

The theory of the earth: containing an account of the original of the earth, and of all the general changes which it hath already undergone, or is to undergo, till the consummation of all things. The two first books, concerning the deluge and concerning paradise / [Thomas Burnet].

Contributors

Burnet, Thomas, Sir, 1632?-1715?

Publication/Creation

London : Printed by R. Norton, for W. Kettilby, 1684.

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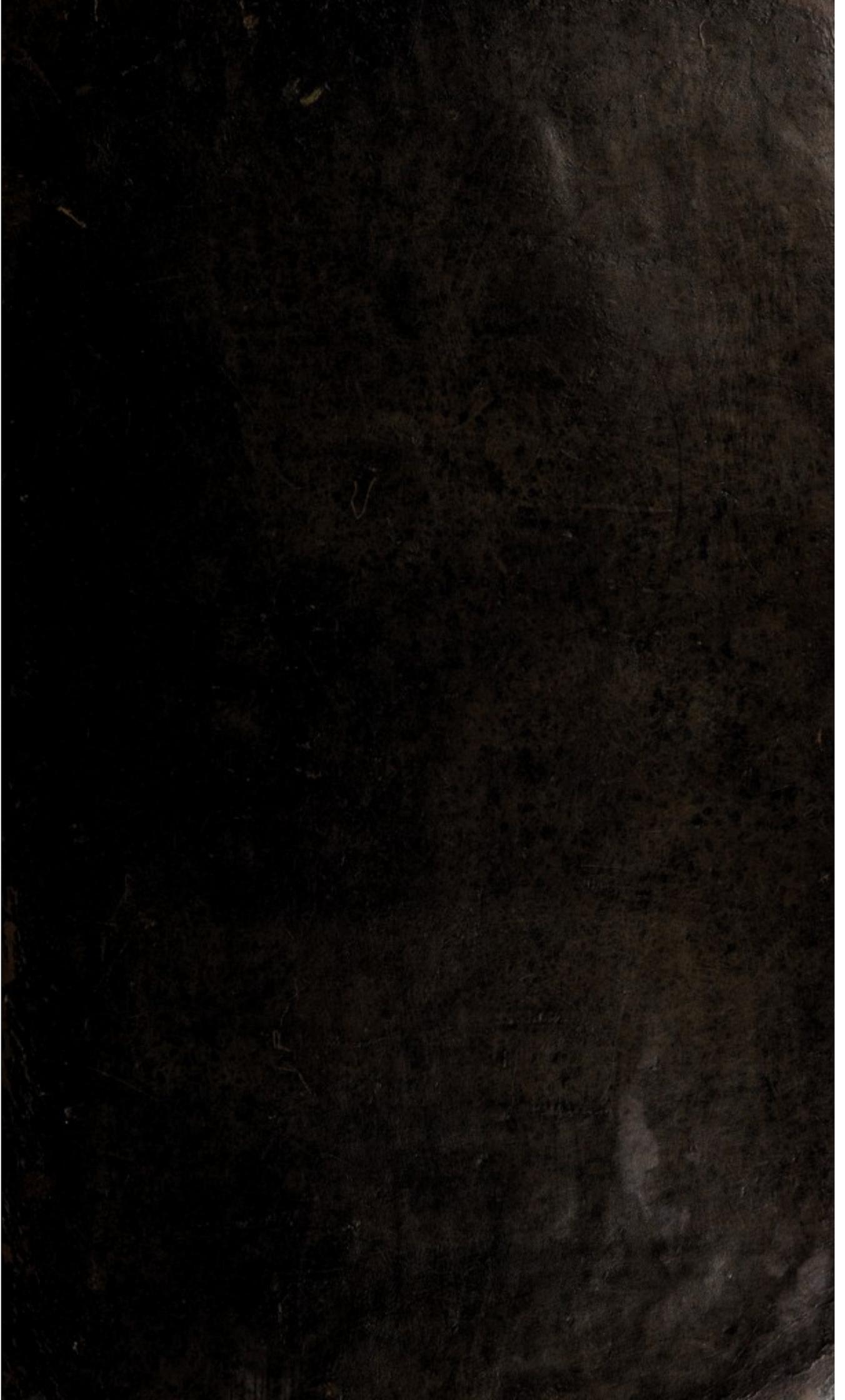
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BURNET

On M^{rs} F. who dyed on twelfth day,
or the day of the Kings.

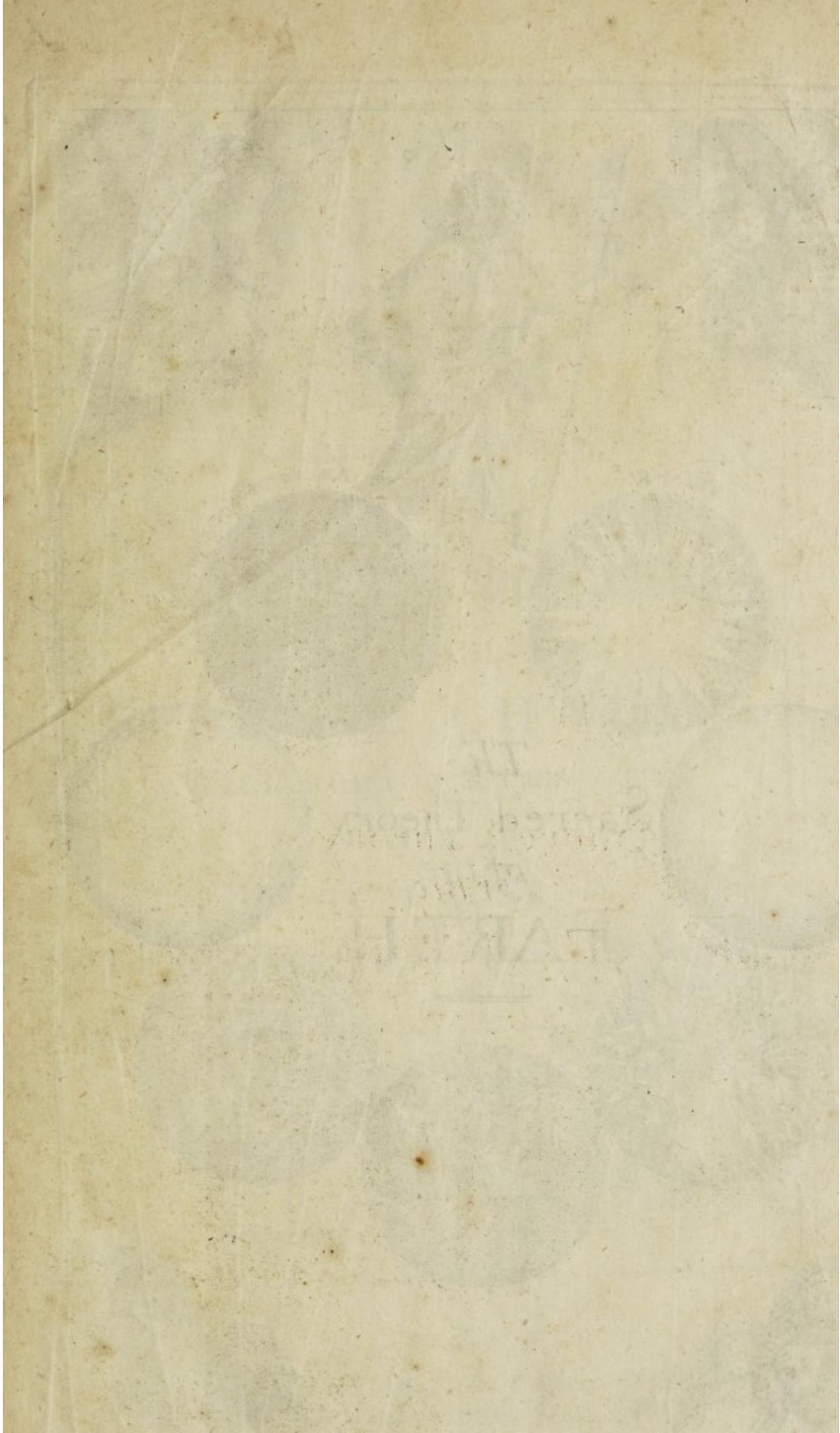
shee's gone, whoos goodnes did impart
to all was good; in eury heart,
an active sence of piety
by an impulsive sympathy.

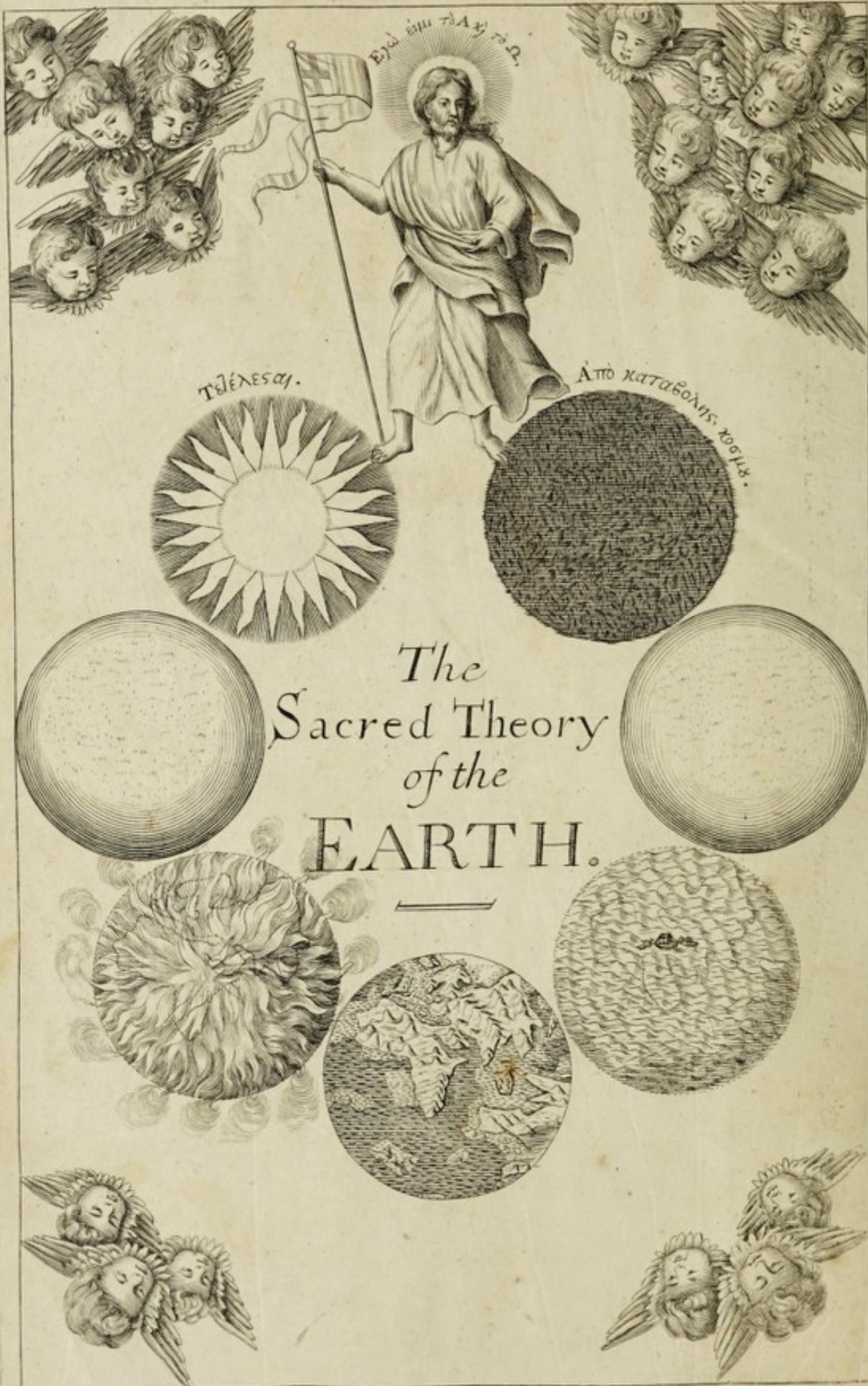
shee joy'd all that wee goods account,
Compar'd them, found ill's far surmount,
left all, went to their court above,
was introduc't with joy, and love.

while heer, I thinck it really,
shee li'd, (curs on mee if I ly)
unparaleld. so then, this, and no more,
nor life, nor death, ere brag'd like prise before.

