

# Natural History

May 7<sup>th</sup> 1807\*

The course of Lectures, w.<sup>ch</sup> we are now about to give commenced in this place ~~about~~ 20 years ago. It contains a ~~rather~~ system constructed with a view to two important purposes; the one to promote among the young gentlemen <sup>of this University,</sup> a taste for the works of Nature; and the other to hold up to <sup>their</sup> view such phenomena of Nature, as shall excite a train of thinking which shall have a constant reference, and unavoidable tendency to one Supreme intelligent author. To make this the ruling and habitual sentiment of our minds, is to lay the foundation of every thing in morality, and religion; for it makes this world a Temple; and Life itself one continued act of adoration.

Many have been the methods adopted for cultivating the understandings of young persons; of these few have been found to produce more beneficial effects, than properly directing their natural curiosity. This desire of knowledge, this "thirst of the soul", denominated curiosity, is found to exert itself with peculiar energy in youth. At this ~~joyful~~ period, the mind seizes with peculiar avidity every object presented to it; hence the importance, the great importance of presenting proper objects to the consideration of young people.

That

\* Protracted by reason of the disorder

H. M. S. W. H.  
M. D. 1807



12

That the youthful mind may ~~be~~ receive the full benefit of this happy disposition, the Teacher sh<sup>d</sup>. be careful to direct it to such objects as may employ the mind, as well as the eye; and that while they engage the mind by pleasure, it should be filled with clear & instructive ideas concerning the Creator & Legislator of Nature.

We are taught from our early catechisms, and by the ministers of religion, <sup>to believe</sup> that there is one God, and that He made & governs the world. In this we do right to rely on the learning & honesty of men superior to ourselves, until we have the means of examining each one for himself.

"To perceive an intelligent, designing Being, at the head of the creation, and from whose will it all proceeds, is an immense conclusion!" yet to this conclusion N.H. infallibly

conducts every close student; and one of the designs of these Lectures is to prove what we take for granted from the Divines.

The objects w.<sup>ch</sup> usually excite our youthful curiosity are — the Earth on which we live, with its innumerable inhabitants — the beautiful carpet of vegetables that covers & adorns its surface; — the boundless Ocean; — the Sun, moon & Stars; the regular succession of day & night, the agreeable vicissitude of the seasons; together with their delightful train of consequences.

We shall find, as we pass on through life, that the relationships



relationships, aptitude, & conformity w: these objects bear  
to one another, & to ourselves, are so many voices calling  
loudly & affectionately for examination. These compose  
what is called by a rhetorical figure, the Great Book of Nature,  
a book comprehending nearly all the objects of every  
science; a book whose ample & splendid pages must  
charm all who have eyes to see, or hearts to feel. Under  
these impressions we have, for a series of years, endeavoured  
to lead the youthful mind to read this great book of Nature,  
by pointing out to him the alphabet, or first elements of nature;  
then shewing him how to connect this alphabet into syllables;  
next instructing him how to put these syllables together, so  
as to help him, as he <sup>runs</sup> goes on through life, to read distinctly.  
We have held up this Volume to the view of our  
pupils as a portion of that Sacred Scripture, which is  
written by the fingers of Deity himself upon every planet,  
every animal, every plant - and every mineral in creation!  
This scripture the great Lord Bacon calls "the first re-  
" - relation."

The study of this book, or what may be called the economy  
of Nature, visible in the works of creation, is one of the most pleas-  
-ing occupations, that can exercise the rational mind; and it  
has this peculiar to it, that no frequency of contemplation, closeness  
of inspection



