

March
1767

Gen^t

I have now finished the course of Natural philosophy, which I proposed to you at the beginning, and what I am now going to offer is a few reflections on the whole.

Whatever censures the vulgar multitude may pass upon Studies made into the disposition and nature of things. The beauty and harmony of the Creation. I am persuaded that knowledge is sufficient to recommend itself, so soon as it is attained, and to maintain its own dignity in the face of all the insults of the Ignorant & Malicious. Can any thing afford more suitable pleasure to the human mind, (which is eager after knowledge, and pursues Vanity with so much ardour,) than to be admitted (if I may be allowed the expression) into the secret councils of Providence? — To see by what Laws and stated methods, an infinite number of changes are produced, without breaking in one upon another with confusion. If the face of nature be lovely to an eye which only sees a few of the effects, without penetrating into the causes which occasion them; how much more noble will the view be to a mind instructed to trace over the various steps in the construction of this astonishing world on which we live! How do wonders multiply upon us, and new scenes of beauty and order surprise us in Disquisitions made into the scale of Beings, and how equally does the same Law, which regulates the greatest Bodies of the universe, preserve the place and harmony of the most minute particle of matter. — To put this into a clear point of light, let us trace back the great Law of Gravitation. — If we reflect upon the structure of the Heavens, so far

as

as our Planetary System is concerned, how admirably
Gravity there seem to bind the orbs together, and as it
would to would, and yet to keep them at their due and
original distance, making them find the places from where
they set out, with infinitely greater accuracy, than can
be imitated by human art! — The same property of Gra-
vitation, which thus influences the celestial bodies, keeps our
Terrestrial planet together, binds in all its mass of matter,
and firmly unites it into a dense Ball, and not only so, but
perfectly adjusts all its parts in the most commodious man-
ner for promoting the pleasure of its Inhabitants. — If
the Atmosphere were not heavy, ^{consequently} no vapour could ascend
from the Earth, and we should have neither dew nor rain
to cherish us, but a perpetual drought would parch up the
Ground; in short, without Gravity the world would return
to its ancient Chaos and confusion, and all parts of matter
would fly asunder, nor would Heat or Cold, dry or humid,
soft or hard, be distinguished in the Creation. — All there-
fore see that the Deity has so disposed and adjusted the frame
of ^{this} World, that the highest and lowest concerns in it are managed
under the same Laws. This very well agrees with our notions
of infinite wisdom and power, which will act in the nearest
way, to bring about the end and the thing proposed. — And
yet, Gen^l. notwithstanding this, tho' we can discover so much
of the ways of Nature, and thereby to be brought to make pro-
bable conjectures, at more remote operations, yet we always are
lost in the mass of things. We certainly know that where
all the parts of a body have liberty to follow the direction of its
Gravity.

Gravitation, That Body will be formed into a Sphere, as are the
Planets. Hence it is we suppose the constituent parts of most
Fluids may be globulous, but as we pursue that thought, and
consider that all matter appears indefinitely divided by pores,
we lose ourselves at last in the succession, and can never bring
our Hypothesis to any certain conclusion. — If we begin with
Bodies of the same magnitude with our own, and descend in-
to the scale of Existence below us, we shall find the progress-
ions to lead us gradually down, till our bare senses are not
able to assist us any longer. If then we make use of Glasses, a
new succession of Bodies immediately rise up into magnitude,
too minute for the naked eye; but even the help of Microscope
comes to an end, as did our unassisted lines; we then pursue by
the strength of imagination, but ^{we} also here find no end of the jour-
ney, our weary fancies at last sit down, while an infinite series
of things remain still behind, that mock the utmost efforts of
our Faculties. — If we again set out anew, ascend from ourselves,
and lift our eyes into the immensity of ^{the} Heavens, and consider one
world after another, till we complete a system, other systems
probably lie still more remote. — The distances and magnitudes
of the Bodies in our System, Mathematicians can pretty cer-
tainly calculate. We cannot suppose that all these Bodies are
desolate and uninhabited; we find by experience ^{animation} that al-
most every part of our Globe, ^{we} is swarmed with animals, and it is
preposterous to imagine that such vast quantities of matter,
as several of the other planets contain, should serve for no
other use, but as a faint spangle for mortals to gaze at, more
especially

especially, as they are as well disposed for Inhabitants as ours, revolving as regularly about the same sun, attended with moons, and regulated by the same Laws. So is our speculation stop't here, we easily run over all the planetary Systems, see new suns enlivening other worlds, and these no doubt inhabited as ours. What an astonishing prospect is here opened to us! To the hosts of Stars discovered by the naked eye, we add these found by Glasses; our imagination assues us still further till we are quite swallowed up in the immensity of the subject. here we have suns, worlds, and systems multiplied about us till the giddy fancy turns round, and is entirely sunk in the abyss of Nature!