Jan: 8th 1685

on the way of the King
There are three things
to be done in every
in the same sense of
in an impulsive
account of that
company's affairs
left all to their
was introduced into
which were
see the
papers
in the
1702





THE
THEORY
OF THE
EARTH:

Containing an Account

OF THE

Original of the Earth,

AND OF ALL THE

GENERAL CHANGES

Which it hath already undergone,

OR

IS TO UNDERGO,

Till the CONSUMMATION of all Things.

THE TWO FIRST BOOKS

Concerning The DELUGE,

AND

Concerning PARADISE.

L O N D O N,

Printed by *R. Norton*, for *Walter Kettilby*, at the Bishops-
Head in *S. Paul's Church-Yard*, 1684.



*Thomas Foley of Great
Witley Court in the County
of Worcester Esq.*



TO THE
KING'S
MOST
Excellent Majesty.

SIR,



*NEW-found Lands and Countries ac-
crew to the Prince, whose Subject
makes the first Discovery; And ha-
ving retriev'd a World that had been
lost, for some thousands of Years, out
of the Memory of Man, and the Records of Time,
I thought it my Duty to lay it at Your Majestie's
Feet. 'Twill not enlarge Your Dominions, 'tis past
and gone; nor dare I say it will enlarge Your
Thoughts; But I hope it may gratifie Your Princely
curiosity to read the Description of it, and see the
Fate that attended it.*

*We have still the broken Materials of that first
World, and walk upon its Ruines; while it stood,
there was the Seat of Paradise, and the Scenes of the
Golden Age; when it fell, it made the Deluge;
And this unshapen Earth we now inhabit, is the
Form*

The Epistle Dedicatory.

Form it was found in when the Waters had retir'd, and the dry Land appear'd. These things, Sir, I propose and presume to prove in the following Treatise, which I willingly submit to Your Majesty's Judgment and Censure; being very well satisfied, that if I had sought a Patron in all the List of Kings, Your Contemporaries, Or in the Roll of Your Nobles, of either Order, I could not have found a more competent Judge in a Speculation of this Nature. Your Majesty's Sagacity, and happy Genius for Natural History, for Observations and Remarks upon the Earth, the Heavens, and the Sea, is a better preparation for Inquiries of this kind, than all the dead Learning of the Schools.

Sir, This Theory, in the full extent of it, is to reach to the last Period of the Earth, and the End of all things; But this first Volume takes in only so much as is already past, from the Origin of the Earth, to this present time and state of Nature. To describe in like manner the Changes and Revolutions of Nature that are to come, and see thorough all succeeding Ages, will require a steady and attentive Eye, and a retreat from the noise of the World; Especially so to connect the parts, and present them all under one view, that we may see, as in a Mirrour, the several faces of Nature, from First to Last, throughout all the Circle of Successions.

Your Majesty having been pleas'd to give encouragement to this Translation, I humbly present it to Your Gracious Acceptance. And 'tis our Interest, as well as Duty, in Disquisitions of this Nature, to Address our selves to Your Majesty, as the Defen-
der

The Epistle Dedicatory.

der of our Philosophick Liberties; against those that would usurp upon the Fundamental priviledge and Birth-right of Mankind, The Free use of Reason. Your Majesty hath always appear'd the Royal Patron of Learning and the Sciences, and 'tis suitable to the Greatness of a Princely Spirit, to favour and promote whatsoever tends to the enlargement of Humane Knowledge, and the improvement of Humane Nature. To be Good & Just, and a Lover of Knowledge, are, methinks, two of the most amiable things in this World; And that Your Majesty may always bear that Character, in present and future Ages, and after a long and prosperous Reign, enjoy a blessed Immortality, is the constant Prayer of

YOUR MAJESTY'S

Most Humble and most
Obedient Subject,

THOMAS BURNET.

P R E F A C E
T O T H E
R E A D E R.

HAVING given an account of this whole Work in the first Chapter, and of the method of either Book, whereof this Volume consists, in their proper places, there remains not much to be said here to the Reader. This Theory of the Earth may be call'd *Sacred*, because it is not the common *Physiology* of the Earth, or of the Bodies that compose it, but respects only the great Turns of Fate, and the Revolutions of our Natural World; such as are taken notice of in the Sacred Writings, and are truly the Hinges upon which the Providence of this Earth moves; or whereby it opens and shuts the several successive Scenes whereof it is made up. This *English* Edition is the same in substance with the *Latin*, though, I confess, 'tis not so properly a Translation, as a new Composition upon the same ground, there being several additional Chapters in it, and several new-moulded.

As every Science requires a peculiar Genius, so likewise there is a Genius peculiarly improper for every one; and as to Philosophy, which is the Contemplation of the works of Nature, and the Providence that governs them, there is no temper or Genius, in my mind, so improper for it, as that which we call a *mean* and *narrow Spirit*; and which the *Greeks* call *Littleness of Soul*. This is a defect in the first make of some Men's minds, which can scarce ever be cor-

THE PREFACE.

rected afterwards, either by Learning or Age. And as Souls that are made little and incapacious cannot enlarge their thoughts to take in any great compass of Times or Things; so what is beyond their compass, or above their reach, they are apt to look upon as Fantastical, or at least would willingly have it pass for such in the World. Now as there is nothing so great, so large, so immense, as the works of Nature, and the methods of Providence, men of this complexion must needs be very unfit for the contemplation of them. Who would set a purblind man at the top of the Mast to discover Land? or upon an high Tower to draw a Landskip of the Country round about? for the same reason, short-sighted minds are unfit to make Philosophers, whose proper business it is to discover and describe in comprehensive Theories the *Phænomena* of the World, and the Causes of them.

This original disease of the Mind is seldom cur'd by Learning, which cures many others; 'Tis like a fault in the first *Stamina* of the Body, which cannot easily be rectified afterwards. 'Tis a great mistake to think that every sort of Learning makes a man a competent Judge of Natural Speculations; We see unhappy examples to the contrary amongst the Christian Fathers, and particularly in *S. Austin*, who was unquestionably a man of Parts and Learning, but interposing in a controversie where his Talent did not lie, show'd his zeal against the *Antipodes* to very ill purpose, though he drew his Reasons partly from Scripture. And if within a few Years, or in the next Generation, it should prove as certain and demonstrable, that the *Earth is mov'd*, as it is now, that there are *Antipodes*; those that have been zealous against it, and engag'd the Scripture in the Controversie, would have the same reason to repent of their forwardness, that *S. Austin* would have now, if he was alive. 'Tis a dangerous thing to engage the authority of Scripture in disputes about the Natural World, in opposition to Reason; lest Time, which brings all things to light, should discover that to be evidently false which we had made Scripture to assert:
And

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And I remember *S. Austin* in his Exposition upon *Genesis*, hath laid down a rule to this very purpose; though he had the unhappiness, it seems, not to follow it always himself. The reason also, which he gives there for his rule, is very good and substantial: *Gen. ad lit. lib. 1. c. 19. Plerumque accidit ut aliquid de Terrâ, de Cælo, de cæteris hujus mundi elementis, &c. Cum enim quehquam Christiano-*

For, saith He, if the Unbelievers or Philosophers shall certainly know us to be mistaken, and to erre in those things that concern the Natural World, and see that we alledge our (Sacred) Books for such vain opinions, how shall they believe those same Books when they tell them of the RESURRECTION of the Dead, and the World to come, if they find them to be fallaciouſly writ in such things as lie within their certain knowledge?

rum in cære quam optimè nôrunt, errare deprehenderint, & vanam sententiam suam ex nostris libris asserere, quo pacto illis libris credituri sunt de Resurrectione Mortuorum, & spe vitæ aterna regnôque cælorum, quando de his rebus quas jam experiri vel indubitatis numeris percipere potuerunt, fallaciter putaverint esse conscriptos?

We are not to suppose that any truth concerning the Natural World can be an Enemy to Religion; for Truth cannot be an Enemy to Truth, God is not divided against himself; and therefore we ought not upon that account to condemn or censure what we have not examin'd or cannot disprove; as those that are of this narrow Spirit we are speaking of, are very apt to do. Let every thing be tri'd and examin'd in the first place, whether it be *True* or *False*; and if it be found false, 'tis then to be consider'd, whether it be such a falsity as is prejudicial to Religion or no. But for every new Theory that is propos'd, to be alarum'd, as if all Religion was falling about our Ears, is to make the World suspect that we are very ill assur'd of the foundation it stands upon. Besides, do not all men complain, even These as well as others, of the great ignorance of Mankind? how little we know, and how much is still unknown? and can we ever know more, unless something new be Discover'd? It cannot be old when it comes first to light, when first invented, and first propos'd. If a Prince should complain of the poorness of his Exchequer, and the scarcity of Money in his Kingdom, would he be angry with his Merchants, if they brought him home a Cargo of good Bullion, or a Mass of Gold out of a foreign

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foreign Country ? and give this reason only for it, *He* would have no *new Silver* ; neither should any be Currant in his Dominions but what had his own Stamp and Image upon it : How should this Prince or his People grow rich ?

Fabula narratur, mutato nomine, de te.

To complain of want, and yet refuse all offers of a supply, looks very sullen, or very fantastical.

I might mention also upon this occasion another Genius and disposition in Men, which often makes them improper for Philosophical Contemplations ; not so much, it may be, from the narrowness of their Spirit and Understanding, as because they will not take time to extend them. I mean Men of Wit and Parts, but of short Thoughts, and little Meditation, and that are apt to distrust every thing for a Fancy or Fiction that is not the dictate of Sense, or made out immediately to their Senses. Men of this Humour and Character call such Theories as these, Philosophick Romances, and think themselves witty in the expression ; They allow them to be pretty amusements of the Mind, but without Truth or reality. I am afraid if an Angel should write the Theory of the Earth, they would pass the same judgment upon it ; Where there is variety of Parts in a due Contexture, with something of surprising aptness in the harmony and correspondency of them, this they call a Romance ; but such Romances must all Theories of Nature, and of Providence be, and must have every part of that Character with advantage, if they be well represented. There is in them, as I may so say, a *Plot* or *Mystery* pursued through the whole Work, and certain Grand Issues or Events upon which the rest depend, or to which they are subordinate ; but these things we do not make or contrive our selves, but find and discover them, being made already by the Great Author and Governour of the Universe : And when they are clearly discover'd, well digested, and well reason'd in every part, there is, methinks, more of beauty in such a Theory, at least a more masculine beauty, than in any Poem or Romance ; And that solid truth that is at the bottom,

gives

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gives a satisfaction to the Mind, that it can never have from any Fiction, how artificial soever it be.

To enter no farther upon this matter, 'tis enough to observe, that when we make Judgments and Censures upon general presumptions and prejudices, they are made rather from the temper and model of our own Spirits, than from Reason; And therefore, if we would neither impose upon our selves, nor others, we must lay aside that lazy and fallacious method of Censuring by the Lump, and must bring things close to the test of *True* or *False*, to explicit proof and evidence; And whosoever makes such Objections against an *Hypothesis*, hath a right to be heard, let his Temper and Genius be what it will. Neither do we intend that any thing we have said here, should be understood in another sence.

To conclude, This Theory being writ with a sincere intention to justify the Doctrines of the *Universal Deluge*, and of *Paradise*, and protect them from the Cavils of those that are no well-wishers to Sacred History, upon that account it may reasonably expect fair usage and acceptance with all that are well-dispos'd; And it will also be, I think, a great satisfaction to them to see those pieces of most ancient History, which have been chiefly preserv'd in Scripture, confirm'd a-new, and by another Light, that of Nature and Philosophy; and also freed from those misconceptions or misrepresentations which made them sit uneasy upon the Spirits even of the best Men, that took time to think. Lastly, In things purely Speculative, as these are, and no ingredients of our Faith, it is free to differ from one another in our Opinions and Sentiments; and so I remember *S. Austin* hath observ'd upon this very subject of *Paradise*; Wherefore as we desire to give no offence our selves, so neither shall we take any at the difference of Judgment in others; provided this liberty be mutual, and that we all agree to study *Peace, Truth, and a good Life.*

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CHAPTER X

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THE

THE
THEORY
OF THE
EARTH.