or keenness of investigation ever brings weariness or disgust. It is a pleasure differing from all others, from its bringing no satiety; for here gratification & appetite are perpetually interchanging. But we have never recommended Natural history merely to amuse the imagination & gratify the fancy. We hold it up to your view as a science of great importance in such a country as this. The only rational method e.g. of arriving at any certainty concerning the laws of the vegetable economy is a knowledge of the anatomy of a plant; without <sup>it</sup> agriculture, that useful, important, and honorable profession must remain a vague and uncertain study. "By agriculture only can Commerce be perpetuated; and by agriculture alone can we live in plenty without intercourse with other nations. This therefore is the Great Art, w<sup>ch</sup> every government ought to protect, every proprietor of land to practise, and every inquirer into nature to improve." (Johnf.) <sup>And who knows, what between the Tiger of the land, and the Shark of the Ocean, we shall be compelled, for a time, to be an agricultural people!</sup> Lord Haimes, speaking on the education of youth, laments the too general neglect of the study of the works of creation. He recommends, what he calls the "Philosophy of Natural History." As the productions of nature are almost infinite, they should, says he, be treated in discourses, in a general, & sometimes a superficial way, mixed with reasonings. He conceived that Lectures on this plan, would, by exciting a taste for the examining <sup>ing</sup> the

The Romans were once



various objects of Nature, generate a habit of observation, which says he, has a tendency to refine our feelings. He observes of Natural history in general, that it is a source of infinite amusement to young men; it prevents idle & vicious propensities; and exalts the mind to the love of virtue, regularity, and rational entertainment." — But to recommend N.H. from motives of pleasure or utility were to affront the understandings of such an audience as this. — I might as well labour to convince you of the blessings of health, or the advantages of sobriety.

I have always considered the study of Nat.<sup>e</sup> history as a pleasing auxiliary to the student of Rhetoric & Oratory. These two branches of knowledge mutually assist each other, and have always appeared to me like the Digestive organs & the Brain in the human system. From the great storehouse of Nature are drawn those nutritious materials, w.<sup>c</sup> being elaborated, and then refined & exalted by the intellect, produce ultimately all that is beautiful in poetry, or captivating in composition. Theocritus & Homer among the Greeks; Virgil & Cicero among the Romans; and Linnaeus & Buffon among the modern are illustrious instances that those who were most distinguished for their knowledge of Nature, attained the happiest faculty of delineating her charms.

This natural



This natural query occurs rises in the minds of us all in the early periods of our lives What are we? and whence came we? — For this reason we shall discant on the primordia, or beginning of all things — But what mind can fathom the depths of this abyss? What thought can comprehend that power, w.<sup>c</sup> calls things that are not, into existence?

We shall exert ourselves to illustrate, as far as we are able, the sublime but abstruse doctrine of one universal, or primary matter. We shall attempt to show you that every thing, [that is the 3 Kingdoms of Nature] are all made out of one matter; one, simple, primary or universal matter, which is constantly changing out of, and into all the various bodies and substances perceivable by our senses; and hence called, by the poetic Darwin, "immortal matter". We shall endeavour to show you that, strictly speaking, nothing is lost in the world, that the sum total of matter in the Universe remains the same; that as it was the work of Omnipotence to create something out of nothing, so that same omnipotence is required to reduce any thing back to nothing; and here we hope to be able to convince you, that every birth, every recent production, whether animal or vegetable, that daily occurs, is not an absolute fresh creation, an evocation, or calling of something out of nothing, but only a change of



mutation of something w.<sup>c</sup> before existed. In this part of our subject, you will see that every sublunary thing is in motion: nothing is fixed. every thing is passing from us; and we from them: no terrestrial thing is stationary, so that substances of every kind, either immediately, or mediately pass one into another; and reciprocal deaths, dissolutions & digestions support by turns all such substances out of each other.

We shall then speak of the three Kingdoms of Nature; 1.<sup>st</sup> of the Fossil, w.<sup>c</sup> constitutes the crust of the Earth; 2.<sup>d</sup> the Vegetable, w.<sup>c</sup> covers & adorns the face of it; and then the Animal Kingdom, w.<sup>c</sup> enlivens the whole, and shew you that they are all made out of, & will be changed into the same matter.

