

Benvenuto Cellini was attracted to Paris from Florence in consequence of the much clearer and more beautiful atmosphere in the capital of France than in Italy! This fact is derived from the artist's autobiography. What a change now! Paris is rapidly becoming as bad as London.

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IN NATURE, vol. xxiii. p. 195, I found an interesting abstract of a paper read to the Royal Society of Edinburgh, December 20, by Mr. John Aitken, showing "that dust is the germ of which fogs and clouds are the developed phenomena." It is not in the least the intention of this letter to diminish the value of the above-mentioned paper and experiments, but I wished to say that already, several years past, the same results were obtained by Messrs. Coulier and Mascart (1875) in France (*Naturforscher*, 1875, p. 400; *Journal de Pharmacie et de Chimie*, série 4, xxii. p. 165).

In my "Théorie cosmique de l'Aurore Polaire," p. 36, I have already pointed out the great importance of these results on the relation between auroræ and clouds and the danger of measuring the height of auroral displays by means of superior cloudy apparitions (p. 35). In fact, if the invisible aqueous vapour is able to reach much higher regions than terrestrial dust, and if auroræ are in close connection with cosmical matter in a state of extreme division, like our theory attempts to prove, this cosmical matter is without any doubt enabled to form aqueous clouds in a much higher than the usual level. Moreover we have already, in 1873, in the German journal *Gaea* (Köln und Leipzig, E. H. Mayer), asked: "Welches wohl die weitere Rolle der Eisen- und anderen Dämpfe sei, welche nach der Verbrennung in den oberen Regionen der Atmosphäre schwebend bleiben und offenbar nach vollständiger Abkühlung einen Niederschlag von fein vertheiltem Eisenoxyd und anderen Stoffen bilden. Sollten diese Theilchen . . . keine Veranlassung geben können zu den von deutschen Beobachtern so oft wahrgenommenen 'Polarbändern,'<sup>1</sup> deren Zusammenhang mit dem Nordlicht schon öfters dargethan ward, aber bisher unerklärt blieb. Noch würden wir hinzufügen können, mit Hinweis auf die Beobachtung Secchi's eines angeblichen Nordlichts bei Tage (NATURE, October 17, 1872), dass auch die bis jetzt ganz unerklärte, eigenthümliche Gestalt der Cirri, mit ihren ganz regelmässigen, auf ein gewisses Gesetz hindeutenden transversalen Verzweigungen, von der Anwesenheit feiner Eisenstaubkerne in den Eisnadeln möglicherweise bedingt ist. Bekanntlich schweben diese Cirri in den höchsten Wolkenregionen."

It will further be generally known that microscopic meteorites have been found in the centre of hailstones (*Comptes rendus*, 1872, p. 683).

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Groningen (Netherlands), January, 1881

#### New Cases of Dimorphism of Flowers—Errors Corrected

REVIEWING my notes and drawings of some years ago, I find the following new cases of dimorphism of flowers:—

1. *Syringa persica*, L., cultivated in the garden of the Lippstädter Realschule, is gynomonocious. In the same inflorescence there are found a majority of hermaphrodite flowers of larger size and a minority of female flowers of smaller size. The hermaphrodite flowers are homogamous and short-styled, like *Syringa vulgaris*, L. (H. Müller, "Die Befruchtung der Blumen," p. 340, Fig. 125). The anthers of the female flowers, which are much reduced in size and never contain any pollen, are inserted sometimes above, sometimes beneath, but commonly in the same height with the stigma. In some few of the small-sized flowers the number of the petals is reduced to three.

2. *Stellaria glauca*, L., near Lippstadt, is gynodioecious, like *St. graminea*, L., as described by F. Ludwig (*Bot. Centralblatt*, No. vi. p. 28), some stems bearing small-sized flowers with very reduced anthers of white colour and greatly-developed stigmas, a vast majority of other stems bearing larger-sized proterandrous flowers with anthers of red colour.

