apical glands, and the odour of the flower is rather weak, and very disagreeable. In a cross of my own raising, the parentage being *P. Buonapartea* × *P. cærulea*, the flower is delightfully odoriferous, and the rays are tipped with glands, about half as well developed as those of the former (the seed) parent. That such is the case points to the possibility of the terminal cells of the rays of such as *P. cærulea* being glandular in function in some degree. The general structure of the ray is the same in all, in respect of having conical epidermal cells, spiral vessels running up to the apex, and bearing, besides numerous conglomerate crystals, so great a number of minute starch granules as to render portions often almost black when treated with iodine.

It was repeatedly proved that the perfume of my variety was located in the rays—presumably the apices. It is singular that certain hybrids studied, stated to be between *P. alata* and *P. cærulea*, *e.g.* *Impératrice Eugénie*, do not bear any coronal glands, for it seems likely from analogy (flowers not yet having been observed) that *P. alata* should possess them; one being tempted to assume that species with long filaments at about right angles to the corolla will be found to bear glands, while those with shorter ones, lying at a small angle with the corolla, will not.

JOHN H. WILSON.

Yorkshire College, December 12.

Colours of Mother-o'-Pearl.

IN your issue of October 24, Mr. C. E. Benham calls attention to the fact that the colours of mother-o'-pearl cannot be due to the striations on the surface, as originally explained by Brewster. I have recently communicated a paper to the *Geological Magazine*, June 1895, in which I came to the same conclusion, and also found it impossible to accept the lamina theory as stated by Mr. Benham, for the following reasons. In certain fossilised shells, notably those of the Ammonites, the conchiolin of the shell has in course of time disappeared, and there remains not the lamina, but the prismatic structure; hence I concluded that the latter was the fundamental form in which the calcite of the shell was deposited. In *Am. Ibex*, *Elisabethæ*, &c., the shell has a chalky appearance, consisting of the detached prisms which can easily be separated by rubbing; but when the shell is carefully soaked in Canada Balsam the interspaces become filled up with the resin as they were in life, and the play of colours is perfectly reproduced. Where the original calcite has been replaced by some other mineral, such as silica or marcasite, as exemplified in the Blackdown and Gault Ammonites, it is not the lamina, but the prismatic structure that is reproduced, and in both cases the play of colours is similar to that of the original shell. In Meleagrina, whence the ordinary mother-o'-pearl is derived, the prisms of the shell are not so regular as those in the Ammonites, but the cause of the colour is the same. The laminæ of shell material, though very thin, are hardly thin enough to produce the phenomenon as Mr. Benham would have it. A full description of these prisms, and the way they affect light, is given in the paper above referred to.

ERNEST H. L. SCHWARZ.

Cape Town, November 14.

I AM indebted to you for giving me the opportunity of a remark on Mr. Schwarz's letter. Interesting and valuable though his researches were, the argument, as stated in the paper to which he refers, did not carry conviction to me. To deduce from fossils, in which secondary changes of mineralisation have admittedly taken place, conclusions as to the minute histology of recent shells, seems precarious. The connection between the prisms and the experimentally produced iridescence is not clearly proved; and the explanation of the supposed connection is based on a purely hypothetical arrangement of calcite crystals, such as mineralogists consider highly improbable. It is not proved that the iridescence experimentally produced in the fossils is the same as that occurring in a recent shell. As for Mr. Schwarz's new objection, that the laminæ are not thin enough to produce the phenomenon, this is certainly true for the calcite laminæ, and is equally fatal to Mr. Schwarz's own explanation; but some of the conchiolin laminæ are far thinner than the calcite, and might well produce interference in the light reflected from their upper and under surfaces.

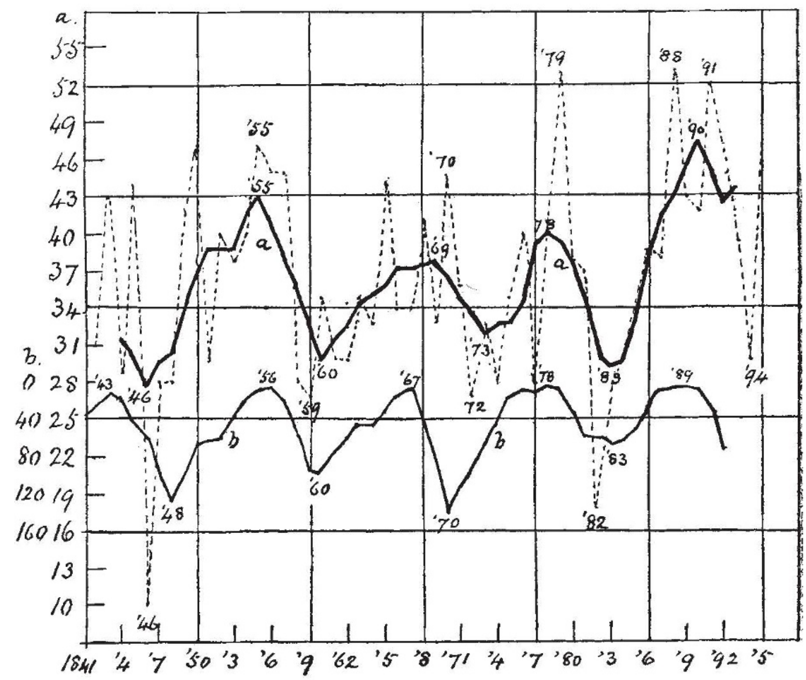
F. A. BATHER.

December 12.

Northerly Wind in Winter Seasons.

THE recent variations of northerly wind at Greenwich in a series of the cold seasons October to March (the winds being reduced to the four cardinal points) present some interesting features, to which I would invite attention.

These variations, since 1841, are exhibited in the dotted curve of the diagram (the ordinate figures expressing days); and a smoothing process having been applied (averages of five), we have the continuous curve (*a*). It will be observed that the four long waves brought out more clearly by this smoothed curve show a good deal of correspondence with those of the sunspot cycle, an *inverted* curve of which is given below (*b*). The higher values of northerly wind seem to be more frequent, on the whole, near sunspot minima, and the lower near maxima. Does this point to a causal relation?



(*a*) Dotted curve, variation in number of days of northerly wind, at Greenwich, in winter half (Oct., March); continuous curve, smoothed with averages of five. (Here 1855, *e.g.*, means Oct.-March 1845-5-&c.)

(*b*) Sunspot curve (inverted).

A few figures may be given. (For brevity we may designate each cold season by the year in which it *ends*; thus 1855 means October-March 1854-55).

We find sunspot minima in

	1856	1867	1878	1889

and maxima of the wind curves as follows:—

Unsmoothed curve	1855	1870	1879	1888
	(47)	(45)	(53)	(53)
Smoothed curve	1855	1869	1878	1890
	(43·0)	(37·8)	(40·0)	(47·4)

On the other hand we find sunspot maxima in

1848	1860	870	1883	1893