Next we shall give you a sketch of the most celebrated theories of the Earth, beginning with Bishop Burnets. Then we shall speak of <sup>the formation of</sup> Mountains, and of their use in the great frame of Nature; and shall shew you how they compose a part of that Grand Apparatus w.<sup>c</sup> Nature uses employs for the support & continuation of every organised being, animal as well as vegetable. Here we shall contemplate that never ceasing circulation between the salt ocean and the mountains, through the instrumentality of the atmosphere, and by the medium of rivers to the Ocean again. Here we shall point out to you the dependences, relationships,



relationships & reciprocal uses of the remote parts of the great system of Nature, demonstrating an Unity of design throughout the vast fabric of the world.

After this general view of things, we shall descend to the consideration of particular bodies, and we shall begin with a mineral, as the most simple. From a mineral we shall pass to the consideration of matter, so artfully arranged, as to merit the name of organization. From this state to a vegetating body is an easy transition; for a vegetable occupies, on the scale of beings, a middle space between the animal and mineral nature. And here we shall give you the first principles of the beautiful science of Botany, w<sup>ch</sup> treats of that class of organized bodies, w<sup>ch</sup> cover, diversify & adorn the earth on which we live. We shall anatomize their structure, scrutinize their economy, & trace their propagation from a seed, put into the ground, until <sup>it</sup> they produce a seed again.

At this period of our course we shall discourse on the chain of Beings, or that beautiful system of subordination, w<sup>ch</sup> rises by insensible degrees from the senseless clod <sup>up</sup> to the brightest genius of human kind; and it is here, that Man, who stands at the head of this scale, as master of all sublunary creation, will offer himself to our view. It is here that we shall examine his curious structure & wonderful economy! It is here we shall contemplate the towering faculties of his mind!



From these great and important objects, we shall descend to the smallest & least important, I mean Insects, the most captivating, but least useful part of N<sup>t</sup> History; and here we shall pry into the hidden wonders of the microscopic world; — here our imaginations may be nearly overwhelmed by, what Cicero calls, the "insatiable variety of Nature".

After treating of these minutiae, or out-skirts of Nature, we shall endeavour to raise our thoughts above the surface on which we tread, in order to contemplate those splendid bodies the planets; w<sup>ch</sup> we behold as wandering among the host of Heaven; but which have the Sun for their common centre. Here we shall speak of light & of fire, and of the astonishing phenomena of vegetation & animation, the efficient cause of which is the Sun, — the soul of surrounding worlds; — Here we shall recapitulate the most prominent parts of our course; and speak of the analogy between things "material & "intellectual"; with a view to illustrate the opinion that "this world is a mirror reflecting moral truths".

✓ This then is the out

This



10 This then is the outline of our course of Lectures. We have proceeded in this course during the long space of 20 years alone and unassisted by any establishment, or pecuniary aid, but what has arisen from the subscription of each pupil. We were in hopes that (in the course of 20 years) something would have cast up to relieve the students from this tax; but it not un frequently happens that he who <sup>first stakes out</sup> first breaks the road in an uncultivated region, has his labor only for his reward. —

Such  
This then is the sketch of the course before us; — but previously to all this, we shall give you a concise history of philosophy from the days of Pythagoras to the discovery of the art of printing. We do this in order to shew you how one system has grown out of another, and that the present complete structure of <sup>Natural</sup> philosophy is not the work of one man, or one hundred men, but the result of joint labor, and continued exertions of vast number of industrious philosophers, in different ages of the world, each one seeing farther by standing on the shoulders of his predecessors. — We give you this history, to prevent your over rating the powers of the human mind; and to cure you of that wonder & admiration for great names, & celebrated works, w. is incident to youth. Wonder is the effect of novelty upon ignorance. Wonder is the sus-



suspension of reason, and no human production ought to ex-  
-cite it. We would not have any of you think that you are  
incapable of performing any thing that ever man performed,  
under the same circumstances, & with the like helps.

