

May 1804

Linnaean System of Botany

Probitas laudatur et alget.
For virtue starves, — on universal
praise — Gifford —

Lord Bacon says that in the road of science there are three ways of walking, 1st by feeling out ones way, as in the dark; or 2nd by directing our steps by a light, or 3rd by for all always supposed obscurity when dim sighted, some one leads us by the hand. Thus when a person reads much, without order or method, it is groping in the dark. But when he proceeds under the guidance of an instructor, it is as if he were led by the hand.

What L. Bacon calls "leading by the hand" is, if I mistake not, teaching by lectures, where you have a clue or guide to direct your steps through, what he calls the sylvas sylvarum or the woods of the science of nature. This mode of teaching by means of lectures, w^{ch} is sanctioned by the usage of all Europe, has several advantages above all other modes of acquiring knowledge; among the advantages that of studying in association is not the least. What escapes one is caught by another, and by conversing together you multiply your ideas by the habit of making comparisons, or to borrow a ^{figure} comparison from optics, every ray of light emanating from the

See Melius de def^{tu} florum p. 51.

minds of each student may be so reflected as to extend its power of illumination; ~~and~~ the reflected ray may become not only more brilliant, but even generative at the point of repercussion.

We spoke in our last lecture of the importance of acquiring an accurate knowledge of the structure or anatomy of a plant, for that without it, ^{of its structure and} and a knowledge of the laws of the vegetable economy, Agriculture, and Horticulture would ever remain a vague & uncertain ~~study~~ business—

We s^d that whatever part of a plant we examined, we could observe seven distinct parts & no more; and that this was true in regard to the root, the stem & even the flower.

We told you that the leaves of a plant, ^{were} ~~was~~ its lungs, but they are not so absolutely necessary to the life of a plant as the lungs, or gills ~~are~~ of animals; for the lower organized beings are, in the scale of vitality, the less they suffer by mutilation.

We had hardly time to say in our last lecture, that within the Corolla, or those painted leaves denominated the flower, stood the stamina & pistilla, ^{w.} were in fact the generating organs of the vegetable; and that upon the number, and respective position of these threads, or filaments the learned Linnaeus has founded his famous sexual system of plants.

The doctrine of the sexes of Plants was totally unknown to the ancients, excepting, what they, (the Babylonians especially) observed of the Palm tree. They knew that the fecundating powder of the male palm, was absolutely necessary to fecundate the female tree, otherwise no fruit would appear; for the Palm, or Date tree, bears its fruit on one tree and its seed or fecundating powder on the other. So far were the ancients from detecting the process of Nature in the propagation of Vegetables, by this striking fact in the Palm tree, that it does not appear, in any of their writings, from Herodotus downwards, that they had the least glimpse of this underwriting law of Nature, w^{ch} forms the basis of the Linneean system. It is indeed extraordinary that mankind should remain in utter darkness respecting this natural procedure in plants until about 100 years ago, and even then it was but merely hinted at. The discovery of the sexes of plants seems to be owing to the microscope w^{ch} was not used more than a century ago.

The first hint we have of the sexual distinctions of vegetables was found in Grew's anatomy of plants which book was published in 1682, w^{ch} he says was first suggested to him by Sir Thomas Millington, Sacrian Professor at Oxford. His words are, Sir T. Millington told me that he

"he conceived, the attire, what we now call the Antheres, doth
"serve as the male for the generation of the seed" I imme-
"diately replied that I was of the same opinion, & gave him
"some reasons for it." Yet even ^{then} ~~now~~ the idea was merely
^{suggested} hinted & dead, or rather slept, till it was awakened
forever by Linnaeus. But so far was the learned in Nature
from adopting this doctrine, when Linnaeus first published
it, that Journe forte, the most celebrated Botanist of modern
times among the French, ~~that~~ he refused to give it any
place in his system. The proofs :: w.^c Linnaeus has brought
are so clear, that the birth of animals is not more evidently
the consequence of an intercourse between the sexes ^{yr}
that of Vegetables. The brilliant figure which this celebrated
Naturalist has made, & the reform which he has effected,
will justify us in ~~dwelling~~ calling your attention, for a
few moments to the history, & character of this extraordinary
personage.

Charles ^{Von} ~~(de)~~ Linne, or as the learned throughout the
world have latinized it, Carolus Linnaeus, was born in
Smaland, in Sweden in 1707. His father was the parish
minister, of a small village, called Maeshult. The good
minister's income was so small, & his family ^{so large and} so straitened in
their circumstances, that this Prince of Naturalists was ~~in~~ on
the point of being bound 'prentice to a mechanic. This

This design \therefore was overruled, and he was sent to school, where he soon ^{evinc'd} betrayed a taste for Nat^l history, especially for ~~Zoology~~ ^{Entomology} or the knowledge of Insects. In 1728 he removed to Upsal, where his opportunities for studying N. history were enlarged. Here he made such rapid progress, especially in botany that ~~in~~ after a residence of two years at Upsal, he gave lectures occasionally in Botany, in the room of Professor Prudbeck.