BOOK I.

Concerning the Deluge, and the Dissolution
of the Earth.

CHAP. I.

THE INTRODUCTION;

*An Account of the whole Work; of the Extent
and general Order of it.*



SINCE I was first inclin'd to the Contemplation of Nature, and took pleasure to trace out the Causes of Effects, and the dependance of one thing upon another in the visible Creation, I had always, methought, a particular curiosity to look back into the first Sources and ORIGINAL of Things; and to view in my mind, so far as I was able, the Beginning and Progress of a RISING WORLD.

And after some Essays of this Nature, and as I thought not unsuccessful, I carried on my enquiries further, to try whether this *Rising World*, when form'd

and finish, would continue always the same; in the same form, structure, and consistency; or what changes it would successively undergo, by the continued action of the same Causes that first produc't it; And, lastly, what would be its final Period and Consummation. This whole Series and compass of things taken together, I call'd a COURSE OF NATURE, or a SYSTEM OF NATURAL PROVIDENCE; and thought there was nothing belonging to the External World more fit or more worthy our study and meditation, nor any thing that would conduce more to discover the ways of Divine Providence, and to show us the grounds of all true knowledge concerning Nature. And therefore to clear up the several parts of this Theory, I was willing to let alone a great many other Speculations, and all those dry subtleties with which the Schools, and the Books of Philosophers are usually fill'd.

But when we speak of a *Rising World*, and the Contemplation of it, we do not mean this of the *Great Universe*; for who can describe the Original of that? But we speak of the *Sublunary World*. This Earth and its dependencies, which rose out of a Chaos about six thousand years ago; And seeing it hath falln to our lot to act upon this Stage, to have our present home and habitation here, it seems most reasonable, and the place design'd by Providence where we should first imploy our thoughts to understand the works of God and Nature. We have accordingly, therefore design'd in this Work to give an account of the Original of the Earth, and of all the great and general changes that it hath already undergone, or is hence forwards to undergo till the Consummation of all things. For if from those Principles we have here taken, and that Theory we have begun in these two first Books, we can deduce with success and clearness the Origin of the Earth, and those States of it that are already past; Following the same Thred, and by the conduct of the same Theory we will pursue its Fate and History through future Ages, and mark all the great Changes and Conversions that attend

tend it *while Day and Night shall last* ; that is, so long as it continues an Earth.

By the States of the Earth that are already past, we understand chiefly *Paradise* and the *Deluge* ; Names well known, and as little known in their Nature. By the Future States we understand the *Conflagration*, and what new Order of Nature may follow upon that, till the whole Circle of Time and Providence be compleated. As to the first and past States of the Earth, we shall have little help from the Ancients, or from any of the Philosophers, for the discovery or description of them ; We must often tread unbeaten paths, and make a way where we do not find one ; but it shall be always with a Light in our hand, that we may see our steps, and that those that follow us may not follow us blindly. There is no Sect of Philosophers that I know of that ever gave an account of the Universal Deluge, or discover'd from the contemplation of the Earth, that there had been such a thing already in Nature. 'Tis true, they often talk of an alternation of *Deluges* and *Conflagrations* in this Earth, but they speak of them as things to come, at least they give no proof or argument of any that hath already destroyed the World. As to *Paradise*, it seems to be represented to us by the *Golden Age* ; whereof the Ancients tell many stories, sometimes very luxuriant, and sometimes very defective : Neither did any of them so well understand the difference betwixt the New-made Earth and the Present, as to see what were the grounds of the Golden Age, or of Paradise. As to the *Conflagration* in particular, This hath always been reckon'd One amongst the Opinions or Dogmata of the Stoicks, *That the World was to be destroy'd by Fire*, and their Books are full of this Notion ; but yet they do not tell us the Causes of the Conflagration, nor what preparations there are in Nature, or will be, towards that great Change. And we may generally observe this of the *Ancients*, that their Learning or Philosophy consisted more in Conclusions than in Demonstrations ; They had many truths among them, whereof they did not know themselves the premisses or the proofs : Which is an ar-

gument to me, that the knowledge they had, was not a thing of their own invention, or which they came to by fair reasoning and observations upon Nature, but was delivered to them from others by Tradition and Ancient fame, sometimes more publick, sometimes more secret: These Conclusions they kept in mind, and communicated to those of their School, or Sect, or Posterity, without knowing, for the most part, the just grounds and reasons of them.

'Tis the Sacred writings of Scripture that are the best monuments of Antiquity, and to those we are chiefly beholden for the History of the first Ages, whether Natural History or Civil. 'Tis true, the Poets who were the most ancient Writers amongst the *Greeks*, and serv'd them both for Historians, Divines, and Philosophers, have deliver'd some things concerning the first Ages of the World, that have a fair resemblance of truth, and some affinity with those accounts that are given of the same things by Sacred Authors, and these may be of use in due time and place; but yet lest any thing fabulous should be mixt with them, as commonly there is, we will never depend wholly upon their credit, nor assert any thing upon the authority of the Ancients which is not first prov'd by natural Reason, or warranted by Scripture.

It seems to me very reasonable to believe, that besides the precepts of Religion, which are the principal subject and design of the Books of holy Scripture, there may be providentially conserv'd in them the memory of things and times so remote, as could not be retriev'd, either by History, or by the light of Nature; and yet were of great importance to be known, both for their own excellency, and also to rectifie the knowledge of men in other things consequential to them: Such points may be, *Our great Epoque* or the Age of the Earth, The Origination of mankind from one head, The first and Paradisiacal state, The destruction of the Old World by an universal Deluge, The longevity of its inhabitants, The manner of their preservation, and of their peopling the Second Earth; and lastly, The Fate and Changes it is to undergo.

These

These I always lookt upon as the Seeds of great knowledge, or heads of Theories fixt on purpose to give us aim and direction how to pursue the rest that depend upon them. But these heads, you see, are of a mixt order, and we propose to our selves in this Work only such as belong to the Natural World; upon which I believe the trains of Providence are generally laid; And we must first consider how God hath order'd Nature, and then how the Oeconomy of the Intellectual World is adapted to it; for of these two parts consists the full System of Providence. In the mean time what subject can be more worthy the thoughts of any serious person, than to view and consider the Rise and Fall, and all the Revolutions, not of a Monarchy or an Empire, of the *Grecian* or *Roman* State, but of an intire World.

The obscurity of these things, and their remoteness from common knowledge will be made an argument by some, why we should not undertake them; And by others, it may be, the very same thing will be made an argument why we should; for my part I think *There is nothing so secret that shall not be brought to Light*, within the compass of *Our World*; for we are not to understand that of the whole Universe, nor of all Eternity, our capacities do not extend so far; But whatsoever concerns this Sublunary World in the whole extent of its duration, from the Chaos to the last period, this I believe Providence hath made us capable to understand, and will in its due time make it known. All I say, betwixt the first Chaos and the last Completion of Time and all things temporary, This was given to the disquisitions of men; On either hand is Eternity, before the World and after, which is without our reach: But that little spot of ground that lies betwixt those two great Oceans, this we are to cultivate, this we are Masters of, herein we are to exercise our thoughts, to understand and lay open the treasures of the Divine Wisdom and Goodness hid in this part of Nature and of Providence.

As for the difficulty or obscurity of an argument, that does but add to the pleasure of contesting with
it,

it, when there are hopes of victory ; and success does more than recompence all the pains. For there is no sort of joy more grateful to the mind of man, than that which ariseth from the invention of Truth ; especially when 'tis hard to come by. Every man hath a delight suited to his Genius, and as there is pleasure in the right exercise of any faculty, so especially in that of Right-reasoning ; which is still the greater by how much the consequences are more clear, and the chains of them more long: There is no Chase so pleasant, methinks, as to drive a Thought, by good conduct, from one end of the World to the other ; and never to lose sight of it till it fall into Eternity, where all things are lost as to our knowledge.

This Theory being chiefly Philosophical, Reason is to be our first Guide ; and where that falls short, or any other just occasion offers it self, we may receive further light and confirmation from the Sacred writings. Both these are to be lookt upon as of Divine Original, God is the Author of both ; He that made the Scripture made also our Faculties, and 'twere a reflection upon the Divine Veracity, for the one or the other to be false when rightly us'd. We must therefore be careful and tender of opposing these to one another, because that is in effect to oppose God to himself. As for Antiquity and the Testimonies of the Ancients, we only make general reflections upon them, for illustration rather than proof of what we propose ; not thinking it proper for an English Treatise to multiply citations out of Greek or Latin Authors.

I am very sensible it will be much our interest, that the Reader of this Theory should be of an ingenious and unprejudic'd temper ; neither does it so much require Book-learning and Scholarship, as good natural sence to distinguish *True* and *False*, and to discern what is well prov'd, and what is not. It often happens that Scholastick Education, like a Trade, does so fix a man in a particular way, that he is not fit to judge of any thing that lies out of that way ; and so his Learning becomes a clog to his natural parts, and makes him more indocile, and more

more incapable of new thoughts and new improvements, than those that have only the Talents of Nature. As Masters of exercise had rather take a Scholar that never learn'd before, than one that hath had a bad Master; so generally one would rather chuse a Reader without art, than one ill-instructed; with learning but opinionative and without judgment: yet it is not necessary they should want either, and Learning well plac't strengthens all the powers of the mind. To conclude, just reasoning and a generous love of Truth, whether with or without Erudition, is that which makes us most competent Judges what is true; and further than this, in the perusal and examination of this Work, as to the Author as much candor as you please, but as to the Theory we require nothing but attention and impartiality.

C H A P. II.

A general account of Noahs Flood; A computation what quantity of Water would be necessary for the making of it; that the common Opinion and Explication of that Flood is not intelligible.

TIS now more than Five Thousand years since our World was made, and though it would be a great pleasure to the mind to recollect and view at this distance those first Scenes of Nature, what the face of the Earth was when fresh and new; and how things differ'd from the state we now find them in, the speculation is so remote, that it seems to be hopeless, and beyond the reach of Humane Wit. We are almost the last Posterity of the first Men, and fall into the dying Age of the World; by what footsteps, or by what guide can we trace back our way to those first Ages, and the first order of things? And yet, methinks, it is reasonable to believe that Divine Providence, which sees at once throughout all the Ages
of

of the World, should not be willing that Mankind should be finally ignorant of that part of Nature, and of the Universe which is properly their Task and Province to manage and understand. We are the Inhabitants of the Earth, the Lords and Masters of it; and we are endow'd with Reason and Understanding; doth it not then properly belong to us to examine and understand the works of God in this part of the Universe, which is falln to our lot, which is our heritage and habitation? And it will be found it may be, upon a stricter Enquiry, that in the present form and constitution of the Earth, there are certain marks and Indications of its first State; with which if we compare those things that are recorded in Sacred History, concerning the first Chaos, Paradise, and an universal Deluge, we may discover by the help of those Lights what the Earth was in its first Original, and what Changes have since succeeded in it.

And though we shall give a full account of the Origin of the Earth in this Treatise, yet that which we have propos'd particularly for the Title and Subject of it, is to give an account of the primæval P A R A D I S E, and of the universal D E L U G E: Those being the two most important things that are explain'd by the Theory we propose. And I must beg leave in treating of these two, to change the order, and treat first of the Deluge, and then of Paradise: For though the State of Paradise doth precede that of the Flood in Sacred History, and in the nature of the thing, yet the explication of both will be more sensible, and more effectual, if we begin with the Deluge; there being more Observations and Effects, and those better known to us, that may be refer'd to this, than to the other; and the Deluge being once truly explain'd, we shall from thence know the form and Quality of the Ante-diluvian Earth. Let us then proceed to the explication of that great and fatal Inundation, whose History is well known; and according to *Moses*, the best of Historians, in a few words is this -----

Sixteen Hundred and odd years after the Earth was made, and inhabited, it was over-flow'd, and destroy'd

stroy'd in a Deluge of water. Not a Deluge that was National only, or overrun some particular Country or Region, as *Judea* or *Greece*, or any other, but it overspread the face of the whole Earth, from Pole to Pole, and from East to West, and that in such excess, that the Floods over-reacht the Tops of the highest Mountains; the Rains descending after an unusual manner, and the fountains of the *Great Deep* being broke open; so as a general destruction and devastation was brought upon the Earth, and all things in it, mankind and other living Creatures; excepting only *Noah* and his Family, who by a special Providence of God were preserv'd in a certain Ark, or Vessel made like a Ship, and such kinds of living Creatures as he took in to him. After these waters had rag'd for sometime on the Earth, they began to lessen and shrink, and the great waves and fluctuations of this *Deep* or *Abyffe*, being quieted by degrees, the waters retir'd into their Channels and Caverns within the Earth; and the Mountains and Fields began to appear, and the whole habitable Earth in that form and shape which now we see it in. Then the World began again, and from that little Remnant preserv'd in the Ark, the present race of Mankind, and of Animals in the known part of the Earth were propagated. Thus perisht the old World, and the present arose from the ruines and remains of it.

