The early morning tide marked about 2 inches higher. During the past springs we have

Tuesday, Oct. 10, p.m.			11	below	...	6	below	...	5	... E.
Wednesday	,,	11,	,,	5	,,	...	6	above	... 11	... S.S.E.
Thursday	,,	12,	,,	1	,,	...	12	,,	... 13	... W.N.W.
Friday	,,	13,	,,	3	above	...	9	,,	... 6	... N.N.W.

The comparatively quiet autumnal weather sufficiently accounts for the slight variations.

The tide ebbed as low as 23 feet 6 inches below Trinity in October last year at the London Docks Shadwell entrance, yielding a total tidal vertical oscillation of fully 28 feet in the Port of London. J. B. REDMAN

6, Queen Anne's Gate, Westminster, S.W., October 19

P.S.—The springs succeeding those described in my letter show a greater difference, influenced doubtless by the great gale of Tuesday, October 24, when the barometer fell as low as in the gales of October 28 and November 16, 1880, on these three occasions reading a tenth under 29 inches. The tide of October 28, 1880, was a low neap, but on November 19, 1880, at the top of the springs estimated at 6 inches under Trinity high water it was 2 feet 9 inches above, or 3 feet 3 inches excess three days after the gale.

The excessive amount of land water now meeting the tide adds to the increase, together with the northerly gales.

			Estimated.			Observed.			Excess.	
Tues. Oct. 24, noon			0 9	below	...	0 6	below	...	0 3	S.S.W. gale.
Wed.	,,	25, p.m.	0 5	above	...	0 12	above	...	0 7	W.S.W.
Thurs.	,,	26, ,,	1 1	,,	...	2 9	,,	...	1 8	S.
Fri.	,,	27, ,,	1 6	,,	...	4 3	,,	...	2 9	E.N.E.[1]
Sat.	,,	28, ,,	1 7	,,	...	5 0	,,	...	3 5	N.N.E.[1]

In effect the last tide is identical with that of January 18, 1881.—J. B. R.

Note.—The estimate of excess due to wind over and above the forecasts is somewhat overstated in this letter, as the Admiralty heights are for London Bridge and those observed are for Westminster, where the reading will be quite 2 inches higher.

Umdhlebi Tree of Zululand

THE following note has been communicated to us by the Rev. Dr. Parker, a well-known missionary in Madagascar. The story reminds one of the old myth about the Upas in Java. No light can be thrown upon it at Kew, but perhaps in the pages of NATURE it might meet the eye of some person who could give some more information about it. W. T. THISELTON DYER

There are two species, in both the leaf is lanceolate, dark green, glossy, hard, and brittle, and from both a thick milky juice exudes, while the fruit is like a long black pod, red at the end. One species is a tree with large leaves, and peculiar looking stem, the bark hanging down in large flakes, showing a fresh growth of bark underneath: in the words of my informant, "What a villainous-looking tree! nasty, rough, ugly!" The other species is a shrub, with smaller leaves, and the bark not peeling off the stem. Both species are said to possess the power of poisoning any living creature which approaches it; the symptoms of poisoning by it being severe headache, blood-shot eyes, and delirium, ending in death. The person affected dies either in delirium, or instantaneously without any delirium. A superstition is connected with this plant. Only a few persons in Zululand are supposed to be able to collect the fruits of the Umdhlebi, and these dare not approach the tree except from the windward side. They also sacrifice a goat or a sheep to the demon of the tree, tying the animal to, or near the tree. The fruit is collected for the purpose of being used as the antidote to the poisonous effects of the tree from which they fall—for only the fallen fruit may be collected. As regards habitat, these trees grow on all kinds of soil, not specially on that which exudes carbonic acid gas, but the tree-like species prefers barren and rocky ground. In consequence of this superstition, the country around one of these trees is always uninhabited, although often fertile. G. W. PARKER

The Origin of our Vernal Flora

IT is usual to assign an Arctic origin to our mountain flora, and floral comparisons and statistics fully bear out this brilliant generalisation. It is formulated that height above the sea-level is climatally equivalent to northern latitude. This is an assumption that flowering plants are largely conditioned by heat. Thus latitude and oreographical habitats are more or less equal.

