Boston Nov.r 19th 1810

Recapn of Flower & prefatory to History of Botany & Biography of Linnæus.

We told you in our last Lecture, that Botanists had been somewhat puzzled in defining a flower. We told you that it did not mean simply the petals, nor the beautiful corolla made out of these petals. We endeavoured to convince you that the essence of a flower consists in the anthera & stigma, whether they be surrounded by the fine painted petals or not. (Black-pepper has no corolla)

We described the Stamina wth their important protuberances, wc we sd were capsules, or bags containing a very fine powder, or pollen; & we shewed you a drawing of one of them magnified. We told you that each dust or particle of this powder, was an organic body, & that the White Lily gave the best example of them.

We then spoke of a part equally important with the stamina, viz the Pistillum, the top of wc is called stigma, & was covered with a glutinous matter wc arrested the powder of the anthera. We told you that the Germen was the basis of the pistillum; & that it contained the primordia, or rudiments of the future seed; but that in order that the seed sh. come to perfection, it was absolutely needful that the powder in the anthera sh. shed its influence on the Pistillum, & through the pistillum to the rudiments of the seed in the seed-vessel — Now this is not a mere hypothesis, or theory, but

but we know the fact from ~~[illegible]~~ rigid & reiterated ex-
-periments; but the precise modus operandi is not ex-
-actly known, for the pistillum is perfectly solid, & has
no cavity that we could ever discover.

We s.d that when the Germen had grown to ma-
-turity, it changed its name to Pericarpium, or seed-
-vessel; of w.c we have many examples — Stramonium-
- Poppy - Pod - &c.

We s.d that the perfection of the Vegetable consisted
in its fructification; the essence of the fructification in the
flower & fruit; - the essence of the flower in the anthere
& stigma; and the essence of the fruit in the seed:
and that the essence of the seed consists in the cor-
-culum; & the essence of the corculum in the Plumula
in w.c is the punctum vitæ of the plant itself; a part
capable, by the combination of extrinsic caloric, with
its innate oxygen, of encreasing, like a bud, to infinity.

We s.d that Trees carried from these cold
northern climates, to warm - southern ones, were di-
-vested of their buds; so Trees that ~~[illegible]~~ are na-
-tives of warm climates, make a feeble attempt to
acquire buds when transplanted hither, as you see in
this Catalpa, & Locust.

Let us now turn our attention to system, or botanical
arrangement; for Method is the soul of Science -

There are no traces of what is called System, in the writings of the antients on Botany. Indeed the botany of the an-
-tients was too slender to bear the name of Science. The science of Botany as well as Mineralogy, is of modern date.

I presume that you all comprehend the reason why Naturalists were so anxious to establish a System, or just &, if possible, a natural arrangement of the objects of nature, especially, of the vegetable kingdom. Vegetables are so numerous, & are exhibited under such a variety of forms, that the student feels himself lost in the ex-
-uberance before him. He is bewildered, and, like a man who attempts to count the stars in the Heavens unassisted by art: his faculties become distracted, & he gives over the pursuit in dispair.—

To remedy this embarrasment, artificial helps have been invented: Thus, by a simple artifice, we can, not only count all the stars in the Heavens, but we know them so accurately, that if one were to be ad-
-ded, we c^d. discover it; and if one taken away, we sh^d. miss it.

There are nearly 50,000 species of plants. Now these appear like one immense & endless forest; or a bound-
-less garden of vegetables, absolutely unknowable. And what we want is, to reduce this seeming infinity; and this can only be done by throwing all that resemble each other into masses by themselves; for without such disposition

the immensity of plants w.ch resemble those vast Asiatic & African armies, w.ch are nothing more y.n immense mobs of the human species. It is impossible, unless by chance to find out a particular person or individual in such a herd as this. What is wanted is to reduce this vast host of people, & marshal them into a regular army, so that we may know not only to what grand division the person we seek for belongs, but to what regiment — to what company — to what platoon, & to what file he belongs, so that we may come to know his name, & be led to the character of the man.