In 1731, the Royal Academy of Sciences, having a desire to improve the Nat^l history of Sweden, deputed Linnaeus to make the tour of Lapland, with the sole view of exploring the N.H. of the arctic region, to which his reputation as a scholar, & a naturalist & his tough constitution, equally recommended him. He spent about 5 months in this tour, suffering innumerable hardships and privations, & that too for a very small stipend, scarcely enough to buy him shoes, w^{ch} must have been an important article of cloathing; for poor Linnaeus travelled ^{throughout the Lapland Desert, desolate of villages, cultivation, roads or any conveniences.} throughout the arctic circle on foot. Nay several years afterwards he travelled through Holland, the Austrian Netherlands & France, in the same way, gathering plants and searching for minerals. ^{He traversed ten degrees of latitude on foot!}

In 1733 Linnaeus was sent to visit the mines in Sweden, and on his return to Upsal, he gave lectures on Mineralogy in the University.

Probatas laudatur et Helget. Juvenil - for virtues stars - or minerals prairie Gifford

University — In 1735 Linnæus took his degree of M.D, when he retired to Fahlun, a town in Dalekarlia, where he gave lectures on mineralogy & the docimastic art, or the art of separating metals from their native ore; and where he practised physic; But his vast mind was too active to be long confined to such drudgery for in 1736 he passed over into England carrying ^{strong} warm letters of recommendation from the illustrious Boerhaave, who was at that time the Prof. of the Theory & Practice of Physic, at Leyden & the ^{and one of the best Physicians of the age} glory of the Medical profession. Linnæus was rendered still more conspicuous by the marked attention of this great man; for Boerhaave himself cultivated Nat. history, especially Botany with great ardor, and the extraordinary merit of young Linnæus could not escape the perspicacity of his renowned professor.

In 1738 Linnæus thought he had settled down for the last time in the practice of physic at Stockholm; for being now married, he thought it time to ^{fix} settle down for life, and to give over up the pursuit of gathering plants in Lapland & the arctic circle, and searching for minerals in the bowels of the earth. But at Stockholm he met with ^{for envy & malignity pursued him} much opposition in his business; This opposition he :: overcame, was appointed one of the Kings physicians, and had a medal struck in his honor, while he received a stipend from the citizens for giving lectures in

Botany. In 1741 Linnæus was appointed joint Professor
of Physic, with Dr. Rosen. These two colleagues agreed to di-
vide the medicine department between them. Prof. Rosen
took anatomy, physiology, pathology & therapeutics; while
Professor Linnæus taught nat. history, ^{Botany} materia medica, dia-
tics & the diagnosis morborum. The systematic genius of this
Prince of Naturalists shewed itself in his mode of teaching
physic; for he arranged in a table, or systematic order
all the diseases that affect mankind; Sauvage in France
followed up this plan & made great improvements
which the late Dr. Cullen of Edinburgh carried to a high
degree of perfection. According to this plan diseases
are arranged into classes, orders, genera & species
just like plants & insects — This Linnæan mode
of thus arranging diseases is denominated Nosology.
The reputation of the Swedish University at Upsal rose
to a height before unknown, ^{during the time that} while the medical de-
partment was chiefly under the direction of Professor Linnæus.
But the work that established forever the name of
Linnæus is ^{his} the Systema Naturæ. Nothing has ap-
peared ^{on the subject of the History} since the days of Aristotle to be compared, for
profound learning & depth of research & extent of knowledge
to this book. Those who are judges say, that there is no pro-
duction of modern times to be compared with this, if considered

merely as a specimen of profound knowledge in Greek and Latin; for he created a new language for Naturalists, compounded of Greek & Latin terms, so appropriate as hardly admit improvement.

At this period Linnæus's reputation bore some proportion to his merit, and extended itself to distant countries; inasmuch that there was scarcely a learned society in Europe but was eager to elect him a member, scarcely a crown'd head but sought some means to honor him. The King of Spain e. g. offered him an annuall pension of 2,000 pistoles for life, and the ^{together with letters of Nobility} free exercise of his religion, if he would reside at Madrid there to preside as a Naturalist. But Linnæus returned for answer that if he had any merits, they were due to his own country.