This is a short story of the greatest thing that ever yet hapned in the world, the greatest revolution and the greatest change in Nature; and if we come to reflect seriously upon it, we shall find it extremely difficult, if not impossible, to give an account of the waters that compos'd this Deluge, whence they came or whither they went. If it had been only the Inundation of a Country or of a Province, or of the greatest part of a Continent, some proportionable causes perhaps might have been found out; but a Deluge overflowing the whole Earth, the whole Circuit and whole Extent of it, burying all in water, even the greatest Mountains, in any known parts of the Universe, to find water sufficient for this Effect, as it is generally explained and understood, I think

is impossible. And that we may the better judge of the whole matter, let us first compute how much water would be requisite for such a Deluge, or to lay the Earth, consider'd in its present form, and the highest Mountains, under water. Then let's consider whether such a quantity of water can be had out of all the stores that we know in Nature: And from these two we will take our Ground and Rise, and begin to reflect, whether the World hath not been hitherto mistaken in the common opinion and explication of the general Deluge.

To discover how much water would be requisite to make this Deluge, we must first suppose enough to cover the plain surface of the Earth, the Fields and the plain and lower grounds; then we must heap up so much more upon this as will reach above the tops of the highest Mountains; so as drawing a Circle over the tops of the highest Mountains quite round the Earth, suppose from Pole to Pole, and another to meet it about the middle of the Earth, all that space or capacity contain'd within these Circles is to be fill'd up with water. This I confess will make a prodigious mass of water, and it looks frightfully to the imagination; 'tis huge and great, but 'tis extravagantly so, as a great Monster: It doth not look like the work of God or Nature: However let's compute a little more particularly how much this will amount to, or how many Oceans of water would be necessary to compose this great Ocean rowling in the Air, without bounds or banks.

If all the Mountains were par'd off the Earth, and so the surface of it lay even, or in an equal convexity every where with the surface of the Sea, from this surface of the Sea let us suppose that the height of the Mountains may be a mile and an half; or that we may not seem at all to favour our own opinion or calculation, let us take a mile only for the perpendicular height of the Mountains. Let us on the other side suppose the Sea to cover half the Earth, as 'tis generally believ'd to do; and the common depth of it, taking one place with another, to be about a quarter of a mile or 250 paces. I say, taking one place
with

with another, for though the middle Chanel of the great Ocean be far deeper, we may observe that there is commonly a descent or declivity from the shore to the middle part of the Chanel, so that one comes by degrees into the depth of it; and those shor-ry parts are generally but some fathoms deep. Besides, in arms of the Sea, in Straits and among Islands, there is commonly no great depth, and some places are plain shallows. So as upon a moderate computation, one place compar'd with another, we may take a quarter of a mile, or about an hundred fathoms, for the common measure of the depth of the Sea, if it were cast into a Chanel of an equal depth every where. This being suppos'd, there would need four Oceans to lie upon this Ocean, to raise it up to the top of the Mountains, or so high as the waters of the Deluge rise; then four Oceans more to lie upon the Land, that the water there might swell to the same height; which together make eight Oceans for the proportion of the water requir'd in the Deluge.

'Tis true, there would not be altogether so much water requir'd for the Land as for the Sea, to raise them to an equal height; because Mountains and Hills would fill up part of that space upon the Land; but to compensate this, and confirm our computation, we must consider in the first place, that we have taken a much less height of the Mountains than is requisite, if we respect the Mediterranean Mountains, or those that are at a great distance from the Sea; For their height above the surface of the Sea, computing the declivity of the Land all along from the Mountains to the Sea-side (and that there is such a declivity is manifest from the course and descent of the Rivers) is far greater than the proportion we have taken: For the height of Mountains is usually taken from the foot of them, or from the next plain, which if it be far from the Sea, we may reasonably allow as much for the declension of the Land from that place to the Sea, as for the immediate height of the Mountain; So, for instance, the Mountains of the Moon in *Africa*, whence the *Nile* flows, and after a

long course falls into the Mediterranean Sea by *Egypt*, are so much higher than the surface of that Sea, first, as the Ascent of the Land is from the Sea to the foot of the Mountains, and then as the height of the Mountains is from the bottom to the top: For both these are to be computed when you measure the height of a Mountain, or of a mountainous Land in respect of the Sea: And the height of Mountains to the Sea being thus computed, there would be need of six or eight Oceans to raise the Sea alone as high as the highest In-land Mountains; And this is more than enough to compensate the less quantity of water that would be requisite upon the Land. Besides, we must consider the Regions of the Air upwards to be more capacious than a Region of the same thickness in or near the Earth, so as if an Ocean pour'd upon the surface of the dry Land, supposing it were all smooth, would rise to the height of half a quarter of a mile every where; the like quantity of water pour'd again at the height of the Mountains, would not have altogether the same effect, or would not there raise the mass a quarter of a mile higher; for the surfaces of a Globe, the farther they are from their Center, are the greater; and so accordingly the Regions that belong to them. And, lastly, we must consider that there are some Countries or Valleys very low, and also many Caverns or Cavities within the Earth, all which in this case were to be first fill'd with water. These things being compar'd and estimated, we shall find that notwithstanding the room that Hills and Mountains take up on the dry Land, there would be at least eight Oceans requir'd, or a quantity of water eight times as great as the Ocean, to bring an universal Deluge upon the Earth, as that Deluge is ordinarily understood and explained.

The proportion of water for the Deluge being thus stated, the next thing to be done, is to enquire where this water is to be found; if any part of the Sublunary World will afford us so much: Eight Oceans floating in the Air, make a great bulk of water, I do not know what possible Sources to draw it from. There are the Clouds above, and the Deeps below,
and

and in the bowels of the Earth; and these are all the stores we have for water; and *Moses* directs us to no other for the causes of the Deluge. *The Fountains* (he saith) *of the great Abyſſe were broken up, or burſt aſunder,* and the Rain deſcended for forty days, the *Cataracts* or *Floodgates* of Heaven being open'd. And in these two, no doubt, are contain'd the causes of the great Deluge, as according to *Moses*, so also according to reason and necessity; for our World affords no other treasures of water. Let us therefore consider how much this Rain of forty days might amount to, and how much might flow out of the Abyſſe, that so we may judge whether these two in conjunction would make up the Eight Oceans which we want.

As for the Rains, they would not afford us one Ocean, nor half an Ocean, nor the tenth part of an Ocean, if we may trust to the Observations made by others concerning the quantity of water that falls in Rain. *Mersennus* gives us this account of it. "It
 "appears by our Observations, that a Cubical Vessel
 "of Brass, whereof we made use, is fill'd an inch and
 "an half in half an hours time; but because that
 "sucks up nothing of the moisture as the Earth doth,
 "let us take an inch for half an hours Rain; whence
 "it follows, that in the space of 40 days and nights
 "Rain, the waters in the Deluge would rise 160 feet,
 "if the Rains were constant and equal to ours, and
 "that it rain'd at once throughout the face of the
 "whole Earth. But the Rain of the Deluge, saith he,
 should have been 90 times greater than this to cover,
 for instance, the Mountains of *Armenia*, or to reach
 15 Cubits above them. So that according to his
 computation the 40 days Rain would supply little
 more than the hundredth part of the water requisite
 to make the Deluge. 'Tis true, he takes the height
 of the Mountains higher than we do; but, however,
 if you temper the Calculation on all sides as much
 as you please, the water that came by this Rain would
 be a very inconsiderable part of what was necessary
 for a Deluge. If it rain'd 40 days and 40 nights
 throughout the face of the whole Earth, in the Nor-
 thern

*Cog. Phys.
 Mech.
 p. 221.*

*At 4 feet in
 24 hours.*

*Auth. cit.
in Gen. 7.3.*

thern and Southern Hemisphere all at once; it might be sufficient to lay all the lower grounds under water, but it would signify very little as to the overflowing of the Mountains. Whence another Author upon the same occasion hath this passage. "If the
"Deluge had been made by Rains only, there would
"not have needed 40 days, but 40 years Rain to have
"brought it to pass. And if we should suppose the whole middle Region condens'd into water, it would not at all have been sufficient for this effect, according to that proportion some make betwixt Air and Water; for they say, Air turn'd into Water takes up a hundred times less room than it did before. The truth is, we may reasonably suppose, that all the vapours of the middle Region were turn'd into water in this 40 days and 40 nights Rain, if we admit, that this Rain was throughout the whole Earth at once, in either Hemisphere, in every Zone, in every Climate, in every Country, in every Province, in every Field; and yet we see what a small proportion all this would amount to.

Having done then with these Superiour Regions, we are next to examine the Inferiour, and the treasures of water that may be had there. *Moses* tells us, that the Fountains of the great Abyſſe were broke open, or *clove asunder*, as the word there us'd doth imply; and no doubt in this lay the great mystery of the Deluge, as will appear when it comes to be rightly understood and explain'd; but we are here to consider what is generally understood by the *great Abyſſe*, in the common explication of the Deluge; and 'tis commonly interpreted either to be the Sea, or Subterraneous waters hid in the bowels of the Earth: These, they say, broke forth and rais'd the waters, caus'd by the Rain, to such an height, that together they overflowed the highest Mountains. But whether or how this could be, deserves to be a little examin'd.

And in the first place; the Sea is not higher than the Land, as some have formerly imagin'd; fancying the Sea stood, as it were, upon a heap, higher than the shore; and at the Deluge a relaxation being made,

made, it overflow'd the Land. But this conceit is so gross, and so much against reason and experience, that none I think of late have ventur'd to make use of it: And yet on the other hand, if the Sea lie in an equal convexity with the Land; or lower generally than the shore, and much more than the mid-land, as it is certainly known to do, what could the Sea contribute to the Deluge? It would keep its Chanel, as it doth now, and take up the same place. And so also the Subterraneous waters would lie quiet in their Cells; whatsoever Fountains or passages you suppose, these would not issue out upon the Earth, for water doth not ascend, unless by force. But let's imagine then that force us'd and appli'd, and the waters both of the Sea and Caverns under ground drawn out upon the surface of the Earth, we shall not be any whit the nearer for this; for if you take these waters out of their places, those places must be fill'd again with other waters in the Deluge; so as this turns to no account upon the whole. If you have two Vessels to fill, and you empty one to fill the other, you gain nothing by that, there still remains one Vessel empty; you cannot have these waters both in the Sea and on the Land, both above ground and under; nor can you suppose the Chanel of the Sea would stand gaping without water, when all the Earth was overflow'd, and the tops of the Mountains cover'd. And so for Subterraneous Cavities, if you suppose the water pump'd out, they would suck it in again when the Earth came to be laid under water; so that upon the whole, if you thus understand the *Abyss* or *great Deep*, and the breaking open its *Fountains* in this manner, it doth us no service as to the Deluge, and where we expected the greatest supply, there we find none at all.

