

In Fig. 2 Mr. Milne has now shown us the highest cone which could float with its vertex upwards; and thereby proved that I was right in saying that a berg of the "shape" he had "figured" in his former paper "would not remain in that position, but must turn over."

Your readers will no doubt join with me in thanking Mr. Milne for his calculations, which I conceive may be thus summarized. If the

(1) Diameter of base of cone of ice is less than  $\frac{2}{3}$  the height, it will float on its *side*.

(2) Diameter is greater than  $\frac{2}{3}$  the height, it will float with its *vertex downwards*.

(3) Diameter is greater than *twice* the height, it *may* float with its *base downwards*.

(4) Or, since this case is included in (2), it *may* float with its *vertex downwards*.

However, when the diameter is only a little greater than twice the height, it would appear that the more stable position of the two would be with the vertex downwards. O. FISHER.

#### MODERN DENUDATION IN NORFOLK.

SIR,—The following facts concerning recent destruction of the Norfolk cliffs seem to be of sufficient interest to induce me to beg your insertion of them in your *MAGAZINE*.

On Tuesday, January 30th, we had a severe gale, which did much harm all along the coast. The coincidence of a spring-tide and a high wind from the W.N.W., brought the sea to a height it has not been known to reach for at least forty years. I have examined the coast from Hasborough to beyond Sherringham, and the damage done is marvellous. Probably the loss of land along the whole line of coast mentioned may be estimated at a yard. At the life-boat gap Bacton the amount that has gone is fifteen yards, and a strip of about that width is missing as far as the Walcot gap (three furlongs). At Bacton the cliffs are low, so the denudation is greater than in other parts.

Mundesley has had part of the life-boat gangway swept away, and some walls thrown down, besides the land lost.

At Cromer people are congratulating themselves on the small amount of damage done; it is said that £150 will cover it. During the gale it was thought that the jetty would be pulled up bodily by the upward force of the waves; but fortunately the planks gave way, and there are only about fifty missing. The gangway at the north end of the town has been swept away; but as it was only made of earth, that will not much matter.

The most serious loss is at Lower Sherringham. There Mr. Upscher has lost two acres; nearly all the sea-wall has been swept away: none of the gangways are left; a cottage and a shed have fallen into the sea; the inn on the cliffs has had the windows broken, and is in a very unsafe condition; and should another gale occur now, much of the village will go.

At Weybourn I hear that the sea broke through the beach and flooded the Coastguards' cottages.

None of the fishermen can remember a *single* tide doing so much harm. I believe a yard is rather more than the estimated yearly loss of land. And Mr. Upscher informs me that he reckons his loss of land during the past sixty years to be thirty acres at the very least.

GEOLOGICAL SURVEY, CROMER,  
14th February, 1877.

CLEMENT REID.

#### THE TROPICAL FORESTS OF HAMPSHIRE.

SIR,—I have no wish to enter into any discussion with Mr. Searles Wood, jun.; but he has, it seems to me, written to you upon a subject on which, notwithstanding his large store of geological knowledge, he appears to be quite unacquainted. The supposition, alluded to in my lecture at South Kensington, that oscillations of climate might partly account for the varied character of the Bagshot Floras, is partly based upon and supported by strong negative and some positive evidence, of alternating warmer and colder conditions, *not glacial*; contained not only in English Eocene, but all Tertiary beds throughout the world, although these seem to have escaped Mr. Wood's appreciation. No glacial conditions are necessary to explain anything connected with the Eocene Floras; but Mr. Wood cannot surely suppose that the Bagshot leaves from the London basin and those from Bournemouth and Alum Bay indicate an equal temperature; or that the Fauna of the Thanet sands, Woolwich beds, and London Clay, or the Bracklesham, Headon, Bembridge, and Hempstead beds do not make plain to us that the climatal conditions during the deposition of our Eocene series differed widely at each period.

The second hypothesis, that of the existence of a mean annual temperature which permitted the growth of sub-tropical and more temperate forms side by side, is supported by abundant evidence, and is the one by which Ettingshausen, and almost every continental geologist who has devoted himself to the study of Tertiary Floras, can best explain the universal admixture of these forms at that time in all our, *at present*, temperate climates. Mr. Searles V. Wood, jun., however, states that both these theories are "remote from the truth," and proceeds to make some extraordinary mis-statements in the process of giving what he believes to be the true explanation. After expressing the total thickness of these beds, which reach nearly 1000 feet, as "upwards of 200<sup>1</sup> feet," he goes on to say that the vegetable remains have been drifted, and are *not in situ*.

Mr. Wood can never have personally worked at these beds, or even examined collections made from them by others, or he could not have so failed to comprehend what he had seen.

He appears not to be at all aware of the published work and the conclusions of those who have studied these beds in England, or the similar leaf-bearing Eocene and Miocene beds abroad; neither can he have heard or read the statements made by me in my lecture, or in an appendix to it communicated to the Geologists' Association.

<sup>1</sup> This was a Printer's error; Mr. Searles V. Wood, jun., correctly stated the thickness at 2000 feet, see his letter at p. 141. We regret the mistake exceedingly.  
EDIT. GEOL. MAG.