This extraordinary man died January 11th 1778 in the 71st year of his life, leaving behind him a glorious & solid reputation. Uncommon respect was shown to the memory of this great man. At the commemoration of his death, by the Royal Academy of Sciences, the King of Sweden honored the assembly with his presence, nay farther, in his speech from the ^{to the Swedish Parliament} throne, this philosophic monarch lamented the death of Linnæus, as a public calamity!

It would consume too much time were I to give you a history of the labors of this uncommon character. You must yourselves be Naturalists before you can see distinctly the vast extent of his

his original design, the greatness of his labour, and the elaborate and elegant execution he has given to the whole.

Linnaeus was well acquainted with the art of recommending science by elegance of language, and embellishing philosophy with polite literature. No man of the present age had ^{so} happy command of the latin tongue ^{as} Linnaeus; and no man ever applied it more successfully to his purpose, or gave to description such copiousness, precision, conciseness and elegance. Linnaeus possessed the ^{solid} sound, distinct, & comprehensive knowledge of Bacon with all the beautiful, light graces & embellishments of Addison. — He knew that those authors who would find many readers; & those Lecturers who would secure attentive hearers must please while they instruct. He was not one of those teachers who think obscurity contributes to the dignity of learning, and that to be admired it is necessary not to be understood!

In Linnaeus's system of Botany, the sexual hypothesis was received with all that caution that became an enlightened age; and Nature was traced experimentally through all Her variations till conviction became too strong for argument; so that the birth of animals is not more

more evidently the consequence of an intercourse between the sexes, than that of Vegetables; and it would now be as ridiculous for any one, who had examined the arguments, to doubt of the one as of the other. —

In displaying the sexual system of plants, we must at the very threshold of the business ~~we must~~ adopt the words of the learned author of the Hermes, and say, "Should any one object, that in the course of our inquiry, we sometimes descend to things w^{ch} appear trivial & low; let him look upon the effects to which these things contribute, and from the dignity of the consequences, let him honor the principles."

We sh^d moreover examine these things like philosophers. We sh^d let our veneration for the wonderful works of nature totally absorb all levity of ideas. There is an awful majesty, felt in, (if we may so speak) the presence of Nature, inspiring a serious attention in every sensible ^{student} ~~admirer~~. — The young philosopher is sometimes obliged not only to ^{arrest} ~~check~~ imagination, but even to cut her wings.

(Dr Wth was to me what the Prop^r of Divinity Olaus Celsius was to Linnaeus see Dr. Pultney's life of Linnaeus. Or. Encyclop. art. Linnaeus)

The ancients were sufficiently apprized that all animals sprung from an egg; but knew no more than we do how that egg was first formed, ~~and~~ ^{of the} the sexes of plants and their ^{laws of the} propagation ~~thereby~~, they were totally ignorant. Some of you may be as ignorant, in this respect, as the ancients: If so, it will certainly be gratifying to the mind of philosophic curiosity to ~~be informed~~ have exhibited to it a new law of Nature.

The foundation of botany consists in a regular disposition & denomination, or naming of the plants, both generical & specific. -

Now a regular & systematical disposition of vegetables is either Theoretical, w^{ch} lays down the classes, orders, or subdivisions, and the genera; - or Practical, w^{ch} teaches the several species & varieties.

A systematical method consists of five members or branches, viz. Classes, Orders, Genera, Species, and Varieties.

Without such clue or guide, ~~the~~ botany would be an undistinguished chaos, a heap of confusion. E. g. Let any unknown foreign plant be presented to a lover of botany, who understands no system, and he shall turn over all the

all the descriptions, figures, engravings & catalogues
in vain; nor will he at last find out the plant, unless
by mere chance; - but the systematical botanist can
soon determine, whether it be a genus already known,
or whether it be a new genus never before described.

When the learned Linnaeus first published his ce-
-lebrated sexual system, some considered it as a fanciful chi-
-mera of a learned & ^{poetically} fanciful philosopher; some, went farther,
and treated it with ridicule, and this illustrious Natura-
-list shared the fate of all those distinguished characters
who have enlightened the world by the rays of their genius;
in a word a few admired him; still fewer extolled him;
others ridiculed him; while the majority of readers, that is,
those who were prone to speck evil of the things they knew not,
abused him; but he lived to triumph over all gainsayers,
and the whole botanical world confessed, that by his in-
-genious & learned classification, he has led the student, as
by an Ariadne's clue, through the ^{well} turnings & windings
of the three kingdoms of Nature -

Linnaeus has distributed all the vegetables that cover
and adorn the earth into ~~XXIV~~ classes; these are divided into
orders; these orders into genera; and these genera into species.
The