Should any one enquire why we give three Lectures  
on the history of philosophy, great part of which is as ap-  
-plicable to ~~political~~ <sup>and experimental</sup> moral philosophy, as to Nat<sup>l</sup> History,  
we would inform him, that we originally gave but one,  
but have been solicited, from season to season, to ex-  
-tend, rather yr. contract them. It has been found that tho'  
students may know the general character of Thales, Pythagoras,  
Heraclitus, Democritus & Aristotle, they are not sufficiently acquainted  
with the order of time, & with the improvements w<sup>ch</sup> one Philosopher  
made on the labors & inventions of his predecessors, and with the  
different faces w<sup>ch</sup> the same philosophy assumed in different  
ages. — We may add another reason; — you have all  
different tastes, aims, & pursuits; but there are few of you, very  
few, I presume but ~~that~~ would wish to employ some of your  
liberal leisure in studying the history of the progress of human  
science; for in every profession this knowledge is called for;  
and none of you have sufficient leisure to cull out from  
various authors such a history as we mean to lay before  
you. It is indeed supposed, a more general reading yr. your  
present ~~pursuits~~ occupations can possibly allow of. —

you &c



We would observe to you previously that there has, and always will be two Empires commanding the world. The first is the Empire of Kings & Rulers of States, with those who act under them, as Generals of <sup>ministers</sup> armies & magistrates. The second is the Empire of Learning, or Philosophy: this is a species of eminence, in which distinction arises not from birth, riches, authority, nor elevation of office, but from superior knowledge alone. This forms a new species of Empire, or command, infinitely more extensive than all others; and which lasts when Kings, Conquerors & Legislators are returned to their native dust. 'Tis this last sort of Empire we mean to describe. —

We are apt to over rate that branch of science which we particularly cultivate. It may however be said, without boasting or exaggeration, that N.H. is the most delightful of all the sciences. It fills the mind with the greatest variety of ideas, and its subjects are inexhaustible, for the contemplation of Nature, like that of Religion is ever rising "with the rising mind."

It is From this inexhaustible Volume of Nature, <sup>that</sup> we mean to give you a few extracts, during the present season; — for to



13

to use the words of a poet distinguished for his elegant  
simplicity

—"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.

that those of you who propose to enter with me into this field of <sup>road</sup> ~~scenery~~

Upon entering this ~~branch~~ <sup>road</sup> of scenery, I hope you will

will call home your wandering thoughts, and concentrate them  
on the various subjects of the Lectures; but I hope, at the

same time, that our discourses will not diminish your  
attention to your regular & indispensable studies. We aim

to make our Lectures so many auxiliaries to your  
and as you are ab. entering a course of Egypt. Philology, you will find  
stated exercises. After our late temporary derange-

ment; and after a short paroxysm w<sup>c</sup> unsettled the

minds of too many of you; and w<sup>c</sup> rose to an absolute  
delirium in others, we hope that you will give evidence

of a sane & settled mind, and that your most ardent  
propensity will be a desire for useful <sup>and ornamental</sup> knowledge, and an  
abhorrence of the spirit of insubordination. Indeed our  
subject



subject will teach you, that the Universe itself is a system whose very essence consists in subordination; that no system can possibly be formed, even in imagination without a subordination of parts; and that the beauty & happiness of the whole creation depend altogether on the just inferiority of its parts.

A College is a Nursery; or as it is very happily called "a Seminary", ~~where~~ that is a place where plants are raised & <sup>nourished</sup> from seed, to be afterwards transplanted. Now it is the order of Nature herself, that the seed should remain a certain portion of time in the lap of <sup>Alma Mater</sup> Mother earth, before they can rise into plants, bear fruit, and "wave their leafy honours in the sky:" so that an human institution may expect to flourish if it imitate the general laws of Nature & Providence, where all is order, regularity, and ~~without~~ affinity, combination and perfection!