

The red line, which was so brilliant in the auroral displays of last October, is very rarely visible, and does not coincide with any line which I have observed. The first red line of the tube spectrum is  $H\alpha$ , due to a trace of residual moisture.

I think it best to publish these imperfect results without more delay, in the hope that they may be corrected or confirmed by other observers, as I am unable at present to continue the research.

HENRY R. PROCTER

Royal College of Chemistry, Feb. 7

Resemblances of Plants *inter se*

MR. BENNETT, in his very interesting review of Mr. Mivart's "Genesis of Species" (NATURE, No. 66), refers to the close resemblance of an African Euphorbia and a South American Cactus" as an instance of "imitation," and to "the extraordinary resemblance of certain Conifers to flowerless plants" as "opposed to the theory of Natural Selection."

Neither example seems to be well chosen. In every case of supposed "mimicry" or "imitation," the question first arises, whether the resemblance between different organisms be or be not referable to similar conditions of life. Nobody will think a dolphin "imitates" a fish, nor does a climbing Tamus "imitate" a Humulus. These are cases of similar adaptations, but wholly unconnected with anything like mimicry in its true sense. An aquatic mode of life, or climbing habits, will necessitate certain peculiarities of structure, and the influence of an epidermis precluding evaporation will be the same in a Euphorbia as in a Cactus. The consecutive similarities of detail may without straining be referred to Mr. Darwin's "Correlations of Development."

There is still less cause for wonder in the resemblance of Conifers to flowerless plants, since it has been long ago shown by Hofmeister ("Vergleichende Untersuchungen," 1851, cf. Sachs, Lehrbuch der Botanik, 1868, pp. 310 and 384) that there is a close affinity between Lycopodiaceæ and Conifers, in spite of the chief boundary line of our system running between them. The resemblances of these respective orders therefore are scarcely more "extraordinary" than the resemblance of a Juncus to a grass, nor can I comprehend their bearing against the theory of Natural Selection.

Mr. Bennett deals rather strongly with botanists in denying to them, with rare exceptions, "a philosophic spirit." I cannot think this severe criticism to be applicable to the labours of Du Bary, Hofmeister, Sachs, Nägeli, Schwendener, Pringsheim, and other contemporaries of ours (confining myself to my own country), labours alike distinguished by comprehensiveness of generalisation and accuracy of detail.

Did Mr. Bentham really come over to "the evolutionists" "only within the last twelve months"? I should consider that he expressed his full assent to the ideas of Mr. Darwin already in his addresses of 1868 and 1869.

D. W.

Frankfort-on-the-Main, Feb. 21

The Genesis of Species

If this note should meet the eye of the writer on Darwinism in the *North British Review* for June 1867, I should feel greatly obliged if he would explain the following passage, quoted by Mr. Mivart in p. 57 of his "Genesis of Species":—"The advantage is utterly outbalanced by numerical inferiority. A million creatures are born; ten thousand survive to produce offspring. One of the million has twice as good a chance as any other of surviving; but the chances are fifty to one against the gifted individual being one of the hundred survivors."

Is it an assumption or the statement of a fact that "one of the million has twice as good a chance as any other of surviving?" and how are "the hundred survivors" arrived at?

STUDENS

Fertilisation of the Hazel

IN NATURE for April 7, 1870 (vol. i. p. 583), Mr. Marcus Hartog stated, as the result of his observations, that the male catkins and female flowers of the hazel are not simultaneously developed on the same twig, and that therefore a kind of quasi-cross-fertilisation necessarily takes place. Although convinced at the time that my observation did not tally with Mr. Hartog's, it was then too late in the season to submit my impression to a

practical test. During the past week I have closely observed the hazel bushes in flower, and have found on every bush which has come under my notice, the female and male flowers in a perfect state of development on the same ultimate twigs, in close proximity to one another, the stigmas being frequently loaded with pollen-grains, apparently from the neighbouring catkin; at all events there appears no provision of nature specially to promote fertilisation from other bushes. We see in fact here a confirmation of the general law suggested in my paper in the first number of NATURE, on "The Fertilisation of Winter Flowering Plants," that when plants flower in the depth of winter, and at a time when no or few insects are about, self-fertilisation is the rule rather than the exception, or in the case of unisexual flowers, as near an approach to self-fertilisation as is possible under the circumstances.

ALFRED W. BENNETT

Feb. 27

Sanitary Tests

DR. LANKESTER recently pointed out in NATURE that the existence and spread of fever were mainly owing to popular ignorance and the neglect of physiological laws. Since the article referred to was written, a greater plague has followed the fever then prevailing; and we are now told that Ireland is much better off than England—vaccination being there almost universal.

This state of things seems to me but a symptom of a more deeply-rooted evil, viz., the general neglect of physiological and sanitary science among the *higher* orders as well as the lower.

In how many large schools are the laws affecting the human body and the relation of man's frame to the destructive and constructive elements which surround us systematically taught? Are there any?

We talk of the gross ignorance and filthy habits of the poor; but both their ignorance and their filthiness are often a part of the very conditions of their existence. Have we been faithful stewards in this great matter?

Allow me to draw attention to the fact that, though Government has greatly facilitated and cheapened the acquisition of other branches of science, hygiene seems entirely omitted from the programme. But knowledge must descend from the higher to the lower levels. Ought not the heads of all public schools to undergo a compulsory examination in this subject? I could adduce instances where the greatest mischief has resulted from ignorance in such high quarters.

Aigburth, Liverpool, Feb. 25

SAMUEL BARBER

Morell's Geometry

IN my ignorance of the fact that there are two Morells of very different calibres in the literary world, I find, to my great regret, that I have done serious injustice to the "widely-known" writer "on philosophy and grammar" and scholarly Mr. J. D. Morell, by attributing to him the authorship of the work on the "Essentials of Geometry," whose appearance I was compelled to notice so unfavourably in last week's NATURE. Pray give immediate publicity to this confession of error on the part of

March 1

THE REVIEWER

Algaroba

AT p. 313 of NATURE (February 16) is a paragraph on the use of the Algaroba in the province of Catamarca, Argentine Republic, in which it appears to me the writer has confounded two or more plants. Algaroba is a name applied to *Ceratonia siliqua*, to several species of *Prosopis* in South America, and to *Hymenæa Courbaril* in Panama. In Brazil the last-named plant is called Jatai, from which, I presume, the writer of the paragraph in question has obtained his "*Hymenæa Courbaril-Jetaiba*." The sweet fleshy pods of *Prosopis dulcis*, a tree widely spread over Southern and Central America, are used for feeding cattle, and several other species are employed for a like purpose in different parts of the tropics; it is therefore more than probable that *P. dulcis* is meant instead of *Hymenæa Courbaril*. Moreover, the pods of this latter are very thick and woody, and would not be easily "pounded in a wooden mortar;" and the tree cannot be well described as growing "to a height of forty feet, with wide-spread branches, and a rather slender stem," when we know that it frequently attains a hundred feet in height, and sixty feet in circumference.

JOHN R. JACKSON

Kew, Feb. 25