The classes are marked by certain characters w.^c are common to each: the orders all agree in having the same marks with the class to which they belong, together with some additional ones peculiar to the order; the genera have all the marks of the class & order, and besides have some w.^c distinguish the genus; and the species have all the marks & tokens of class, order and genus, with the still farther addition of certain marks & ~~characters~~ w.^c distinguish the specific character. (On genera & species see Lock on Hum.^r Under)

The Linnaean classes are, in order thus; - (1.) Monandria; (2.) Diandria, (3.) Triandria (4.) Tetrandria, (5.) Pentandria (6.) Hexandria &c. The word here compounded with the greek numericae terms, signifies a husband; so that the title Monandria expresses that the flowers of this class have but one husband, that is one stamen; Diandria 2 stamina; Triandria 3 stamina; Tetrandria 4 stamina; Pentandria 5 stamina, or husbands

Each class includes certain Orders, denominated Monogynia; Digynia; Trigynia; Tetragynia &c. The word here compounded with the greek numerical terms signifies a woman or wife; and expresses that flowers of this ^{15^c} order have but one wife, or one pistillum; that Digynia has two wives, or pistilla; Trigynia 3; Tetragynia 4 & so on; as we here mean to exemplify — —

Recapitulation &c.

May 1864

Yesterday we gave you a biographical sketch of the celebrated Linnæus, whom we extolled as one of the greatest Naturalist that ever appeared. We related how this son of an obscure curate, of an inconsiderable village, in a dreary quarter of the world; oppressed by poverty, rose to eminence beyond almost example; by cultivating, with unremitting industry, an extraordinary assemblage of talents. Almost all great men, before they attain the high pinnacle of honor, are destined to climb up to it through the rough, ^{and arduous} rugged road of poverty. Minds differ almost as much as faces. When young men first enter on the theatre of human action, most of them are impressed with an ardent desire after riches, for the circumscribed benefit of themselves, & these nearest connexions, or families. A few, disdaining this comparatively selfish conduct, are more desirous to benefit the great family of mankind. Persons of this noble cast of mind, love fame more than money, or any thing that money can procure. It is the lot of these chosen few, to struggle on in poverty; that is to say, without money; when in truth, they are frequently richer than Cæsar; for if money can procure luxuries & the flattery of weak minds, knowledge can procure more; for

Facile emergunt, quorum virtutibus obstat. — Res angusta domi; (Juvenal.)

Knowledge is power. To be poor & to be struggling on with any new discovery, or remarkable improvement is to be, in the most strict sense of the word, in adversity, for he is sure to have the numerous host of ^{the jealous, the envious & malicious} fools & knaves, against him. But what is adversity? Is it not the best course of discipline for a wise man? He that has never been acquainted with adversity says Seneca, is ignorant of half the scenes of Nature. Prosperity says the same philosopher, very much obstructs the knowledge of ourselves. And he who was greater than Seneca I mean Johnson observes, — That fortitude which has encountered no dangers, that prudence which has surmounted no difficulties, that integrity which has been attacked by no temptations, can at best be considered but as gold not yet brought to the test, of which: the true value cannot be assigned (Mamb. N. 150.)

Seneca, like almost all other great men had to stem the strong tide of Adversity, w^{ch}. Severe exercise made him a wiser, better, and a greater man. He who travelled on foot over great parts of Europe because he ^{was} could not ^{rich enough} able to ride, had monuments erected to his memory in different Kingdoms, and his own Sovereign pronounced his funeral eulogium.

L. was led, from his comprehensive view of the pleasures & advantages of N. Hist. to regret, that the Study of N. H. had not made its way into the Universities, in many of which, says his biographer, logical disquisitions & metaphysic theories had too long prevailed to the exclusion of more useful science. Availing himself of the advantages of an uncommon share of eloquence, & an animated stile, he never failed to display, in a lively & convincing manner, the relation w. this study has to public good; to excite the Great to countenance and to protect it; to encourage & allure youth into its pursuits, by opening its manifold sources of pleasure to their view; and showing them how greatly this agreeable employment would add, both to their comfort & profit. His extensive view of N. H., as connected with almost all the arts of life, did not allow him to confine it to his peculiar ^{profession} of physic. He laboured to inspire the ~~the~~ Great & opulent with a taste for this study; and wished particularly that such as had devoted themselves to Divinity, should share a portion of the science of Nature, w. he thought, among other advantages, would sweeten their rural & confined situations. L. lived to see the fruits of his exertions; for N. H. raised itself in Sweden, under his culture, & the fostering hand of the Government, to a state of perfection unknown elsewhere; and was from thence diffused through all Europe. His pupils dispersed themselves over all the globe, & with their master's fame, extended to the science & their own. More yr. this, he lived to see the Sovereigns of Europe establish public institutions for encouraging his favourite study.