B. (1809.

The Primary Matter

[∴ is however. ∴ is therefore.]

We spoke in our last lecture of the division of Philosophy into its three great objects - God - Nature & Man. We spoke also of wt Ld Bacon calls the pyramid of the sciences, whose basis is Natl History, but whose apex was too high to be clearly distinguished by the human intellect. We glanced at that chain of ~~beings~~ existence wc unites all beings, and connects all worlds, and wc is, according to heathen mythology, fastened to the foot of Jupiter's throne. We also spoke of that Great Book of Nature, that Sacred Scripture wc is written by the finger of the Deity himself upon every animal, every plant, and every mineral in creation. We spoke of the objects wc usually attract the wondering eyes of youthful curiosity.

We S. that the terraqueous globe wc we inhabit was every where surrounded by the elements, so called; and was made up of the three kingdoms of Nature, viz the Fossil - the Vegetable and the Animal; that these cover, adorn and vary the external crust of our earth: Yet (we observed to you) were they all made out of one matter; one simple primary matter, wc was, and is constantly changing out of and into all the various substances, wc every where, and incessantly meet the observers eye.

We told you, that altho' all things change, yet nothing was lost in creation; the sum total of matter being perfectly the

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the same now, as when this goodly frame first issued from the hands of the Almighty.

We said, that no one, on a moments reflection, could suppose that every birth of an animal, or every production of a vegetable that daily occurs in the world, was an absolute fresh creation; - an evocation - or calling of something out of nothing. On the contrary we s^d, that what is called generation & growth, was a change, or mutation out of something w^c before existed. Now the principles of mutation, or the laws of change was an enquiry that exercised the faculties of the most distinguished philosophers of antient times; and none pursued the investigation with so much success as did Aristotle, the Prince of antient philosophers, and the founder of N. History -

We were speaking of this distinguished personage at the close of our last lecture — We thought it needless to tell you that he was preceptor to Alex^r the great; who allowed him an almost incredible sum of money, to procure rare animals & to perfect N^l Hist^y Plato called him the "Genius of Nature" as if their deity, Nature had made use of Aristotles excellent understanding for her interpreter. Every thing which he has given to the world is so solid & so regular, and there are so many marks of wisdom & judgement in all his thoughts that we cannot help regarding him, in point of talents, among the first of the human race. His stile has been

compleat

*Matter, in the vulgar acceptation of the word, denotes a body that is tangible, visible & extended. But among Philo-sophers it is the substratum of sensible qualities, and is that invisible something, of which all bodies are composed; and in this sense, it is synonymous with element: so that mr is not that wc we immediately see, or handle, but the concealed subject, or support of visible & tangible qualities.

complained of as dry & obscure; but this proceeds more from his subject, and from his peculiar way of diving to the very bottom of things, than from affectation or choice

"Tis difficult beyond ordinary conception to pierce through the thick clouds of nature; to unveil her most retired secrets; to labour in a vast abyss; to pursue truth through ways hitherto unknown & yet be obvious & intelligible to every person," * as you will allow if you accompany us through his investigation of the primary nos & the doctrine of mutation.

We encounter no small difficulty in attempting to give the epitomé of a volume in a few pages. We shall exert ourselves to help you to understand it, or rather to give you a glimpse of it, provided you will, in return, give me your attention. Matter &c (*)

* Rapin's Comp & critique

Matter is that elementary constituent in composite substances, w.c appertains in common to them all, without distinguishing them from one another.

Every thing generated or made, whether by Nature, or art, is generated or made of out of something else; and this something else is called its subject or matter; such is iron to the knife, such is timber to the house.

Now this subject or matter of a thing being necessarily previous to that things existence is necessarily different from it, and not the same: thus iron is not a knife, and timber, as timber not a

house

house; yet iron is the subject or matter of a knife, because tho' not a knife, it may still become one. E. contrario— Timber is not the subject or matter of a knife, because it not only, as timber, is no such instrument, but can never be made one, from its very nature & properties. Hence then one leading character of matter is that of aptitude, or capacity [i.e. it has an aptness to change, or a capacity of taking on another form or quality.]