What shall we do then? whither shall we go to find more than seven Oceans of water that we still want? We have been above and below; we have drain'd the whole middle Region, and we have examin'd the Deeps of the Earth; they must want for themselves, they say, if they give us any: And besides, if the Earth should disgorge all the water that it hath in its bowels,

it would not amount to above half an Ocean, which would not at all answer our occasions. Must we not then conclude, that the common explication of the Deluge makes it impossible? there being no such quantity of water in Nature as they make requisite for an universal Deluge. Yet to give them all fair play, having examin'd the waters above the Earth, or in the Air, the waters upon the Earth, and the waters under the Earth; let us also consider if there be not waters above the Heavens, and if those might not be drawn down for the Deluge. *Moses* speaks of waters above the firmament, which though it be generally and truly understood of the middle Region of the Air, especially as it was constituted before the Deluge, yet some have thought those to be waters plac'd above the highest Heavens, or Super-celestial waters, and have been willing to make use of them for a supply, when they could not find materials enough under the Heavens to make up the great mass of the Deluge. But the Heavens above, where these waters lay, are either solid, or fluid; if solid, as Glass or Crystal, how could the waters get through 'em to descend upon the Earth? If fluid, as the Air or *Æther*, how could the waters rest upon them? For Water is heavier than Air or *Æther*: So that I am afraid those pure Regions will prove no fit place for that Element upon any account. But supposing these waters there, how imaginary soever, and that they were brought down to drown the World in that vast quantity that would be necessary, what became of them when the Deluge ceas'd? Seven or eight Oceans of water, with the Earth wrapt up in the middle of them, how did it ever get quit of them? how could they be disposed of when the Earth was to be dri'd, and the World renew'd? It would be a hard task to lift them up again among the Spheres, and we have no room for them here below. The truth is, I mention this opinion of the Heavenly waters, because I would omit none that had ever been made use of to make good the common explication of the Deluge, but otherwise, I think, since the System of the World was better known, and the Nature of the

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the Heavens, there are none that would seriously assert these Super-celestial waters, or at least make use of them so extravagantly, as to bring them down hither for causes of the Deluge.

We have now employ'd our last and utmost endeavours to find out waters for the vulgar Deluge, or for the Deluge as commonly understood, and you see with how little success; we have left no corner unsought, where there was any appearance or report of water to be found, and yet we have not been able to collect the eighth part of what was necessary upon a moderate account. May we not then with assurance conclude, that the World hath taken wrong measures hitherto in their notion and explication of the general Deluge? They make it impossible and unintelligible upon a double account, both in requiring more water than can be found, and more than can be dispos'd of, if it was found, or could any way be withdrawn from the Earth when the Deluge should cease. For if the Earth was encompass'd with eight Oceans of water heapt one upon another, how these should retire into any Channels, or be drain'd off, or the Earth any way disengag'd from them, is not intelligible; and that in so short a time as some months: For the violence of the Deluge lasted but four or five months, and in as many months after the Earth was dry and habitable. So as upon the whole enquiry, we can neither find source nor issue, beginning nor ending, for such an excessive mass of waters as the Vulgar Deluge requir'd; neither where to have them, nor if we had them, how to get quit of them. And I think men cannot do a greater injury or injustice to Sacred History, than to give such representations of things recorded there, as to make them unintelligible and incredible; As on the other hand we cannot deserve better of Religion and Providence, than by giving such fair accounts of all things propos'd by them, or belonging to them, as may silence the Cavils of Atheists, satisfy the inquisitive, and recommend them to the belief and acceptance of all reasonable persons.

C H A P. III.

All Evasions answered; That there was no new Creation of waters at the Deluge: And that it was not particular or National, but extended throughout the whole Earth. A prelude and preparation to the true Account and Explication of it: The method of the first Book.

THough in the preceding Chapter we may seem to have given a fair trial to the common opinion concerning the state of the Deluge, and might now proceed to sentence of condemnation; yet having heard of another plea, which some have us'd in its behalf, and another way found out by recourse to the Supream Power, to supply all defects, and to make the whole matter intelligible, we will proceed no further till that be consider'd; being very willing to examine whatsoever may be offer'd in that or any other way for resolving that great difficulty which we have propos'd, concerning *the quantity of water requisite for such a Deluge.* And to this they say in short, that *God Almighty created waters on purpose to make the Deluge, and then annihilated them again when the Deluge was to cease;* And this is in a few words the whole account of it. This is to cut the Knot when we cannot loose it; they show us the naked arm of Omnipotency; such arguments as these come like lightning, one doth not know what Armour to put on against them, for they pierce the more, the more they are resisted: We will not therefore oppose any thing to them that is hard and stubborn, but by a soft answer deaden their force by degrees.

And I desire to mind those persons in the first place of what *S. Austin* hath said upon a like occasion,
speak-

speaking concerning those that disprov'd the opinion of waters above the Heavens (which we mention'd before) by natural Reasons. " We are not, saith he, " to refute those persons by saying, that according to " the Omnipotence of God, to whom all things are " possible, we ought to believe there are waters there " as heavy as we know and feel them here below ; " for our business is now to enquire according to " his Scripture, how God hath constituted the Na- " ture of things, and not what he could do or work " in these things by a miracle of Omnipotency. I desire them to apply this to the present argument for the first answer.

Secondly, let them consider, that *Moses* hath assign'd causes of the Deluge ; *Forty days Rain, and the disruption of the Abyffe* ; and speaks nothing of a new creation of water upon that occasion. Those were causes in Nature which Providence had then dispos'd for this extraordinary effect, and those the Divine Historian refers us to, and not to any productions out of nothing. Besides, *Moses* makes the Deluge increase by degrees with the Rain, and accordingly makes it cease by degrees, and that the waters *going and returning* as the waves and great commotions of the Sea use to do, retir'd leisurely from the face of the Earth, and settled at length in their Channels. Now this manner of the beginning or ceasing of the Deluge doth not at all agree with the instantaneous actions of Creation and Annihilation.

Thirdly, let them consider, that *S. Peter* hath also assign'd *Causes* of the Deluge ; namely the particular constitution of the Earth and Heavens before the Flood ; " by reason whereof, he saith, *the World that was then perisht in a Deluge of water.* And not by reason of a new creation of water. His words are these, " The Heavens and the Earth were of old consisting " of water, and by water, whereby, or by reason " whereof, the World that then was, being overflow- " ed with water, perished.

Fourthly, they are to consider, that as we are not rashly to have recourse to the Divine Omnipotence upon any account, so especially not for new Creati-

ons; and least of all for the creation of new matter. The matter of the Universe was created many Ages before the Flood, and the Universe being full, if any more was created, then there must be as much annihilated at the same time to make room for it; for Bodies cannot penetrate one anothers dimensions, nor be two or more within one and the same space. Then on the other hand, when the Deluge ceas'd, and these waters were annihilated, so much other matter must be created again to take up their places: And methinks they make very bold with the Deity, when they make him do and undo, go forward and backwards by such countermarches and retractions, as we do not willingly impute to the wisdom of God Almighty.

Lastly, I shall not think my labour lost, if it be but acknowledg'd, that we have so far clear'd the way in this controversie, as to have brought it to this issue; That either there must be new waters created on purpose to make a Deluge, or there could be no Deluge, as 'tis vulgarly explain'd; there not being water sufficient in Nature to make a Deluge of that kind. This, I say, is a great step, and, I think, will satisfie all parties, at least all that are considerable; for those that have recourse to a new Creation of waters, are of two sorts, either such as do it out of laziness and ignorance, or such as do it out of necessity, seeing they cannot be had otherwise; as for the first, they are not to be valu'd or gratifi'd; and as for the second, I shall do a thing very acceptable to them, if I free them and the argument from that necessity, and show a way of making the Deluge fairly intelligible, and accountable without the creation of new waters; which is the design of this Treatise. For we do not tye this knot with an Intention to puzzle and perplex the Argument finally with it, but the harder it is ty'd, we shall feel the pleasure more sensibly when we come to loose it.

It may be when they are beaten from this new Creation of water, they will say the Element of Air was chang'd into water, and that was the great storehouse for the Deluge. Forty days Rain we allow, as
Moses

Moses does, but if they suppose any other translocation, it neither agrees with *Moses's* Philosophy, nor *S. Peter's*; for then the opening of the *Abyss* was needless, and the form and constitution of the *Antediluvian Heavens* and *Earth*, which *S. Peter* refers the Deluge to, bore no part in the work; it might have been made, in that way, indifferently under any Heavens or Earth. Besides, they offend against *S. Austin's* rule in this method too; for I look upon it as no less a miracle to turn Air into Water, than to turn Water into Wine. Air, I say, for Vapours indeed are but water made volatile, but pure Air is a body of another Species, and cannot by any compression or condensation, so far as is yet known, be chang'd into water. And lastly, if the whole Atmosphere was turn'd into water, 'tis very probable it would make no more than 34 foot or thereabouts; for so much Air or Vapours as is of the same weight with any certain quantity of water, 'tis likely, if it was chang'd into water, would also be of the same bulk with it, or not much more: Now according to the doctrine of the Gravitation of the Atmosphere, 'tis found that 34 foot of water does counterbalance a proportionable Cylinder of Air reaching to the top of the Atmosphere; and consequently, if the whole Atmosphere was converted into water, it would make no more than eleven or twelve yards water about the Earth: Which the Cavities of the Earth would be able in a good measure to suck up, at least this is very inconsiderable as to our eight Oceans. And if you would change the higher Regions into water too, what must supply the place of that Air which you transform into water, and bring down upon the Earth? There would be little left but Fire and Æther betwixt us and the Moon, and I am afraid it would endanger to suck down the Moon too after it. In a word, such an explication as this is both purely imaginary, and also very operose, and would affect a great part of the Universe; and after all, they would be as hard put to't to get rid of this water, when the Deluge was to cease, as they were at first to procure it.

Having

Having now examin'd and answered all the pleas, from first to last, for the vulgar Deluge, or the old way of explaining it, we should proceed immediately to propose another method, and another ground for an universal Deluge, were it not that an opinion hath been started by some of late, that would in effect supplant both these methods, old and new, and take away in a great measure the subject of the question. Some modern Authors observing what straits they have been put to in all Ages, to find out water enough for *Noahs* Flood, have ventur'd upon an expedient more brisk and bold, than any of the Ancients durst venture upon: They say *Noahs* Flood was not Universal, but a National Inundation, confin'd to *Judæa*, and those Countries thereabouts; and consequently, there would not be so much water necessary for the cause of it, as we have prov'd to be necessary for an Universal Deluge of that kind. Their inference is very true, they have avoided that rock, but they run upon another no less dangerous; to avoid an objection from reason, they deny matter of fact, and such matter of fact as is well attested by History, both Sacred and profane. I believe the Authors that set up this opinion were not themselves satisfied with it, but seeing insuperable difficulties in the old way, they are the more excusable in chusing, as they thought, of two Evils the less.