The Botanists for two or three centuries past have been so many disciplinarians, each labouring to surpass the other in accurate distribution. The Botany of the antients was like those vast mixed multitudes, w.ch compose, at this day the armies of Abyssinia, in w.ch you can discover no particular corps, or company, much less find out any individual, altho' you were satisfied he was somewhere in the vast crowd. Now, what such a mob of people is to a perfectly regular army of the most distinguished European powers of the present day was the Botany of the antients, compared with the Botany under the marshalling hand of Linnaeus: so that we may call Gesner — Caesalpinus — Ray — Morison — Boerhaave and Tournfort Botanical generals, while Linnaeus was to them what Frederic of Prussia, was to his predecessors —

The establishment of system in Botany, was, to use the words of Linnæus, the begining of the <u>golden age</u> of botany. To the revival & establishment of system, succeeded a discovery of the highest importance in the philosophy of Botany, viz that there was in plants, as in all other organised beings a distinction of sexes. But we reserve the discussion of this subject for our intended publication —

The history of Botany, & of its gradual arrangement from a confused heap of facts to a regular system, must be a desirable piece of information to every one, who wishes to acquire even a general knowledge of this agreeable study. This history is diffused through a great number of huge folio volumes; but we have selected, with no small labour, such a narrative from them, as we suppose would be gratifying to you all.

It is the duty of a Lecturer to read for those whom he presumes to teach, & to select & lay before them such facts & reasonings, as he may judge most suitable to satisfy their enquiries. I used to tell the young gentlemen at the University, that there was even an <u>art in reading</u> a book w^c every young man has not acquired, and some never attain. In reading a book the mind is sometimes <u>passive</u>. a stream of ideas run through the brain, without depositing any of its contents; or, should any be left behind, the

the next stream, from another author washes them all away & so on in succession.

There is besides a shell & a husk in what is called learning, & is discoverable in almost every book w.c the student knows not, always, how to strip off, & reserve only the kernel, or nutritive meat. A large Library may be to an inquisitive young man a lumber room. There is in it, every thing he wants, but he does not know how to come at it; & a great portion of time is wasted in a vain search of what he cannot find. Is the duty of public teachers in public seminaries to assort these articles, & arrange these subjects, & so dispose them that the mind may operate to advantage.

In the dark & intricate road of science there are says L.d Bacon, three modes of advancing - the 1.st is feeling out ones way as in the dark. 2.d is to follow a light w.c some one carries before us, and 3.dly is, when dim sighted some one leads us by the hand. Now, when a youth enters ever so large a library, there to read by himself without any direction from any one who already knows the contents of the books, it is what L.d Bacon calls groping our way in the dark, but teaching by lectures is as if some one led us by the hand.

There is another advantage in lectures over reading, viz studying in an association, provided they converse together on

on what they hear. What escapes one is caught by another, and a third may be struck wth. what escaped them both. As no two persons see the same object exactly in the same point of view with his neighbour, so the comparing their ideas frequently strikes out new facts, & thereby more light is thrown in the path, & on the object of pursuit. Nor are doubts & objections without their use.

Forty persons thus studying in an association, operate by the power of 40, instead of the power of one, the solitary reader, alone in his study. Beside to give a useful & dignified topic for conversation is no trivial matter in the education of young people. How large a portion of the time of young people, of both sexes is lost for want a profitable topic for conversation?—

This mode of teaching by lectures is sanctioned by the usage of antient Greece, & of modern Europe. A person may, by lectures in a free & familiar manner shew how far a science has been successfully prosecuted; & in what instances imperfectly explored. It instructs the student in wt. is to be avoided & what yet remains to be done, & assists him in the regulation of his future studies. Some lecturers may give you the sketch of a system, or the epitome of a volume, in the course of an hour, & may, by judicious criticism display the excellencies, & expose the defects of book, more advantageously yn. by ~~a printed book~~ any other way. — It is barely possible we may ~~give~~ exemplify these opinions by a sketch of the history of Botany, & of its great master Linnaeus.

These

These historical sketches are of great advantage to young people, who often confound names, dates & countries, in common conversation, in a manner that has sometimes exposed the ignorance of our youth, to well informed foreigners. — Nor is it always confined to youth — I have heard medical men betray their ignorance, respecting the times & countries of the fathers of their own medical art, not knowing which lived first Galen or Hippocrates — Sydenham or Boerhaave. ~~It is from fill to hear men confounding Alexander the Great with Alex.r~~ They might as well confound Alex.r and the great with Alex.r the coppersmith

The foregoing worth attention Ross 1863