There can be no [immediate] change of one thing into another, where the two changing beings do not participate the same matter: e.g. a knife may be changed into a chissel; and a chest into a table; but not into a knife. But were the wood of this table to moulder under ground, & turn into earth, and that earth by a natural ~~process~~ subterranean process to metallize & become iron [here] as you see through such a progression indeed as this, we might suppose even this table to become a knife.— Hence ∴ it is, that all change is by immediate, or mediate participation of the same matter. — This we have chosen to illustrate from works of art, as falling more easily under human observation: the principle is ∴ no less certain as to the productions of Nature, tho' the superior subtilty in these renders examples [at this early period of our enquiry] more difficult.

The application.— or rather the Question then is— Whether in the w^c^ world we inhabit, it be not admitted from experience, as well as from the confession of (thorough) Naturalists & Philosophers, that substances of every kind, [whether natural or artificial] either immediately

It is to be presumed, says Cronstedt, in his admirable Essay on Mineralogy, that the Creator made only one kind of matter, from which every thing we meet with in this world has been produced. p. 3. Vol. 1st.

immediately, or mediately pass one into another?—that reciprocal deaths, dissolutions & digestions support, by turns, all such substances out of each other.— The Question, in short, is— whether in this world w.c we inhabit, there be not an universal change, or mutation of all things into all?—If there be, then must there be some one primary Matter, common to all things.— I say some one primary m.r, and that common to all things; since without some such matter, such mutation would be wholly impossible.

Do you perceive, from what has been said, that there must, necessarily have been One primary m.r out of which all things are made?— 'Tis true the primary m.r is a being that flies the perception of every sense; and is at best, even to the intellect a negative object; no otherwise comprehensible y.n either by analogy or by abstraction; for matter in its primary form was never seen by Adam or his descendants—

We obtain a sight of it by analogy, when we say "that as the Brass to the Statue, the Marble to the Pillar, the Timber to the ship, or any other secondary m.r to any peculiar form, so is the primary or original matter to all the various bodies in the universe

We gain a glimpse of it by that operation of the mind denominated, by metaphysicians, abstraction, when we say, that the primary matter is not the lineaments & complexion w.c makes the beautiful face; nor yet the flesh & blood w.c make those lineaments & that complexion; nor yet the liquid & solid, or food elements w.c make that flesh & blood; nor yet the simple bodies of earth & water

A Lady's hanchief she may see again in the form of a love letter —

A Lady may see her hanchief again in the form of a love letter —

w.^c make those various articles on w.^c we feed; but something w.^c being below all these & supporting them all, is yet different from them all, and essential to their existence. You see already that this disquisition goes deeper than the art of chemistry, or what is vulgarly understood by Natural History. In short, it is the foundation of Ld Bacon's Pyramid. — Aristotle tells us that privation & capacity are essential to this changeable substance, this fund, w.^c is continually undergoing the coinage of Nature and on which She stamps such an infinity of impressions!

Now there never was a Philosopher, ancient or modern, who used so close & aphoristical a stile as Aristotle: what others would diffuse through a page, he expresses in a single line. He says privation & capacity are essential to this ever changing substance, & there he leaves it. Now it is very difficult to convey to you his meaning. We shall:: try; and what we cannot convey to your intellect by words, we shall endeavour to exhibit to your eye sight senses. The meaning is that this first or original matter, is at all times liable to be deprived of its then form or quality; and is, & will be forever capable of receiving new qualities & new forms. The antient poets who personified everything, prefigured this doctrine under the name of Proteus, the God of change, a kind of subordinate Deity in the service of nature; but then, they meant by Proteus, more y.^n the primary m.^r they meant the effecient cause, or that active something, w.^c actuates inert matter. [e.g. Examples Calom & Vol. Alk & ida

e.g. Iron & copper — Cal. & Vol. Alk. Gum Tol. & Water — Galls. Sal Martis & Water — Offa Helmontiana &c &c

The antient Poets represented the primary Mr. of which we have been speaking, under the character of Proteus. You all know that it is the custom of Poets to give to abstract truths a body; and to cloath it in the drapery of allegory: and almost all the fables of the poets, are philosophic opinions personified & thus dressed up.

It is said in the fable of Proteus, that he had his herd of seals, or sea-calves, on the sea shore; - that 'twas his custom to tell these over every day, & then to retire into a cavern of the rocks & there repose himself. Whoever desired his assistance must first catch him in a net or chains & hold him fast; for when at liberty he would turn himself into all manner of forms; not only into the shapes of birds, beasts & reptiles, but sometimes into fire, sometimes into water, till at length he is restored to his primary or original form again.

