

clays, sandstones, and magnesian limestones, containing peculiar plant remains and shells of the genus *Schizodus*, representing in his opinion the marls and magnesian limestone of Durham. These again support beds equivalent to the Zechstein, and the last are covered by the Triassic sandstone of the Solway.

A very striking fact, noticed by Professor Harkness, and corroborative of earlier researches made by Mr. Binney, is the existence of footprints, in the Lower Permian of Cumberland, similar to those of Corncockle Moor, in Dumfriesshire, where, from my own observations, including those of last year, these Lower Permian sandstones have, I am convinced, a greater thickness even than that which is assigned to them in Cumberland.

Notwithstanding these discoveries, we have still to show the continuous existence of the Lower Red Sandstone of Shropshire, Worcestershire, and Staffordshire, which I have classed as the lower member of the Permian rocks, and to decide whether it be really such lower member *only*, or is to be regarded as the equivalent of the whole Permian group, under different mineral conditions. With the extension of the Geological Survey this point will, doubtless, be satisfactorily adjusted, and we shall then know to what part of the series we are to attach the plant-bearing red beds of Coventry and Warwick, described as Permian by Ramsay and his associates. We have also to show that, in its northern course, the lower red sandstone of the central counties, with its calcareous conglomerates, graduates into the succession exhibited at Manchester, thence expanding northwards. Already, however, we have learned that in our own little England, which contains excellent normal as well as variable types of all palæozoic deposits, there exists proofs that the Permian rocks, according to the original definition of the same, present to the observer, who examines them to the west as well as to the east of the Penine chain, nearly as great diversities of lithological structure, in this short distance, as those which distinguish the strata of the same age in Eastern Russia in Europe from the original types of the group in Saxony and other parts of Germany.

(To be continued.)

ILLUMINATING GAS.

The price at which illuminating gas can be made and distributed is a very important question, particularly in those places where new works have been projected, and the future consumers are altogether unused to any mode of illumination than that furnished by the old-fashioned lamps and candles. In fixing upon a rate at which gas is to be sold, comparisons are instituted between the price ruling in localities somewhat similarly situated, and the question is often settled by adventitious circumstances, which, but for some unforeseen occurrence, would have been decided in a manner more beneficial to both shareholders and consumers. It cannot be questioned that frequently a grasping spirit is exhibited by new gas companies, which sound judgment cannot but condemn. A too eager desire is manifested by shareholders to reap quick returns in the shape of dividends, and the ultimate prosperity of the company, as enhanced by lower

prices and an increasing number of consumers, is too often lost sight of. This state of things is more liable to occur in small towns, where the people have been long accustomed to practice the severest economy, and who cling to former habits with great tenacity. Many instances of this nature have been observed in the history of British gas-light companies, in some of which prices have been kept up, while the addition of consumers has been very slow. On the contrary, in other companies, where a more liberal spirit has been manifested, and a future increase of business rather than present profit has been sought, a permanent degree of prosperity has been attained, far distancing some of the companies who pursued a different course. Our table of American Gas-Light Companies, published on pages 198 and 199 of this volume, furnish a statement of the price charged by the various companies, and other statistics of value. From these tables it will be seen that the price of gas, in the United States, varies all the way from \$1.50 to \$12.50 per thousand cubic feet. For the purpose of reviewing the average cost of gas to consumers, we have classified the figures charged in the various localities, and are thus enabled to present them in a more intelligible shape than when arranged merely in alphabetical order. There are, altogether 420 gas-light companies in the United States, of which 354 manufacture coal-gas, 30 rosin-gas, 1 wood-gas, and 3 water-gas. Of the coal-gas companies, our tables give the rates charged by 380 of them. Beginning at the companies whose product is sold at the lowest rate, the Brooklyn, N. Y., and Pittsburgh, Pa., gas-light companies, head the column—they disposing of their product at the remarkably low figure of \$1.50 per thousand cubic feet. The Marysville, Cal., Gas-Light Company brings up the rear, with the exorbitant price of \$12.50 per thousand cubic feet.

There are	2 Companies charging per 1,000 c. f.....	\$1 50
2	" " " "	2 00
3	" " " "	2 25
9	" " " "	2 50
1	" " " "	2 70
1	" " " "	2 90
32	" " " "	3 00
1	" " " "	3 10
1	" " " "	3 20
1	" " " "	3 24
4	" " " "	3 25
62	" " " "	3 50
10	" " " "	3 60
1	" " " "	3 62
2	" " " "	3 70
3	" " " "	3 75
9	" " " "	3 80
1	" " " "	3 86
172	" " " "	4 00
1	" " " "	4 40
18	" " " "	4 50
19	" " " "	5 00
1	" " " "	5 40
11	" " " "	6 00
1	" " " "	6 70
2	" " " "	7 00
2	" " " "	8 00
7	" " " "	10 00
1	" " " "	12 50