which leads from Withycombe to Dumbledear, are to be found examples of *Terebratula*, *Spirifer*, joints of Encrinure-stems, and a large species of *Cucullæa*, but no trace of the Corals of Sandhill Farm. In the Limestone of this quarry there are cavities containing a substance like decomposed manganese.

I also discovered, in a field upon the same farm (Sandhill), a portion of the conglomerate band, which a reference to the Map of the Geological Survey will show to be frequently observable in the New Red Sandstone of the district. It is visible for a few yards as an artificial section of no great depth, below the surface of the ground that has been worked for farm purposes. The conglomerate at this point abounds in Carboniferous Corals, amongst which I have observed *Syringopora (ramulosa?)*, a *Zaphrentis*, *Lithostroton Martini*, and a *Cyathophyllum*; also other characteristic Mountain Limestone Fossils. It is singular that Devonian and Carboniferous Corals should be found in such close propinquity. Previous to my ascertaining the occurrence of the conglomerate at this spot, I had found a specimen of a Carboniferous *Syringopora*, in a cart-track, beside some Devonian Corals, and was much puzzled, on learning that it belonged to a distinct formation, how to account for its presence in such a locality; but on the bed being pointed out to me, the mystery was explained.—Yours truly.

SPENCER GEORGE PERCEVAL.

SEVERN HOUSE, HENBURY, BRISTOL.

THE LOWER NEW RED SANDSTONES OF CENTRAL YORKSHIRE.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—Perhaps the following notes on the so-called Lower New Red Sandstones, lying between Fountain Abbey and Ripley, may

be of use in illustration of Mr. Binney's interesting paper in the February Number of the *Geological Magazine*: as they refer to that portion of the district, in which, he says, Professor Sedgwick "appears to have lost sight of" the formation.

In the quarry at South Stainley, to which reference is made, and of which the following is a section, the upper beds consist of flaggy Grits, separated from the more compact Grits below by a bed of Red Sandy Clay, about a foot in thickness. The dip is to the N.W. at an angle varying from 3° to 6° .

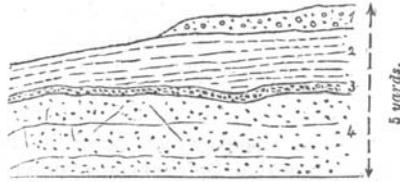


FIG. 1.—QUARRY AT SOUTH STAINLEY.

1. Drift-gravel. 2. Flaggy grits. 3. Clay-bed. 4. Red grit.

About a mile and a quarter due west is a quarry, now disused, in which the beds as they lie, with an inclination 30° S., are broken and split at their edges, and covered with a gravel of disintegrated Sandstone.

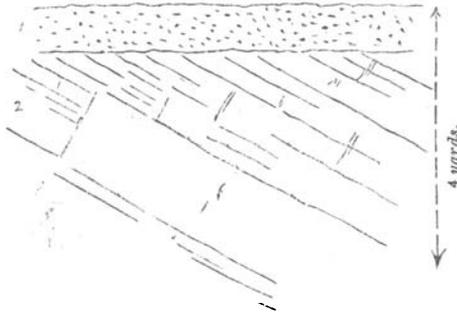


FIG. 2.—RED BANK QUARRY.

1. Gravel. 2. Red grit.

Half a mile to the S.W. of this quarry is another at Kettlespring, of which the upper beds consist of flaggy Grits, to the thickness of about 5 feet, lying upon the Red Grit, the beds of which become gradually harder as they descend. In this quarry, and in the one at South Stainley, and also on the rock to the north of Fountain's Abbey, the face of the rock is occasionally covered with Calcareous Spar, indicating the *former* presence of overlying Manganesian Limestone. A little above the village of Shaw Mills, in the same valley, is another quarry, in which the strata dip to the S.W. at an angle of 45° . There the Grit contains small pieces of Coal, evi-

dently drifted wood, and thin pieces of soft slate. Upon the inclined strata rest two beds—an upper one of broken Sandstone, and a lower one of Yellow and Purple Sands, but these are probably of Glacial age.

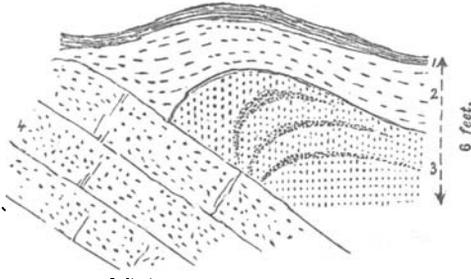


FIG. 3.—QUARRY AT SHAW MILLS.

1. Soil. 2. Broken sandstone. 3. Yellow and purple sands. 4. Red grit.

Near Fountain's Hall a quarry, which was opened a few years ago, exhibits the same flaggy Grits, lying upon the rough Grit, but separated by a thin sheet of Calcareous Spar. Interposed between the beds of this Grit is a coarse Red Sand, some portions of which are gathered into separate masses, and curiously surrounded with sheets of Spar. A few yards to the west of this quarry the Magnesian Limestone rests unconformably upon the Grit.

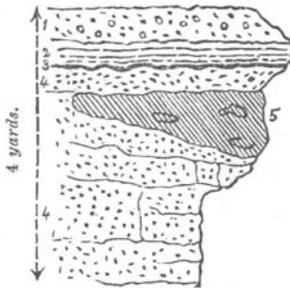


FIG. 4.—FOUNTAIN'S HALL QUARRY.