Of this fable Lord Bacon gives the following explanation. - - that under the person of Proteus is signified matter, the most antient of all things next the DEITY. - that the herd of Proteus is nothing else than the ordinary species of animals, plants & minerals, into w.c matter appears to dif- -fuse & consume itself. [observe that Proteus & his herds were from the Ocean; alluding to the doctrine of antient, as well as modern times, that animated nature came from the fountains of the deep; and the fable of Venus (the vis genetrix) rising out of the sea bears the same signification]

Virgil referred to this philosophy (as explained by L. Bacon) when he says of Proteus

"Omnia transformat sese in miracula rerum:
"Ignemque, horribilemque feram, fluviumq. liquentem."

and Homer says of Proteus, that "He became each living thing

that

creeps on earth; he will glide a liquid stream, or blaze a flaming
"fire". Eustatius, one of Homer's best commentators, says on this
passage, that it means Proteus, or primary mr. w.c is the recep-
-tacle of forms; that which being in actuality, no one of these
forms, is in capacity all of them. He speaks further of Eido-
-thea, the daughter of Proteus, or the principle of motion, or that
"spirit" w.c moves & actuates, & throws into shape, what was
inactive & shapeless; a subject of the greatest importance in
this course of lectures.

We have S. that matter was that elementary constituent in
composite substances, w.c appertains in common to them all,
without distinguishing them from one another; and Form is that
elementary constituent in every composite substance, by which it
is distinguished & characterised, and & is commonly called Species
& known from every other.
But you must not confound form with the shape of things.
Now what we in modern days term qualities, Aristotle,
and the ancients termed form. We say that a body consists
of matter & qualities; and when Aristotle says that body
is composed of matter & form, he meant the same thing.

One of more of Aristotle — He says the first & most simple
of all extensions is a line. This when united with a second
extension makes a superficies; and these two existing toge-
-ther, with a third make a solid. Now a solid & complete
extension, we call the first & simplest Form; and when this
first & simplest ~~exceeds~~ Form accedes to the first & simplest
matter, the union of the two produces Body; w.c is, for that
reason called "matter triply extended. and thus you see the
rise of pure, or original body.

But even under this character, it is scarcely
to be made an object for scientific contemplation. 'Tis necessary to

to this end that its extention should be bounded; for as yet we have treated it without such regard. Now the bound, or limit of simple Body is Figure, w.ch is the next form or attribute after Extention. In Body thus bounded by Figure, every other of its attributes being abstracted & withdrawn, we behold that species of Body, called Body Mathematical; a name so given to it, because the mathematician as such, considers no other attributes of body, except it be those two primary, its extension & Figure. [But you must remember that figure & form are not the same, for the latter means the essence of a thing & not its shape or figure.]

But tho' the bounding of body by figure is one step towards rendering it more definite & knowable, yet it is not sufficient for the purposes of Natural History & Chemistry. 'Tis necessary here that not only the external should be duly bounded, but that a suitable regard should be likewise had to its internal

This Internal adjustment, disposition, or arrangement, [denominate it w.ch you will] is call Organization, and may be considered as the third form, or attribute w.ch appertains to Body. By its accession we behold the rise of Body Physical, or Natural; for every physical or natural body is, some way or other, organized. [not excepting even minerals.]

And thus we may affirm that these three, that is to say, Extension, Figure and Organization are the three original forms or attributes of Body Physicae, or Natural; Figure having respect to its external; organization to its internal, and Extension being common both to the one & the other.

It is probable, nay more w.t probable, that from the variation in these universal, and as we may say primary forms or attributes arise most of the secondary forms, usually called Sensible qual

*We answer that it is done to shew you first, how closely some of the antient Philosophers laid their eyes to Nature; and with what logical precision they pursued their investigations of natural things. 2dly We frequently meet with this doctrine, or allusion to this doctrine in books of Nat. Hist.y & of Chemistry, &c. is totally unintelligible without some general idea, at least, of this primary & doctrine of mutation. I have never met with a single chemical author or any author on mineralogy, written within these last 100 years that enters into it; and yet the very science & art of Chemistry rests upon it and grows out of it, as much as a tree grows out of its own root. This doctrine has been abused & misapplied; for the delirious pursuit of the transmutation of metals, or the art of making gold sprung out of this doctrine; and when this sordid pursuit of the Philosopher's stone was ridiculed out of the world, this doctrine was ridiculed also. Newton - Bacon - Boyle - & Locke & Priestley believed it. But I know of no very modern writer who has expressly avowed it, excepting it be that admirable Chemist & Prince of Mineralogists Cronstadt, who says "It is to be presumed that the Creator made only One kind "of matter from w.c every thing we meet with in this world is made"