But the choice, methinks, is as bad on this hand, if all things be considered; *Moses* represents the Flood of *Noah* as an overthrow and destruction of the whole Earth; and who can imagine, that in sixteen or seventeen hundred years time (taking the lower Chronology) that the Earth had then stood, mankind should be propagated no further than *Judæa*, or some neighbouring Countries thereabouts. After the Flood, when the World was renew'd again by eight persons, they had made a far greater progress in *Asia*, *Europe* and *Africa*, within the same space of years, and yet 'tis likely they were more fruitful in the first Ages of the World, than after the Flood; and they liv'd six, seven, eight, nine hundred years a piece, getting Sons and Daughters. Which longevity of the first Inhabitants

tants of the Earth seems to have been providentially design'd for the quicker multiplication and propagation of mankind ; and mankind thereby would become so numerous within sixteen hundred years, that there seems to me to be a greater difficulty from the multitude of the people that would be before the Flood, than from the want of people. For if we allow the first couple at the end of one hundred years, or of the first Century, to have left ten pair of Breeders, which is an easie supposition, there would arise from these in fifteen hundred years a greater number than the Earth was capable of ; allowing every pair to multiply in the same decuple proportion the first pair did. But because this would rise far beyond the capacities of this Earth, let us suppose them to increase, in the following Centuries, in a quintuple proportion only, or if you will only in a quadruple ; and then the Table of the multiplication of mankind from the Creation to the Flood, would stand thus ;

Century 1	— 10	9	— 655360
2	— 40	10	— 2621440
3	— 160	11	— 10485760
4	— 640	12	— 41943040
5	— 2560	13	— 167772160
6	— 10240	14	— 671088640
7	— 40960	15	— 2684354560
8	— 163840	16	— 10737418240

This product is too excessive high, if compar'd with the present number of men upon the face of the Earth, which I think is commonly estimated to be betwixt three and four hundred millions ; and yet this proportion of their increase seems to be low enough, if we take one proportion for all the Centuries ; for in reality the same measure cannot run equally through all the Ages, but we have taken this as moderate and reasonable betwixt the highest and the lowest ; but if we had taken only a triple proportion, it would have been sufficient (all things consider'd) for our purpose. There are several other ways of computing this number, and some more particular

ticular and exact than this is, but which way soever you try, you will find the product great enough for the extent of this Earth; and if you follow the Septuagint Chronology it will still be far higher. I have met with three or four different Calculations in several Authors of the number of mankind before the Flood, and never met with any yet, but what exceeded the number of the people that are at present upon the face of the Earth. So as it seems to me a very groundless and forc'd conceit to imagine, that *Judæa* only, and some Countries about it in *Asia* were stor'd with people when the Deluge was brought upon the old World. Besides, if the Deluge was confin'd to those Countries, I do not see but the Borderers might have escap'd, shifting a little into the neighbouring places where the Deluge did not reach. But especially what needed so much a do to build an Ark to save *Noah* and his family, if he might have sav'd himself and them only by retiring into some neighbouring Country; as *Lot* and his family sav'd themselves, by withdrawing from *Sodom*, when the City was to be destroyed. Had not this been a far easier thing, and more compendious than the great preparations he made of a large Vessel, with Rooms for the reception and accommodation of Beasts and Birds? And now I mention Birds, why could not they at least have flown into the next dry Country; they might have perch'd upon the Trees and the tops of the Mountains by the way to have rested themselves if they were weary, for the waters did not all of a sudden rise to the Mountains tops.

I cannot but look upon the Deluge as a much more considerable thing than these Authors would represent it, and as a kind of dissolution of Nature. *Moses* calls it a destroying of the *Earth*, as well as of mankind, *Gen. 6. 13.* And the Bow was set in the Cloud to seal the Covenant, *that he would destroy the Earth no more, Gen. 9. 11.* or that there should be no more a Flood *to destroy the Earth.* And 'tis said, *verse 13.* that the Covenant was made between God and the Earth, or this frame of Nature, that it should perish no more by water. And the Rainbow, which
was

was a token and pledge of this Covenant, appears not only in *Judæa*, or some other *Asiatick* Provinces, but to all the Regions of the Earth, who had an equal concern in it. *Moses* saith also the Fountains of the great Abyſſe were burſt aſunder to make the Deluge, and what means this Abyſſe and the burſting of it, if refrain'd to *Judæa* or ſome adjacent Countries? What appearance is there of this diſruption there more than in other places? Furthermore, *S. Peter* ^{2 Epist. c. 5.} 6. plainly implies, that the Antediluvian Heavens and Earth periſht in the Deluge; and oppoſeth the preſent Earth and Heavens to them as different and of another conſtitution, and ſaith, that theſe ſhall periſh by Fire, as the other periſht by water. So he compares the Conflagration with the Deluge, as two general diſſolutions of Nature, and one may as well ſay, that the Conflagration ſhall be only National, and but two or three Countries burnt in that laſt Fire, as to ſay that the Deluge was ſo. I confeſs that diſcourſe of *S. Peter*, concerning the ſeveral States of the World would ſufficiently convince me, if there was nothing elſe, that the Deluge was not a particular or National Inundation, but a *mundane* change, that extended to the whole Earth, and both to the Heavens and the Earth.

All Antiquity, we know, hath ſpoke of theſe mundane Revolutions or Periods, that the World ſhould be ſucceſſively deſtroj'd by Water and Fire; and I do not doubt but that this Deluge of *Noahs*, which *Moses* deſcribes, was the firſt and leading inſtance of this kind: And accordingly we ſee that after this Period, and after the Flood, the bleſſing for multiplication, and for replenishing the Earth with Inhabitants, was as ſolemnly pronounc'd by God Almighty, as at the firſt Creation of man, *Gen. 9. 1.* with *Gen. 1. 28.* Theſe conſiderations, I think, might be ſufficient to give us aſſurance from Divine Writ of the univerſality of the Deluge, and yet *Moses* affords us another argument as demonſtrative as any, when in the Hiſtory of the Deluge he ſaith, *Gen. 7. 19.* *The waters exceedingly prevailed upon the Earth, and all the high Hills that were under the whole Heavens were covered.* All

the high Hills, he saith, *under the whole Heavens*, then quite round the Earth; and if the Mountains were cover'd quite round the Earth, sure the plains could not scape. But to argue with them upon their own grounds; Let us suppose only the *Asiatick* and *Armenian* Mountains covered with these waters, this they cannot deny; then unless there was a miracle to keep these waters upon heaps, they would flow throughout the Earth; for these Mountains are high enough to make them fall every way, and make them joyn with our Seas that environ the Continent. We cannot imagine Hills and Mountains of water to have hung about *Judea*, as if they were congeal'd, or a mass of water to have stood upon the middle of the Earth like one great drop, or a trembling Jelly, and all the places about it dry and untouch'd. All liquid bodies are diffusive; for their parts being in motion have no tye or connexion one with another, but glide and fall off any way as gravity and the Air presseth them; so the surface of water doth always conform into a Spherical convexity with the rest of the Globe of the Earth, and every part of it falls as near to the Center as it can, wherefore when these waters began to rise at first, long before they could swell to the height of the Mountains, they would diffuse themselves every way, and thereupon all the Valleys and Plains, and lower parts of the Earth would be filled throughout the whole Earth, before they could rise to the tops of the Mountains in any part of it: And the Sea would be all raised to a considerable height before the Mountains could be covered. For let's suppose, as they do, that this water fell not throughout the whole Earth, but in some particular Country, and there made first a great Lake; this Lake when it begun to swell would every way discharge it self by any descents or declivities of the ground, and these issues and derivations being once made, and supplied with new waters pushing them forwards, would continue their course till they arriv'd at the Sea; just as other Rivers do, for these would be but so many Rivers rising out of this Lake, and would not be considerably deeper and higher at the Fountain than

in their progress or at the Sea. We may as well then expect that the *Leman-Lake*, for instance, out of which the *Rhone* runs, should swell to the tops of the *Alpes* on the one hand, and the Mountains of *Switzerland* and *Burgundy* on the other, and then stop, without overflowing the plainer Countries that lie beyond them; as to suppose that this Diluvian Lake should rise to the Mountains tops in one place, and not diffuse it self equally into all Countries about, and upon the surface of the Sea, in proportion to the height and depth in the place where it first fell or stood.

Thus much for Sacred History. The universality of the Deluge is also attested by profane History; for the fame of it is gone through the Earth, and there are Records or Traditions concerning it in all parts of this and the new-found World. The *Americans* do acknowledge and speak of it in their Continent, as *Acosta* witnesseth, and *Laet* in their Histories of them. *Mart.*
 The *Chineses* have the Tradition of it, which is the farthest part of our Continent; and the nearer and Western parts of *Asia* is acknowledg'd the proper seat of it. *Mart.* Not to mention *Deucalion's* Deluge in the *European* parts, which no question is the same under a disguise: So as you may trace the Deluge quite round the Globe in profane History; and which is remarkable, every one of these people have a tale to tell, some one way, some another, concerning the restoration of mankind; which is an argument that they thought all mankind destroy'd by that Deluge. In the old dispute between the *Scythians* and the *Ægyptians* for Antiquity, which *Justin* mentions, they refer to a former destruction of the World by Water or Fire, and argue whether Nation first rise again, and was original to the other. So the *Babylonians*, *Assyrians*, *Phœnicians* and others, mention the Deluge in their stories. And we cannot without offering violence to all Records and Authority, Divine and Humane, deny that there hath been an universal Deluge upon the Earth; and if there was an universal Deluge, no question it was that of *Noahs*, and that which *Moses* describ'd, and that which we treat of at present.

These considerations I think are abundantly sufficient to silence that opinion, concerning the limitation and restriction of the Deluge to a particular Country or Countries. It ought rather to be lookt upon as an Evasion indeed than Opinion, seeing the Authors do not offer any positive argument for the proof of it, but depend only upon that negative argument, that an universal Deluge is a thing unintelligible. This stumbling-stone we hope to take away for the future, and that men shall not be put to that unhappy choice, either to deny matter of fact well attested, or admit an effect, whereof they cannot see any possible causes. And so having stated and propos'd the whole difficulty, and try'd all ways offer'd by others, and found them ineffectual, let us now apply ourselves by degrees to unty the knot.

The excessive quantity of water is the great difficulty, and the removal of it afterwards. Those eight Oceans lay heavy upon my thoughts, and I cast about every way to find an expedient, or to find some way whereby the same effect might be brought to pass with less water, and in such a manner, that that water might afterwards conveniently be discharg'd. The first thought that came into my mind upon that occasion was concerning the form of the Earth, which I thought might possibly at that time be different from what it is at present, and might come nearer to plainness and equality in the surface of it, and so might the more easily be overflow'd, and the Deluge perform'd with less water. This opinion concerning the plainness of the first Earth, I also found in Antiquity, mention'd and refer'd to by several Interpreters in their Commentaries upon *Genesis*, either upon occasion of the Deluge, or of that Fountain which is said, *Gen. 2. 6.* to have watered the face of the whole Earth: And a late eminent person, the honour of his profession for Integrity and Learning, in his discourse concerning the *Origination of mankind*, hath made a like judgment of the State of the Earth before the Deluge, that the face of it was more smooth and regular than it is now. But yet upon second thoughts, I easily see that this alone would

not

not be sufficient to explain the Deluge, nor to give an account of the present form of the Earth, unequal and Mountainous as it is. 'Tis true this would give a great advantage to the waters, and the Rains that fell for forty days together would have a great power over the Earth, being plain and smooth; but how would these waters be dispos'd of when the Deluge ceas'd? or how could it ever cease? Besides, what means the disruption of the great *Deep*, or the *great Abyffe*, or what answers to it upon this supposition? This was assuredly of no less consideration than the Rains, nay I believe the Rains were but preparatory in some measure, and that the violence and consummation of the Deluge depended upon the disruption of the great Abyffe. Therefore I see it necessary, to my first thought, concerning the smoothness and plainness of the Ante-diluvian Earth, to add a second, concerning the disruption and dissolution of it; for as it often happens in Earthquakes, when the exterior Earth is burst asunder, and a great Flood of waters issues out, according to the quantity and force of them, an Inundation is made in those parts more or less; so I thought, if that Abyffe lay under ground and round the Earth, and we should suppose the Earth in this manner to be broken, in several places at once, and as it were a general dissolution made, we might suppose that to make a general Deluge, as well as a particular dissolution often makes a particular. But I will not anticipate here the explication we intend to give of the universal Deluge in the following Chapters, only by this previous intimation we may gather some hopes, it may be, that the matter is not so desperate as the former representation might possibly make us fancy it.