Might I introduce another element into this question? Seeing that temperature is so largely influential in explaining the distribution of flowering plants, it occurs to me that not only may height above the sea-level answer to northern distribution, but *seasonal occurrence* as well.

All botanists must have been struck by the fact that the earliest plants to bloom among our vernal flora are genera peculiarly Arctic and Alpine. In some instances (as with *Chrysosplenium oppositifolium* and *C. a'ternifolium*) the species are identical. These latter plants blossom with us in March or April; within the Arctic circle not until June and July, and even so late as August. Thus, with them, seasonal blossoming is equivalent to northern latitude, as regards the thermal conditions under which they flower. The generic names of all our early flowering plants are those pre-eminently Alpine and Arctic in their distribution—*Potentilla*, *Stellaria*, *Saxifraga*, *Chrysosplenium*, *Draba*, *Ranunculus*, *Cardamine*, *Alsine*, &c. I contend, therefore, that our vernal flora is explained by the fact that their seasonal occurrence, as regards temperature, is equivalent both to height above the sea-level and northern latitude. In every instance it will be found that the blossoming of the species of the above genera necessarily takes place in Great Britain two or three months earlier than within the polar circle. May we not therefore contend that we owe our English vernal flora to the same causes as distributed our English Alpine plants; and that they are as much protected by being able to flower earlier in the year, as if they had been located on the tops of high hills and mountains?

The power to endure cold and wet displayed by many members of our vernal flora is very remarkable. Thus *Ranunculus bulbosus* and *R. acris*, *Stellaria media*, &c., are frequently found in flower all through the winter, unless the season be extra cold. Many other early bloomers among our common flowers are also remarkable for their durability, whilst the late flowering plants are equally noticeable for the short space during which they bloom. This indicates a hardihood on the part of our vernal flora which cannot be explained except by reference to the climatal experience of the species. Some of them, as the groundsel and chickweed, may have exchanged an entomophilous for an anemophilous habit, or have become self-fertilised by the change.

Again, it must have been observed that many of our early flowering plants display a tendency towards a seasonal division of labour. All of them either flower before they leaf, or show a tendency to do so, as with the Coltsfoot (*Tussilago farfara*), the Crocus (*C. vernus*), the Snow-drop (*Galanthus nivalis*), &c. Even the violets (*Viola odorata* and *V. canina*), the Daffodil, Primrose, Cowslip, &c., although they in part leaf when they flower, develop leaves much more abundantly after flowering than before, thus showing an inclination towards dividing the period of active life into two distinct stages—the reproductive and the vegetative. Everyone knows how completely this has been effected by the Meadow Saffron (*Colchicum autumnale*). My impression is that this early flowering tendency is a survival of the habit these plants had to blossom under more rigorous climatal conditions. In short, that our vernal flora must have the same origin assigned to it as an Alpine; that it has survived through being able to bloom at an early period of the year at low levels, instead of flowering at a later season higher up, above the sea-level; protection and advantage being secured in both instances. J. E. TAYLOR

Ipswich

On Coral-eating Habits of Holothurians

BEING struck with a remark of Mr. Darwin in his work on "Coral Reefs," where it is stated on the authority of Dr. J. Allan, of Forres, that the Holothuriæ subsist on living coral, and that by these and other creatures which swarm on coral reefs, an immense amount of coral must be yearly consumed and ground down into mud (p. 14), I determined to commence a series of observations on this subject, in order to ascertain the rate at which these animals void the coral sand from their intestinal canal, and "*ergo*" the amount of coral an individual would yearly transform into sand.

I have by no means satisfied myself that the Holothuriæ do subsist on living coral. This may be due, however, to my field of observation being confined to the fringing reefs around Santa Anna, and the neighbouring coast of the large island of St. Christoval—where living coral occurs only in scanty patches, the greater portion of the coral "flats" being formed of coral detritu

[1] Gales.