have seen, it would appear that, no matter how the wind blows, it has very little effect on shingle beaches, except while the tide is coming in; on sand beaches, however, it is otherwise, as the wind acts most while the tide is out, as it has a greater extent of bare sand to blow over. Perhaps, however, it is not fair to draw a comparison between the tidal work in the open seas west and south of Ireland with that effected in the narrow seas round England, as in the first there may be great oceanic waves rolling in, unaccompanied by wind, which, as on the previously-mentioned coast of Mayo, may obliterate all windwork; while in narrow English seas windwork ought to be more effective. Col. Greenwood in his letter (GEOL. MAG. March 1874, p. 143) states: "It is the prevalent S.W. wind which throws beaches across the mouths of our streams on the south coast,"—while I would suggest that it is the incoming tidal current from the W.S.W., aided in part by the wind, that is the great worker; for if wind could act alone, in no place would we find a beach travelling up wind.

On a coast where there are never any breakers or high waves except during winds, a vessel could not be floated by the tidal current over one of these sea-banks. But all shores are not so situated; for at Aranmore, at the entrance of Galway Bay, on the 15th Aug. 1862, during a perfect calm, a wave, over twenty-five feet high, came in and swept 15 people off who were fishing on the Glassan rock: while at the same island, in A.D. 1640, a wave, at least 60 feet high, came in and swept over the low portion of the island known as the Blind Sound [Mem. Geol. Survey, Ex. Sheets, 103 and 113, p. 12]. But in general great waves are due to the incoming tide with a wind blowing in a similar direction. G. H. KINAHAN.

ON THE ORIGIN OF THE ESTUARY OF THE FLEET. REPLY TO MR. KINAHAN.

SIR,—Mr. Kinahan has not attempted to disprove my theory of the formation of the Fleet, but has substituted another which he prefers. I have, however, some objections to offer to it. He considers the shore-line of the Fleet to have been formed by marine erosion. That this has not been the case appears evident from a mere inspection of the Ordnance Map. Compare, along the whole sheet, the outline of the open coast with that within the Fleet, and it will be seen at a glance that its character is totally different. "The old marginal cliffs" of the Fleet, supposed to have been degraded into slopes, never, in fact, existed. There are no cliffs old or new except the very low ones, which have been formed by the lap of the small waves got up within its confined area.

Mr. Kinahan says that "as long as the lagoon exists, so must the Chesil Bank, as the waters of the Fleet keep the bank from travelling inwards." This is incorrect, because the bank does travel inwards, slowly but surely, as may be seen by examining its inner margin. In heavy storms, like that of 1824, the sea washes over it, and heaps of shingle are thrust forwards into the Fleet, where they remain undisturbed.

I regret to say that I am not acquainted with the examples of lagoons in Ireland, to which the Fleet is supposed to be analogous. Probably Mr. Kinahan's explanation of their origin may be correct: but that the like will account for all the marshes and reclaimed low lands from Portland to Dover seems to me highly improbable. Take the same sheet of the Map, and observe the forms of the indentations of Weymouth Backwater, and of Lodmore; or further east, of Poole Harbour, Southampton Water, Portsmouth Harbour, Langston and Chichester Harbours. The action of the sea upon a coast composed of soft strata cannot possibly have formed these indentations. They must be drowned valleys.

I feel much supported in my views about the Fleet by the corroboration Mr. Mellard Reade has given to them.[1] O. Fisher.

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STALAGMITIC DEPOSITS.

Sir,—When the organic remains which are found buried in caves are receiving such general attention, and when attempts are being made to determine their age by the rate of stalagmitic deposits, I trust that the following case of such deposits may be of interest to the readers of the Geological Magazine.

About 30 years ago, I procured a piece of lime deposit from a lead mine at Boltsburn, in the county of Durham. It measured 18 inches in length, 10 inches in breadth, and fully $\frac{3}{4}$ of an inch in thickness. It was compact and crystalline, and showed distinct facets of crystals on its surface, over which the water was running. I have indisputable evidence that the deposit had been accomplished in 15 years. The water from which it was produced issued from an adit driven in the Little Limestone, which is about nine feet thick. After leaving the adit, the water ran down the perpendicular side of a rise, for some fathoms, on to some rock debris, which was lying on the bottom of a hopper, whence it proceeded from the upper part of the hopper mouth, then perpendicularly downward over two narrowish wood deals, which were set on edge, and put across the mouth of the hopper to stop the marked materials. It was from off these deals that I obtained the specimen above described. On its under side the forms of the deals were well defined; on the exposed surface, the crystals were best developed where the stream was most active.

In accordance with the above rate of increase, namely, $\frac{3}{4}$ of an inch in 15 years, 5in. would require 100 years, 4ft. 2in. 1000, and 41ft. 8in. 10,000 years. The data here given to arrive at these results may be relied on as being accurate. In the case now related, the rate of increase was likely to continue tolerably uniform, as the surface water could have no appreciable influence in augmenting or lessening the flow from the adit. John Curry.

Boltsburn.

Explanation of terms, if required.—A "rise" is an excavation made by the miner working from below upwards; size, generally about 9ft. by 4ft. A "hopper" is made by bratticing (or partitioning) off a portion of the rise, and putting timbering horizontally across the low part for a bottom; its use is to hold the worked materials.

[1] Geol. Mag. Vol. X. p. 573.