Give me leave to add farther in this place, that it hath been observ'd by several, from the contemplation of the Mountains and Rocks and Precipices, of the Chanel of the Sea, and of Islands, and of Subterraneous Caverns, that the surface of the Earth, or the exterior Region which we inhabit, hath been broke, and the parts of it dislocated: And one might instance more particularly in several parcels of Nature,
that

that retain still the evident marks of fraction and ruine; and by their present form and posture show, that they have been once in another state and situation one to another. We shall have occasion hereafter to give an account of these *Phænomena*, from which several have rightly argu'd and concluded some general rupture or ruine in the superficial parts of the Earth. But this ruine, it is true, they have imagin'd and explain'd several ways, some thinking that it was made the *third day* after the foundation of the Earth; when they suppose the Chanel of the Sea to have been form'd, and Mountains and Caverns at the same time; by a violent depression of some parts of the Earth, and an extrusion and elevation of others to make them room. Others suppose it to have come not all at once, but by degrees, at several times, and in several Ages, from particular and accidental causes, as the Earth falling in upon Fires under ground, or water eating away the lower parts, or Vapours and Exhalations breaking out, and tearing the Earth. 'Tis true, I am not of their opinion in either of these Explications; and we shall show at large hereafter, when we have propos'd and stated our own Theory, how incompetent such causes are to bring the Earth into that form and condition we now find it in. But in the mean time, we may so far make use of these Opinions in general, as not to be startled at this Doctrine, concerning the breaking or dissolution of the exterior Earth; for in all Ages the face of Nature hath provok'd men to think of and observe such a thing. And who can do otherwise, to see the Elements displac'd and disorder'd, as they seem to lie at present; the heaviest and grossest bodies in the highest places, and the liquid and volatile kept below; an huge mass of Stone or Rock rear'd into the Air, and the water creeping at its feet; whereas this is the more light and active body, and by the law of Nature should take place of Rocks and Stones. So we see by the like disorder the Air thrown down into Dungeons of the Earth, and the Earth got up among the Clouds; for there are the tops of the Mountains, and under their roots in holes and Caverns the Air is often detain'd.

tain'd. By what regular action of Nature can we suppose things first produc'd in this posture and form? not to mention how broke and torn the inward substance of the Earth is, which of it self is an uniform mass, close and compact, but in the condition we see it, it lies hollow in many places, with great vacuities intercepted betwixt the portions of it; a thing which we see happens in all ruines more or less, especially when the parts of the ruines are great and inflexible. Then what can have more the figure and meen of a ruine, than Craggs and Rocks and Cliffs, whether upon the Sea shore, or upon the sides of Mountains; what can be more apparently broke, than they are; and those lesser Rocks, or great bulky Stones that lie often scatter'd near the feet of the other, whether in the Sea, or upon the Land, are they not manifest fragments, and pieces of those greater masses? Besides, the posture of these Rocks, which is often leaning or recumbent, or prostrate, shows to the eye, that they have had a fall, or some kind of dislocation from their Natural site. And the same thing may be observed in the tracts and Regions of the Earth, which very seldom for ten miles together have any regular surface or continuity one with another, but lie high and low, and are variously inclin'd sometimes one way, sometimes another, without any rule or order. Whereas I see no reason but the surface of the Land should be as regular as that of the water, in the first production of it. This I am sure of, that this disposition of the Elements, and the parts of the Earth, outward and inward, hath something irregular and unnatural in it, and manifestly shews us the marks or footsteps of some kind of ruine and dissolution; which we shall shew you in its due place happen'd in such a way, that at the same time a general Flood of waters would necessarily over-run the face of the whole Earth. And by the same fatal blow the Earth fell out of that regular form, wherein it was produc'd at first, into all these irregularities which we see in its present form and composition; so that we shall give thereby a double satisfaction to the mind, both to shew it a fair and intelligible account
of

of the general Deluge, how the waters came upon the Earth, and how they return'd into their Channels again, and left the Earth habitable ; and likewise to shew it how the Mountains were brought forth, and the Chanel of the Sea discover'd : How all those inequalities came in the body or face of the Earth, and those empty Vaults and Caverns in its bowels ; which things are no less matter of admiration than the Flood it self.

But I must beg leave to draw a Curtain before the work for a while, and to keep your patience a little in suspense, till materials are prepar'd, and all things ready to represent and explain what we have propos'd. Yet I hope in the mean time to entertain the mind with scenes no less pleasing, though of quite another nature, for we must now return to the beginning of the World, and look upon the first rudiments of Nature, and that dark, but fruitful womb out of which all things sprang, I mean the Chaos : For this is the matter which we must now work upon, and it will be no unpleasing thing to observe, how that rude mass will shoot it self into several forms, one after another, till it comes at length to make an habitable World. The steady hand of Providence, which keeps all things in weight and measure, being the invisible guide of all its motions. These motions we must examine from first to last, to find out what was the form of the Earth, and what was the place or situation of the Ocean, or the great Abyſse, in that first state of Nature : Which two things being determin'd, we shall be able to make a certain judgment, what kind of dissolution that Earth was capable of, and whether from that dissolution an Universal Deluge would follow, with all the consequences of it.

In the mean time, for the ease and satisfaction of the Reader, we will here mark the order and distribution of the first Book, which we divide into three Sections ; whereof the first is these three Chapters past : In the second Section we will shew, that the Earth before the Deluge was of a different frame and form from the present Earth ; and particularly of such
a form

a form as made it subject to a dissolution : And to such a dissolution, as did necessarily expose it to an universal Deluge. And in this place we shall apply our discourse particularly to the explication of *Noah's Flood*, and that under all its conditions, of the height of the waters, of their universality, of the destruction of the World by them, and of their retiring afterwards from the Earth; and this Section will consist of the Fourth, Fifth, Sixth, Seventh and Eighth Chapters. In the third Section we prove the same dissolution from the effects and consequences of it, or from the contemplation of the present face of the Earth : And here an account is given of the Origin of Mountains, of Subterraneous waters and Caverns, of the great Chanel of the Sea, and of the first production of Islands ; and those things are the Contents of the Ninth, Tenth and Eleventh Chapters. Then in the last Chapter we make a general review of the whole Work, and a general review of Nature; that by comparing them together, their full agreement and correspondency may appear. Here several collateral arguments are given for confirmation of the preceding Theory, and some reflexions are made upon the state of the other Planets compar'd with the Earth. And lastly, what accounts soever have been given by others of the present form and irregularities of the Earth, are examin'd and shewed insufficient. And this seemeth to be all that is requisite upon this subject.

C H A P. IV.

That the Earth and Mankind had an Original, and were not from Eternity: Prov'd against Aristotle. The first proposition of our Theory laid down, viz. That the Antediluvian Earth was of a different form and construction from the present. This is prov'd by Divine Authority, and from the nature and form of the Chaos, out of which the Earth was made.

WE are now to enquire into the Original of the Earth, and in what form it was built at first, that we may lay our foundation for the following Theory deep and sure. It hath been the general opinion and consent of the Learned of all Nations, that the Earth arose from a Chaos. This is attested by History, both Sacred and Profane; only *Aristotle*, whom so great a part of the Christian world have made their Oracle or Idol, hath maintain'd the Eternity of the Earth, and the Eternity of mankind; that the Earth and the World were from Everlasting, and in that very form they are in now, with Men and Women and all living Creatures, Trees and Fruit, Metals and Minerals, and whatsoever is of Natural production. We say all these things arose and had their first existence or production not six thousand years ago; He saith, they have subsisted thus for ever, through an infinite Series of past Generations, and shall continue as long, without first or last: And if so, there was neither Chaos, nor any other beginning to the Earth. This takes away the subject of our discourse, and therefore we must first remove this stone out of the way, and prove that the Earth had an Original, and that from a Chaos, before we show how it arose from a Chaos, and what was the first habitable form that it settled into. We

We are assur'd by Divine Authority, that the Earth and Mankind had a beginning; *Moses* saith, *In the beginning God made the Heavens and the Earth.* Speaking it as of a certain Period or Term from whence he counts the Age of the World. And the same *Moses* tells us, that *Adam* was the first Man, and *Eve* the first Woman, from whom sprung all the race of Mankind; and this within the compass of six thousand years. We are also assured from the Prophets, and our Christian Records, that the World shall have an end, and that by a general Conflagration, when all Mankind shall be destroy'd, with the form and all the furniture of the Earth. And as this proves the second part of *Aristotle's* Doctrine to be false immediately, so doth it the first by a true consequence, for what hath an end had a beginning, what is not Immortal, was not Eternal; for what exists by the strength of its own Nature at first, the same Nature will enable it to exist for ever; and indeed what exists of it self, exists necessarily; and what exists necessarily, exists eternally.

Having this infallible assurance of the Origin of the Earth and of Mankind, from Scripture, we proceed to refute the same Doctrine of *Aristotle's* by natural Reason. And we will first consider the form of the Earth, and then Mankind; and shew from plain evidence and observation, neither of them to have been Eternal. 'Tis natural to the mind to consider that which is compound, as having been once more simple; whether that composition be a mixture of many ingredients, as most Terrestrial bodies are, or whether it be Organical; but especially if it be Organical: For a thing that consists of a multitude of pieces aptly joyn'd, we cannot but conceive to have had those pieces at one time or another put together. 'Twere hard to conceive an eternal Watch, whose pieces were never separate one from another, nor ever in any other form than that of a Watch. Or an eternal House, whose materials were never asunder, but always in the form of an House. And 'tis as hard to conceive an *eternal Earth*, or an *eternal World*: These are made up of more various substances, more

ingredients, and a far greater composition; and the living part of the World, Plants and Animals have far more variety of parts and multifarious construction, than any House, or any other artificial thing: So that we are led as much by Nature and necessity to conceive this great machine of the World, or of the Earth, to have been once in a state of greater simplicity than now it is, as to conceive a Watch, an House, or any other structure, to have been once in its first and simple materials. This I speak without reference to immediate Creation, for *Aristotle* did not own any such thing, and therefore the argument stands good against him, upon those grounds and notions that he goes. Yet I guess what answer would be made by him or his followers to this argumentation; They would say there is not the same reason for Natural things, as for Artificial, though equally compounded. Artificial things could not be from Eternity, because they suppose Man, by whose Art they were made, pre-existent to them; the workman must be before the work, and whatsoever hath any thing before it, is not Eternal. But may not the same thing be said of Natural things? do not most of them require the action of the Sun, and the influence of the Heavens for their production, and longer preparations than any Artificial things do? Some Years or Ages would be necessary for the concoction and maturation of Metals and Minerals; Stones themselves, at least some sorts of them, were once liquors or fluid masses; and all Vegetable productions require the heat of the Sun, to pre-dispose and excite the Earth, and the Seeds. Nay, according to *Aristotle*, 'tis not Man by himself that begets a Man, but the Sun is his Coadjutor. You see then 'twas as necessary that the Sun, that great workman of Nature, should pre-exist to Natural things, produc'd in or upon the Earth, as that Man should pre-exist to Artificial. So that the Earth under that form and constitution it now hath, could no more be Eternal, than a Statue or Temple, or any work of Art.

Besides, that form, which the Earth is under at present, is in some sort preter-natural, like a Statue
made

made and broken again ; and so hath still the less appearance or pretence of being Eternal. If the Elements had lain in that order to one another, as *Aristotle* hath dispos'd them, and as seems to be their first disposition, the Earth altogether in a mass in the middle, or towards the Center ; then the Water in a Spherical mass about that ; the Air above the Water, and then a Sphere of Fire, as he fancied, in the highest Circle of the Air : If they had lain, I say, in this posture, there might have been some pretence that they had been Eternally so ; because that might seem to be their Original posture, in which Nature had first plac'd them. But the form and posture we find them in at present is very different, and according to his Doctrine must be lookt upon as unnatural and violent ; and no violent state, by his own Maxim, can be perpetual, or can have been so.

But there is still a more pressing consideration against this Opinion. If this present state and form of the Earth had been from Eternity, it would have long ere this destroy'd it self, and chang'd it self, the Mountains sinking by degrees into the Valleys, and into the Sea, and the Waters rising above the Earth ; which form it would certainly have come into sooner or later, and in it continu'd drown'd and uninhabitable, for all succeeding Generations. For 'tis certain, that the Mountains and higher parts of the Earth grow lesser and lesser from Age to Age ; and that from many causes, sometimes the roots of them are weaken'd and eaten by Subterraneous Fires, and sometimes they are torn and tumbled down by Earthquakes, and fall into those Caverns that are under them ; and though those violent causes are not constant, or universal, yet if the Earth had stood from Eternity, there is not a Mountain would have escap'd this fate in one Age or other. The course of these exhalations or Fires would have reach'd them all sooner or later, if through infinite Ages they had stood expos'd to them. But there are also other causes that consume them insensibly, and make them sink by degrees ; and those are chiefly the Winds, Rains, and Storms, and heat of the Sun without ; and
within,

within, the soaking of Water and Springs, with streams and Currents in their veins and crannies. These two sorts of causes would certainly reduce all the Mountains of the Earth, in tract of time, to equality ; or rather lay them all under Water : For whatsoever moulders or is washt away from them, is carried down into the lower grounds, and into the Sea, and nothing is ever brought back again by any circulation : Their losses are not repair'd, nor any proportionable recruits made from any other parts of Nature. So as the higher parts of the Earth being continually spending, and the lower continually gaining, they must of necessity at length come to an equality ; and the Waters that lie in the lower parts and in the Channels, those Channels and Valleys being fill'd up with Earth, would be thrust out and rise every where upon the surface of the Earth : Which new post when they had once seiz'd on, they would never quit it, nor would any thing be able to dispossess them ; for 'tis their natural place and situation which they always tend to, and from which there is no progress nor regress in a course of Nature. So that the Earth would have been, both now, and from innumerable Generations before this, all under water and uninhabitable ; if it had stood from everlasting, and this form of it had been its first original form.

