5 1. after Spring vacation

Nat. History — June 2d. 1864 —

We meet you again, after a short seperation, with a renewed satisfaction, in order to give you a few more extracts from the Great Book of Nature; a book whose splendid leaves have, we hope, attracted your admiration and afforded you instruction at this delightful season, exhibiting a picture, which, together with "the dread magnificence of Heaven", form the most interesting & august scene this side the eternal World!

Our last lecture was occupied in exhibiting to your view certain analogies between the animal and vegetable kingdoms, as it regarded not merely their structure but their oeconomy & propagation. We dwelt much on the perceptivity of these two organized beings, and said that the more or less acute perception, gave them a greater or less capacity for the reception of happyness. This naturally led us to some metaphysical descussions concerning happyness "our beings end & aim". — (On the subject of Botany we may say with "the village Curate"

"Not a tree,
"a plant, a leaf, a blossom, but contains
"a folio volume. We may read and read
"and read again, and still find something new,
"Something to please, and something to instruct"

See notes to Bot. Mag. V. XI.

We cannot quit the important subject of Botany without a few more remarks on the famous sexual system of Linnæus; — which proceeds upon a real or fancied analogy between the sexual parts of plants and those of animals. and supposes the existence & intercourse of the sexes to be as indisputably ascertained in the one, as in the other.

We have seen, in our past lectures, that the flower and fruit are formed of a numerous combination of organs: and we now lay it down as an axiom, wc admits not of dispute, that these organs are destined for the formation of the seeds, wc serve to multiply the species.

Complete flowers are formed of the calix, or flower-cup, the petals, the stamina, and one or more pistila. all these parts however, are not equally essential. The calix cannot be regarded as indispensably necessary to fructification; because many flowers, wc manifestly want the calix, (as the tulip) produce, notwithstanding that defect, seeds that are ripe, well formed & capable of vegetation. For the same reason, the petals have been denied a place among the essential organs of fructification, although their functions, as well as those of the calix, ~~produce~~ are of considerable importance in the economy of plants; they are useful in elaborating the juices wc reside in the more essential parts of fructification.

Besides

Besides the green leaves, there is another pulmonary system, independent of the green foliage; wc belongs to the sexual or amatorial parts of the fructification only, viz in the corolla, petals, or painted flowers. In each petal there is an artery belonging to each leaf or petal, wc conveys the vegetable blood to its extremeties, exposing it to the light and air under a delicate moist membrane, covering the internal surface of the petal, where it often changes its colour as is beautifully seen in some party-coloured poppies. Dr. Darwin tells us that the vegetable blood is then collected at the extremities of the corol ~~petals~~ arteries, and returned by correspondent veins, exactly as in the green foliage, and this for the sustenance of the antheras, stigmas, & for the important purpose of honey, wax, essential oil, and the pollen or prolific dust, and thus constitutes a pulmonary organ (See Darwin Phytology. p. 45.)

From all that has been said, it is evident, that the organs indispensibly necessary to fructification, are reduced to two, viz the stamina & pistils. These observations establish,

1st That there is no plant capable of furnishing good,

well conditioned seed

well conditioned seeds, that is not provided with ~~seed~~ stamina & pistil.

2d. That flowers wc. possess the highest degree of luxuriance, and have all their stamina metamorphosed into petals; produce no perfect seeds.

3d. That seeds equally barren & imperfect, are furnished by ~~with~~ such flowers as have their pistil transformed ~~by~~ into slender expansions, resembling leaves.

4th. That, if the stamina of any plant are cut off before the anthers or summits have dispersed the powder inclosed within their substance, the fruit is productive of imperfect seeds.

(5th.) That a similar abortion takes place, when, upon the expansion of the flower, the style or stigma is cut off; when the moisture wc. ~~totally~~ covers the organ is totally absorbed by continued smoke, or carried off by perpetual showers; when the tops of the stamina are hindered from opening by sudden frosts, or their powder diluted & washed away by violent rains.—

These facts are established beyon a possibility of a doubt, and prove that the stamina & pistillum are absolutely necessary to towards the formation of the seeds; but are not decisive with respect ~~to the mode or manner~~ either to the use of these parts, or rather to the manner in which that formation is accomplished. The opinion now prevalent attributes the fecundation of the seeds to the agency of the pollen, wc. dispersing itself upon the stigma

stigma, or summit of the pistil, & bursting in the moisture that is lodged on its surface, transmits either its substance or some vivifying effluvia to the ovaria below, for the purpose of impregnation.

This opinion is founded 1st upon the analogy that has been observed to obtain between plants & animals; 2dly upon the success of several experiments, wch uniformly tend to prove, that, when the communication between the sexual parts of plants has been either accidentally, or intentionally intercepted, the seeds have always proved ~~bar~~ barren, and incapable of vegetation.

Providence has given vegetables organs of wonderful mechanism. These parts are capable of anatomical investigation, like the parts of an animal; and their investigation is the only rational method of arriving at any certainty concerning the laws of the vegetable economy. Without agriculture, that useful, important, and honorable profession must remain a vague & uncertain study. —

As to the arrangement of plants into classes - orders - genera and species, it is a more simple & natural procedure yn you may, at first imagine (See Lecture on this subject)

Not a tree
a plant, a leaf, a blossom, but contains
a folio volume; We may read and read
and read again, and still find something new
Something to please, and something to instruct. Village curate

O Thou pervading genius given to man,
To trace the secrets of the dark abyss,
O lay the Mountains bare! – and wide display
Their hidden structure to th^e astonished view! Thompson.

The highest mountain in N Eng^d are 10,000 feet above the level of the sea. The area of its base is ab^t 60 miles in circuit. Among its seven apparent summits within this area, four are bald – or bare rocky, where even the Moss, w^c Linnaeus calls the first settler" cannot live, altho it is little more than an atmospheric sponge to imbibe water from the clouds. One of these four peaks is that White mountain w^c makes such a majestic appearance as you sail along the Eastern shore of Maine, and because it is a pre eminent land-mark for all who travel by land or sea, towering above all the rest, and, I suppose, because it rises nearer Heaven, it is called Mount Washington!

Look on the clouds, the streams, the earth, the sky;
So all is interchange and harmony!
Where is the gorgeous pomp, w^c yester morn
Curtain'd yon orb with amber, fold on fold?
Behold it in the blue of (Rivelin) borne
To feed the all feeding sea! the molten gold
By flowing pale in Loxleys waters cold
To kindle into beauty tree and flower
And wake to vernal life hill, vale and plain
Cloud trades with river, and exchange is power:
But should the clouds, the streams, the winds disdain
Harmonious intercourse, nor dew nor rain..

would forest cirrus the thorns
– Tacus; No sound of river flow
– to disturb the Sepulcher of all
below – (Com. Rhymes Ed. Rowe
for July 1832. p 34 & N° 110)
Jany 1833

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