Beside it does not follow that no subject is useful that we cannot explain. It is beneficial to discuss certain topics subjects, & make them the subject of our thoughts & conversation. Some may even pass through life without ever once thinking of this doctrine of mutability.

qualities, such as the tribes of colours, tastes & odours; as well as those powers, or characters more subtile, as the powers Electric, — magnetic, & Medicinal. — You see (G.) that this enquiry, or stile of enquiry leads us out of the ordinary road of N.H., into the inmost recesses of Nature. It leads us deeper yn. the Science of Mineralogy, or even chemistry. It carries us to the substratum or foundation of the Pyramid, spoken of by L. Bacon.

Should any one enquire, to what good object does this subtile disquisition lead? What benefit can be derived from reviving from the dead this antiquated doctrine of Aristotle, respecting the one original matter; and its capability of infinite & everlasting change? *. — I answer — that it is done to shew you how much more closely he laid his eye to Nature, yn. we are habituated to, in these modern days; and with what logical precision he displays this most abstruse of all human enquires. It is done also, to remind you that Aristotle ~~is~~ has ~~much~~ as just a right to be called the father & original founder of N. Hist.y as the father & founder of Logic & of Rhe-thoric. We have moreover another reason —: We frequently meet with allusions to this doctrine in almost every good writer on Nat.l History & Chemistry; but these allusions must be totally inintelligible ~~without~~ without some idea of this old & famous doctrine; a doctrine w.c Cicero embellished with his masterly pen, without ever attempting to call its theory in question. Those who have read the ~~works~~ volumes of that beautiful painter of the works of creation, the Count Buffon, or those may hereafter read them, may discover an encreasing homage to the name & labors of Aristotle; w.c that illustrious Frenchman appears to have felt more & more, in proportion as he advanced in the study of Nature.

Aristotle

of nature. We are absolutely indebted to this wonderful man for the system, or ~~classification~~ arrangements of terrestial beings into classes orders, Genera and Species. Who but such a mighty genius as Aristotle, would have attempted the methodical delineation of the vast region of human thought & knowledge, actual & possible? or who but this famous Stagarite w.d have attempted to point out the limits of every district of Nature? We shall dwell longer on this prodigy of human nature, when we come to speak of the principles or physiosophy of the System a Naturea.

Beside the doctrines of Aristotle, you will not unfrequently hear the doctrines of Plato alluded to. Being cotemporary with Aristotle, he bent his mind to the same subject, viz matter & motion; but he treated them in a different man. Aristotle's manner was logical & dry; whereas the stile of Plato was figurative, poetical, and sometimes bordering on rapsody. The outlines of his doctrine are given us by the Abbe Barthemey": but we must postpone this subject to the close of our next lecture, in order to give place here to our doctrine of the Effecient cause; or that Principle of Motion, w.c actuates, & throws into shape, that matter, w.c of itself is inactive & shapeless: for the youngest of you must know that matter cannot move itself; the mind revolts at the idea of moving matter without a mover. We are now led to contemplate this Motive principle. And here we shall view things in a nobler light yn that of a passive element. 'Tis here our subject assumes the dignity of a living motive power; a power destined by its nature to act, and not to be acted upon; to use, and not to be used. We have spoken of matter, and here we must speak of Spirit, or that Effecient cause, w.c is

the Primum Mobile of all you see in creation! For as there was a primary matter, so was there a primary Life, that like the latent oxygen in the egg, when combined with heat develloped this goodly frame of the world!

"Who ere the morn of Time,
"On wings outstretch'd, o'er Chaos hung sublime;
"Warm'd into life the bursting egg of Night,
"And gave Young Nature to admiring Light!

[Darwin's Temple of Nature]

Lest we should puzzle you as much with this primary Life, as I fear, we have with the primary matter, we shall postpone its discussion to our next lecture

The Aristotelian Doctrine is principally from James Harris's Philosophical Arrangements.

The time must have been when an animal was produced without a parent, and a vegetable without a seed. at this time the world must have been in-
-fluenced by a power different from any it possesses at present; for ~~now~~ no such power is now to be found in any part of the globle (Enc. Earth 124)

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