Thus, Gent., it is human nature, what way so ever we turn round, we find we are only capable of stretching ourselves in a narrow sphere, (I say narrow in comparison of the infinity beyond our reach,) just as when we look upon the sky, we imagine the canopy to open its concavity directly upon us, & the spot where we stand to be the center of it; just so we look upon eternity itself, and we cannot imagine ourselves otherwise, than existing every moment of our lives directly in the middle between all duration past, and all duration to come. — Nevertheless, tho' our scanty thoughts are thus confined to short limits, and can only trace the chain of things, and reflect upon the ways of Providence imperfectly; yet it must give an high and rational delight to the mind, in those boundless excursions, which she finds herself lost in: they at once teach us to be humble, and teach us to be wise, to be modest.

modest concerning our own abilities, and to pay suitable ad-
oration to that being, who sits at the head of these things, and
easily holds the utmost extents of the universe in himself,
and comprehend at once the whole scope of the Creation,
seeing at once the entire chain of Being from its lowest and
most minute circumstance to its highest and most amazi-
ng Phenomena. — This indeed is the greatest and sublimest
part of philosophy; for tho' all the affairs of Mankind
some way or other depend upon Mechanical principles,
and are consequently subjects of Natural philosophy,
yet the dignity of human nature evidently points out
something further than what is mechanical, and seems
to be adapted for the entertainment of more refined
knowledge than the mere concerns of the groveling
business of life. If we should turn our thoughts a little
from Natural, to Moral philosophy, and make a few
Metaphysical disquisitions into our animal nature,
and the constitutions of our minds, we should find the
Laws which govern the human intellect have a great
resemblance to the Laws which govern the Bodies of the
external world, and that the natural, and moral ^{Creation} laws
have a certain correspondence of parts: Thus the human Soul
appears to grow and increase in understanding, as plants
and Animals do in magnitude, and as a mutual attrac-
tion holds together the portion of Matter, so mutual <sup>re-
pulsion</sup> holds together the portion of Spirit, and

and engagements lays the foundations of and maintains
Society again. Some bodies have particular influence upon
each other, as in the case of the Magnet, and Electricity,
so in ^{the} moral world particular souls incline to one another,
and form more intimate bonds of love and friendship.
Reflections of this kind, the enquirer into nature is capa-
ble of making continually, and they will always be
pleasing to good men, and true scholars, for these will
also lead us up to the first cause of this harmony, the
Author of such a steady Uniformity amidst an infinite
variety. — The vulgar eye as Thomson beautifully
expresses it looks on this with

“Brute inconscious gaze.

He looks upon the Earth as a wide extended plain, of
whose dimensions no notions is to be formed. A place to eat
and Drink in, to Dudge and Mool in, or perhaps to course
a Hare, or hunt a Fox upon. — The Sun as a small ball
of fire. — The moon as a sort of luminous cheese. — The Stars
as a company of sparkling things, about the bigness of
a large Diamond, or a lady's eye. — But how much more
excellently does Philosophy teach us to open our minds,
by it we enlarge our Ideas, and our conceptions begin to
view our Earth a planetary orb, attended by another,
and moving in concert with more, round a stupendous
Body of light placed in the centre of ^{the} system to nourish
them with light and heat. —

The fixed Stars again are suns and centers of new Systems, and perhaps several of these Systems go to make up some other superior Machine, in the presence of their Author, who remains always great enough from an infinite Succession of increasing Systems, spread thro' the immensity of space.

If again we drop ourselves down on our native Earth, an infinite series of wonders rise up before us in new considerations: Examine but a leaf or a flower there is matter for ages of contemplation and the same law still uniformly preserved, is the natural attraction of Matter which makes all bodies cohere and maintain any distinct form: The very Idea of sound could not be produced without it: nay even the beautiful variation of colours depend wholly upon it: for we have seen that all reflections & refractions of light are occasioned by the attractions of the Medium which the Rays approach to & pass thro': wherefor it is the same principle which binds together the whole frame of the universe, that also points out the beauties of the Lillior Tulip and carries abroad the soft effluvia of the Rose —

It is the same great law that for so many thousand years has preserved the harmony of Nature, and the stated periods of the planets, that also teaches the strings of the Lyre to tremble and modulates the sound of the flute. — It is by the same property that the bubbling stream murmurs, and the soft dew silently bathes the flowers: so identical and uniform is the great cause of all things!

Gent.^m
Contemplations of this kind have no pence, and a
Philosopher can never be at a loss to employ his thoughts
agreeably and to cry out with fresh rapture at every
discovery he makes.

These are thy glorious &c
And let no man with impious ingratitude dare to
charge his benign Maker with the intention of mak-
ing unhappy even here. Does not the Earth like a
kind Mother pour out with increasing bounty, every
thing that his ^{own} corrupted nature requires? Has he not a
Soul susceptible of all those charms and Beauties
which nature throws continually in his way? Are not
his social intercourses with his fellow creatures and
even that Imagination and reflection which attend
his solitary hours, sources of never failing Delight?
Does not novelty perpetually solace his inquisitive
mind, and Hope anticipate the Blessings which futuri-
ty has in store for him? To call this a vale of Tears,
the Shadow of Death, a Scene of Sorrow, &c may an-
swer some purposes in Civil Institutions which become
not me to investigate, but I affirm with boldness that
the Gospel of Christ breathes nothing but Cheerfulness
and Goodwill towards men. That every scene in nature
is calculated to inspire him with Good spirits and a lively
Gratitude. And that however Ignorant (And I will
venture to say impious) Beasts may represent life and its great
Author

Author even from the pulpit. The voice of Nature cries aloud
thro' all her variety That Man need not be unhappy except
he pleases to make himself so, by adopting Artificial Wants
instead of natural Ones - Or by stepping over the simple
tho' wise Limits in which his nature has circumscrib'd
him.