

a curve showing the relationship existing between the rise and fall of the tide and that of the water in the well. From the position of the well in question and its surroundings, possibly the ebbing and flowing of the tide may produce the ebb and flow of water in the well, but there are other ebbing and flowing wells so situate that tidal variation can have on them no influence. Some few years back I was staying at Buxton, and frequently walked to Castleton. By the side of the road I noticed an ebbing and flowing well, but the variations of condition did not assert themselves at stated or defined times; on the contrary, the changes were erratic. One thing is certain, tides could here have no effect, since, as the crow flies, the distance from the estuary of the Mersey, the nearest point to the sea, is upwards of forty miles. How, then, can these variable conditions be explained? On the spot I could collect no information. The theory I propounded was this. The district is Lower Carboniferous Limestone, and, taking into account the results of the chemical action of underground water, the internal composition of the rocks become altered, large quantities are carried away, with the result that subterranean tunnels and cavities are formed, and if in the upper parts of this mountain limestone a spring or springs exist, the overflow would find its way by tunnels into the eroded cavities, from which it might be syphoned to the well below, producing the changes which perplex the traveller.

Caverns are abundant in the Carboniferous limestones. There is the peak cavern at Castleton. The Victoria Cavern, at Settle, Yorkshire, contains forms which favour my theory, since it has deep shafts and caverns inclining inwards. There is also recorded a fissure communicating with a basin in the limestone at Windy Knoll, near Castleton.

T. E. KNIGHTLEY.

106, CANNON STREET, E.C.

May 19th, 1898.

SACCAMMINA CARTERI AND *NODOSARIA FUSULINIFORMIS*.

SIR,—In consequence of the paper by Mr. F. Chapman, in the *Annals and Magazine of Natural History* for March, 1898, in which he so properly connects *Saccammina Carteri* with *Nodosaria fusuliniformis* of M'Coy, I have sought for the second type-specimen referred to by M'Coy. It has now been placed in the wall-case containing fossil Foraminifera in the Museum of Science and Art, Dublin. It fully justifies Mr. Chapman's published conclusions, which were based upon the Cambridge specimen. There seems no doubt that we must now accept *Saccammina fusuliniformis* as the name of this well-known species.

GRENVILLE A. J. COLE.

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May 21st, 1898.

BOULDERS OF SPILSBY SANDSTONE.

SIR,—In his interesting note on a boulder of Spilsby Sandstone, at Wimpole, in Cambridgeshire (*GEOL. MAG.*, June, 1898, p. 267), Mr. Cowper Reed rightly observes that no block so large, and bearing such a definite proof of its origin, has previously been

discovered in the area. I may, however, recall attention to the Merton Boulder, which lies on the estate of Lord Walsingham, at Merton, in Norfolk. This boulder is regarded by Mr. Whitaker as Neocomian Sandstone, and it measures 12×5 feet, but being partly under water its thickness could not be ascertained. (See F. J. Bennett, "Geology of Attleborough, Watton, and Wymondham," Geol. Survey Memoir, p. 10.) A more particular account of the Spilsby Sandstone has been given by Mr. A. Strahan, who refers to its tendency to weather into a loose sand in which great blocks of the unweathered rock remain here and there. Hence during the Glacial Period a number of ready-made boulders could have been obtained from the formation. Such blocks have, indeed, been recorded from the Drift in various parts of Suffolk, and some of them have yielded Brachiopoda regarded as Neocomian by W. Keeping and Davidson. (See Strahan, in "Geology of the Country around Lincoln," p. 88.)

H. B. WOODWARD.

THE LLANBERIS UNCONFORMITY.

SIR,—The courteous letter, which you publish from Professor Bonney in your June number, calls for only two remarks. (1) I am not aware that Professor Bonney has in any case tried to find out *for himself* whether any stratigraphical statement of mine is fact or fancy. (2) To have once silenced a gun is not to take the fort. How many of the ship's guns are still in action?

J. F. BLAKE.

OBITUARY.

MELVILLE ATTWOOD, F.G.S.

BORN JULY 31, 1812.

DIED APRIL 23, 1898.

MELVILLE ATTWOOD was born at Prescott Hall, Old Swinford, Worcestershire, on July 31, 1812, and educated at Mathew Gibson's Academy, Tranmere, Cheshire, and afterwards studied at the Chemical Laboratory of Messrs. Watson and Pim, of Liverpool.

When quite a young man he was sent out to the Gold and Diamond Mines in Brazil, where he remained some years; on his return to England he leased and worked the celebrated Old Ecton Copper Mine in Derbyshire, and was engaged in mining and metallurgical works in the North of England and Staffordshire, and in 1843 he gave zinc a commercial value by successfully rolling the first English spelter. On the 15th October, 1839, he married Jane Alice Forbes, the sister of the late Professor Edward Forbes and of David Forbes, F.R.S., but in 1852, his wife's health becoming critical, he disposed of his interests and sailed for California, hoping that the change might benefit her; at the same time he accepted the position of manager to the Agua Fria Gold Quartz Company (in California), and in 1853 constructed at Grass Valley the first gold-mill in that country, for which he received a vote of thanks and a medal from the State of California.