1. Drift gravel. 2. Flaggy grits. 3. Sheet of calcareous spar. 4. Red grit.
5. Red sands.

A considerable acquaintance with these and other quarries of the same Sandstone in this district, leaves very little doubt in my mind that the Red Grit lies perfectly conformable to the lighter-coloured and harder Grits below, and passes insensibly into them.

Between the Grit and the arenaceous flags mentioned by Mr. Binney, there occurs a highly fossiliferous bed, of three members, which seems to extend to a considerable distance both south and west. The upper bed consists of thin flags, abounding in the

remains of encrinites; the second contains casts of various brachiopoda, often exceedingly beautiful, and the lowest is a hard impure

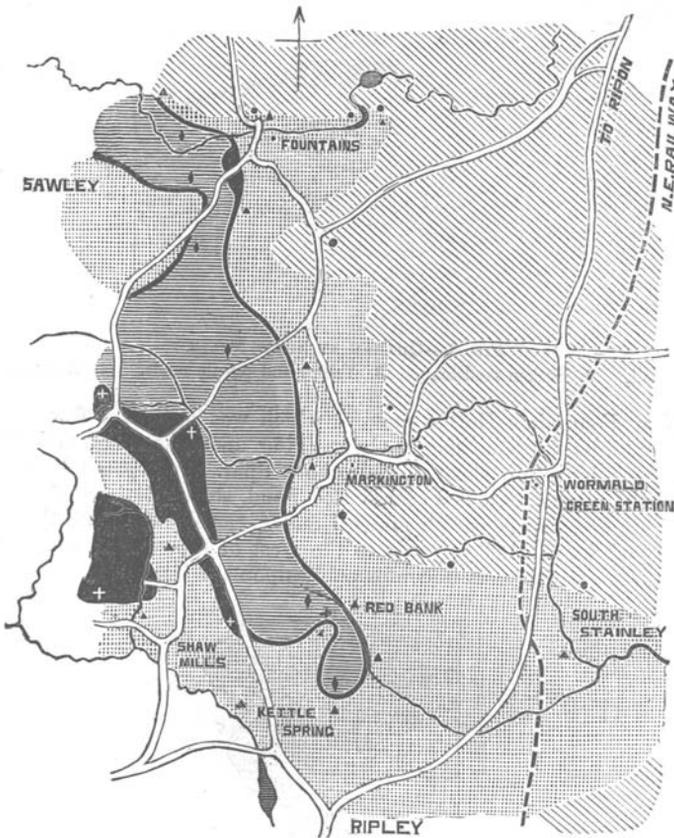


FIG. 5.—GEOLOGICAL SKETCH MAP, FROM FOUNTAINS TO RIPLEY.

Explanation of Sketch Map.

Mark of Out-crop
or Quarry.

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|------------------------|---|---|---|
| Magnesian Limestone. |  | ● | { 1. Thin-bedded Limestone.
2. Thick-bedded ditto.
3. Botryoidal ditto.
4. Marl-slates. |
| Grits and flags. |  | ▲ | |
| Fossiliferous bed. |  | + | |
| Arenaceous flags, etc. |  | ⌋ | |
| | | | { 5. Red flags.
6. Red and white grits.
7. Encrinite flags.
8. Fossil bed.
9. Hard bed.
10. Upper flags.
11. Lower flags. |

Limestone, also fossiliferous. A quarry of this may be seen at a short distance from Fountain's Hall, on the road to Sawley.—I am, Sir, yours truly.

J. S. TUTE.

MARKINGTON, RIPLEY, YORKSHIRE.

MISCELLANEOUS.

THE GEOLOGICAL SURVEY OF INDIA.—India has often been described as a country of mystery; but it is not the fault of India if too little is known here in the west of what she is doing. Her railway system is something to wonder at, yet it attracts but scant attention, except among those who buy or sell railway shares. The great Trigonometrical Survey of India will be, when completed, the greatest, the most accurate, and most fruitful in scientific results of any in the world. Another great work is the Geological Survey, commenced ten years ago, under the direction of Dr. T. Oldham, which, as in the case of our own Geological Survey, is dependent for its progress on the maps published by the trigonometrical surveyors. In the ten years, however, an area more than double the extent of Great Britain, chiefly in Bengal and Central India, has been carefully examined and mapped, with most valuable results. The extent of the Indian Coal-measures, and the quality of the Coal, have been ascertained; the best being the Assam Coal, which lies near the river Brahmapootra, convenient for transport by water, when once the mines shall be in work. The quality is said to be equal to that of the best Newcastle coking coal. Another series of Coal-strata approaches, by one of its extremities, within eighty miles of Calcutta, and these are described as similar to the Upper Coal-measures of Europe. The fossil plants and reptiles with which they abound are represented by numerous specimens preserved in the Geological Museum at Calcutta. Besides this, the relations of all the various strata to one another over the whole area of the Survey have been made out with much advantage to palæontological science, and with reconciliation of many apparent contradictions. The fossils of the Cretaceous rocks may be instanced as evidence of the knowledge, skill, and labour bestowed on the survey; and these with specimens of the minerals hitherto collected, are arranged in the Museum above mentioned, where their value is increased by a good library, accessible to students. The results of the survey are further made known by the publication of reports and memoirs, with maps and other illustrations, and by a highly important work, "The Palæontologia Indica," in which the descriptions are written by some of the ablest of English naturalists. We may add to this, that the Topographical Department of the Indian Government is making a Topographical Survey, which is to embrace the whole Empire, and publishing the result in a series of maps. These maps are remarkable for the fidelity with which the features of the