3. *Sherardia arvensis*, L., near Lippstadt, is likewise gynodioecious, its hermaphrodite flowers being proterandrous and larger-sized, with a corolla of 3½-4 mm. diameter, its female

<sup>1</sup> Or "Polarbänder." My daily observations of these phenomena, beginning with the year 1875, are to be found in the German journal *Wochenschrift*, editor, Dr. Hermann J. Klein in Köln.

flowers possessing a corolla of only 2½-3 mm. diameter, with extremely reduced anthers.

4. *Asperula tinctoria*, L., produces in Thuringia so frequently flowers with only three petals that in those stems examined by myself by far the greatest part of the flowers were three-petaled.

In my book "Alpenblumen" Dr. Focke of Bremen has detected two errors of naming, which immediately ought to be corrected: the flower described and illustrated on p. 171 is not *Empetrum nigrum*, but *Azalea procumbens*, like that of p. 377; *Cerinthe*, in pp. 264, 265, is not *major*, L., but *glabra*, Mill = *alpina*, Kit.

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#### Geological Climates

I HAVE read with much interest and attention the letters that have appeared in recent numbers of NATURE on the subject of "geological climates," and although it must appear presumptuous on my part to do so, I shall endeavour to show that each of the distinguished writers of these letters may be somewhat in error on at least one point, which—if I am right—must materially affect the correctness of the conclusions they have come to.

I think that Mr. Wallace, whilst very justly giving the Gulf Stream and other currents which *might* exist were certain lands submerged, credit for great influence in ameliorating the rigour of climate, does not take into sufficient consideration the fact that the waters of the Gulf Stream, although warmer, are, in consequence of holding much more salt in solution, heavier than the colder and less saline Arctic current.

Some experiments show, as clearly as anything done on a very small scale can, that two waters brought as nearly as possible to the conditions of the Gulf Stream and the Arctic current do not mingle when simultaneously poured into a long narrow glass trough; the Arctic water invariably taking its place on the surface.

Supposing then that these two currents meet somewhere about latitude 80° or 81° N., the Arctic water flowing south—if my experiments are of any value—will retain its position on the surface and the warm current pass underneath, and thus lose all its heating influence on the air over a Polar area about 1000 geographical miles or more in diameter.

We can have no stronger example of this effect of difference of density of ocean water than is shown by the two currents *in and out* of the Mediterranean Sea.

In NATURE, vol. xxiii. p. 242, Prof. Haughton says, "The thickness of this ideal ice-cap at the Pole is unknown, but from what we know of the Palæocrystic ice of Banks Land and Grinnel Land *must be measured by hundreds of feet, and its mean temperature must be at least 20° F. below the freezing-point of water.*"

With regard to both the above assumptions—which are in italics—I must beg to disagree entirely with the learned Professor. He appears to consider the so-called Palæocrystic ice as the normal state of the ice at and near the Pole, and as a natural growth by the gradual freezings or increase of a single floe during a series of years; whereas I am of opinion that this mis-called Palæocrystic ice is the result of a number of floes being forced over and under each other by immense pressure caused by gales of wind and currents.

The western and northern shores of Banks and Grinnel Lands are peculiarly well suited for the formation of such ice-heaps, as they are exposed to the full force of the prevailing north and north-west storms, which pile up the ice in a wonderful manner on these shores and others similarly placed, for a distance of miles seaward. The whole of the west shore of Melville Peninsula is so lined with rough ice of this kind that sledging is impossible.

It will wholly depend upon the form of land—if any—at or near the Pole, whether or not any floebergs are there. If there is no land it is probable there will be few or none, as the ice will meet with no great obstruction, as it is driven by winds and currents.

I have no authorities by me that give the thickness of ice formed in one season at or near the winter quarters of any of the Arctic expeditions, except my own in 1853-4 at Repulse Bay, latitude 66° 32' north.

The measurements of the ice—taken at some distance out in the bay where there was very little snow—and the mean temperature of the air are given on next page.