Nor can he doubt of this argumentation, that considers the coherence of it, and will allow time enough for the Effect. I do not say the Earth would be reduc'd to this uninhabitable form in ten thousand years time, though I believe it would, but take twenty, if you please, take an hundred thousand, take a million, 'tis all one, for you may take the one as easily as the other out of Eternity ; and they make both equally against their supposition. Nor is it any matter how little you suppose the Mountains to decrease, 'tis but taking more time, and the same effect still follows. Let them but waste as much as a grain of Mustardseed every day, or a foot in an Age, this would be more than enough in ten thousand Ages to consume the tallest Mountain upon Earth. The Air alone, and the little drops of Rain have defac'd the strongest

strongest and the proudest monuments of the *Greeks* and *Romans*; and allow them but time enough, and they will of themselves beat down the Rocks into the Sea, and the Hills into the Valleys. But if we add to these all those other foremention'd causes that work with more violence, and the weight of the Mountains themselves, which upon any occasion offer'd, is ready to sink them lower, we shall shorten the time, and make the effect more sure.

We need add no more here in particular, against this *Aristotelian* Doctrine, that makes the present form of the Earth to have been from Eternity, for the truth is, this whole Book is one continu'd argument against that Opinion; shewing that it hath *de facto* chang'd its form; both in that we have prov'd that it was not capable of an universal Deluge in this form, and consequently was once under another; and also in that we shall prove at large hereafter, throughout the Third and Fourth Sections, that it hath been broken and dissolv'd. We might also add one consideration more, that if it had stood always under this form, it would have been under Fire, if it had not been under Water; and the Conflagration, which it is to undergo, would have overtaken it long ere this. For *S. Peter* saith, the Heavens and the Earth that are now, as oppos'd to the Ante-diluvian, and considered in their present form and constitution, are fitted to be consum'd by Fire. And whosoever understands the progress and revolutions of Nature, will see that neither the present form of the Earth, nor its first form, were permanent and immutable forms, but transient and temporary by their own frame and constitution; which the Author of Nature, after certain periods of time, had design'd for change and for destruction.

Thus much for the body of the Earth, that it could not have been from Eternity, as *Aristotle* pretended, in the form it hath. Now let's consider the Origination of Mankind; and that we shall find could much less be Eternal than the other; for whatsoever destroy'd the form of the Earth, would also destroy Mankind; and besides, there are many particular
marks

marks and arguments, that the Generations of Men have not been from Everlasting. All History, and all monuments of Antiquity of what kind soever, are but of a few thousand of years date ; we have still the memory of the golden Age, of the first state of Nature, and how mortals liv'd then in innocency and simplicity. The invention of Arts, even those that are necessary or useful to humane life, hath been within the knowledge of Men : How imperfect was the Geography of the Ancients, how imperfect their knowledge of the Earth, how imperfect their Navigation ? Can we imagine, if there had been Men from Everlasting, a Sea as now, and all materials for Shipping as much as we have, that men could have been so ignorant, both of the Land and of the Sea, as 'tis manifest they have been till of late Ages ? They had very different fancies concerning the figure of the Earth ; They knew no Land beyond our Continent, and that very imperfectly too ; and the Torid Zone they thought utterly uninhabitable. We think it strange, taking that short date of the World, which we give it, that Men should not have made more progress in the knowledge of these things ; But how impossible is it then, if you suppose them to have been from Everlasting ? They had the same wit and passions that we have, the same motives that we have, can we then imagine, that neither the ambition of Princes, nor Interest or gain in private persons, nor curiosity and the desire of Knowledge, nor the glory of discoveries, nor any other passion or consideration could ever move them in that endless time, to try their fortunes upon the Sea, and know something more of the World they inhabited. Though you should suppose them generally stupid, which there is no reason to do, yet in a course of infinite Generations, there would be some great Genio's, some extraordinary persons that would attempt things above the rest. We have done more within the compass of our little World, which we can but count, as to this, from the general Deluge, than those Eternal Men had done in their innumerable Ages foregoing.

You will say, it may be, they had not the advantages and opportunities for Navigation as we have, and for discoveries; because the use of the Loadstone, and the Mariners Needle was not then known. But that's the wonder, that either that invention, or any other should not be brought to light till t'other day, if the World had stood from Eternity. I say this or any other practical invention; for such things when they are once found out and known, are not easily lost again, because they are of daily use. And 'tis in most other practical Arts as in Navigation, we generally know their Original and History, who the Inventors, and by what degrees improv'd, and how few of them brought to any perfection till of late Ages. All the Artificial and Mechanical World is in a manner new; and what you may call the *Civil World* too is in a great measure so. What relates to Government, and Laws; to Wars and Discipline; we can trace these things to their Origin, or very near it. The use of money and of Coins, nay the use of the very Elements; for they tell us of the first invention of Fire by *Prometheus*, and the imploying of Wind or Water to turn the Mills and grind their Corn was scarce known before the *Romans*; and that we may think nothing Eternal here, they tell us the Ages and Genealogies of their very Gods. The measures of Time for the common uses of life, the dividing it into Hours, with the Instruments for those purposes, are not of an unknown date: Even the Arts for preparing Food and Clothing, Medicines and medicaments, Building, Civil and Military, Letters and Writing, which are the foundations of the World Civil: These, with all their retinue of lesser Arts and Trades that belong to them, History and Tradition tell us, when they had their beginning, or were very imperfect; and how many of their Inventors and Inventresses were deifi'd. The World hath not stood so long but we can still run it up to those Artless Ages, when mortals liv'd by plain Nature; when there was but one Trade in the World, one Calling, to look to their Flocks; and afterwards to Till the Ground, when Nature grew less liberal: And may we not

reasonably think this the beginning of Mankind, or very near it? If Man be a creature both naturally sagacious to find out its own conveniencies, and naturally sociable and inclin'd to live in a Community, a little time would make them find out and furnish themselves with what was necessary in these two kinds, for the conveniencies of single life and the conveniencies of Societies; they would not have liv'd infinite Ages unprovided of them. If you say *Necessity* is the Mother of Arts and Inventions, and there was no necessity before, and therefore these things were so slowly invented. This is a good answer upon our supposition, that the World began but some Ages before these were found out, and was abundant with all things at first; and men not very numerous, and therefore were not put so much to the use of their wits for living commodiously. But this is no answer upon their supposition; for if the World was Eternal and Men too, there were no first Ages, no new and fresh Earth; Men were never less numerous, nor the Earth more fruitful; and consequently there was never less necessity at any time than is now. This also brings to mind another argument against this opinion (*viz.*) from the gradual increase of Mankind. 'Tis certain the World was not so populous one or two thousand years since, as it is now, seeing 'tis observ'd, in particular Nations, that within the space of two or three hundred years, notwithstanding all casualties, the number of men doubles. If then the Earth had stood from Everlasting, it had been overstockt long ere this, and would not have been capable to contain its Inhabitants many Ages and Millions of Ages ago. Whereas we find the Earth is not yet sufficiently Inhabited, and there is still room for some millions. And we must not flie to universal Deluges and Conflagrations to destroy Mankind; for besides that the Earth was not capable of a Deluge in this present form, nor would have been in this form after a Conflagration, *Aristotle* doth not admit of these universal changes, nor any that holds the form of the Earth to be Eternal. But to return to our Arts and Inventions.

We have spoken of practical Arts and Inventions useful in humane life ; then for Theoretical Learning and Sciences, there is nothing yet finish'd or compleat in these ; and what is known hath been chiefly the production of latter Ages. How little hath been discover'd till of late, either of our own Bodies, or of the body of the Earth, and of the functions or motions of Nature in either ? What more obvious, one would think, than the Circulation of the Bloud ? What can more excite our curiosity than the flowing and ebbing of the Sea ? Than the nature of Metals and Minerals ? These are either yet unknown, or were so at least till this last Age ; which seems to me to have made a greater progress than all Ages before put together, since the beginning of the World. How unlikely is it then that these Ages were Eternal ; That the Eternal studies of our Forefathers could not effect so much as a few years have done of late ? And the whole mass of knowledge in this Earth doth not seem to be so great, but that a few Ages more, with two or three happy Genius's in them, may bring to light all that we are capable to understand in this state of mortality.

To these arguments concerning the novelty of the Earth, and the Origin of Mankind, I know there are some shuffling excuses made, but they can have little effect upon those instances we have chosen. And I would ask those Eternalists one fair question, What mark is there that they could expect or desire of the novelty of a World that is not found in this ? Or what mark is there of Eternity that is found in this ? If then their opinion be without any positive argument, and against all appearances in Nature, it may be justly rejected as unreasonable upon all accounts. 'Tis not the bold asserting of a thing that makes it true, or that makes it credible against evidence. If one should assert that such an one had liv'd from all Eternity, and I could bring witnesses that knew him a sucking Child, and others that remembered him a School-boy, I think it would be a fair proof, that the Man was not Eternal. So if there be evidence either in Reason or History, that it is not very many Ages

since Nature was in her minority, as appears by all those instances we have given above; some whereof trace her down to her very infancy: This, I think, may be taken for a good proof that she is not Eternal. And I do not doubt, but if the History of the World was writ Philosophically, giving an account of the several states of Mankind in several Ages, and by what steps or degrees they came from their first rudeness or simplicity to that order of things, both Intellectual and Civil, which the World is advanc'd to at present, that alone would be a full conviction, that the Earth and Mankind had a beginning. As the story of *Rome*, how it rise from a mean Original, by what degrees it increas'd, and how it chang'd its form and government till it came to its greatness, doth satisfie us very well, that the *Roman* Empire was not Eternal.

Thus much concerning the Temporal Original of the Earth. We are now to consider the manner of it, and to shew how it rise from a Chaos. I do not remember that any of the Ancients that acknowledge the Earth to have had an Original, did deny that Original to have been from a Chaos. We are assur'd of both from the authority of *Moses*, who saith, that in the beginning the Earth was *Tohu Bohu*, without form and void; a fluid, dark, confus'd mass, without distinction of Elements; made up of all variety of parts, but without Order, or any determinate Form; which is the true description of a Chaos: And so it is understood by the general consent of Interpreters, both Hebrew and Christian. We need not therefore spend any time here to prove, that the Origin of the Earth was from a Chaos, seeing that is agreed on by all that give it any Origin. But we will proceed immediately to examine into what form it first rise when it came out of that Chaos; or what was the primæval form of the Earth, that continued till the Deluge, and how the Deluge depended upon it, and upon its dissolution.

And that we may proceed in this enquiry by such easie steps as any one may readily follow, we will divide it into three Propositions, whereof the first is this in general; *That the Form of the Ante-diluvian Earth,*

or of the Earth that rise first from the Chaos, was different from the Form of the present Earth. I say different in general, without specifying yet what its particular form was, which shall be exprest in the following Proposition.

This first Proposition we have in effect prov'd in the Second Chapter; where we have shewn, that if the Earth had been always in this form, it would not have been capable of a Deluge; seeing that could not have been effected without such an infinite mass of water as could neither be brought upon the Earth, nor afterwards any way removed from it. But we will not content our selves with that proof only, but will prove it also from the nature of the Chaos, and the manifest consequences of it. And because this is a leading Proposition, we think it not improper to prove it also from Divine authority, there being a pregnant passage to this purpose in the writings of *S. Peter*. Where treating of this very subject, the Deluge, He manifestly puts a difference between the Ante-diluvian Earth and present Earth, as to their form and constitution. The Discourse is in the Second Epistle of *S. Peter*, the Third Chapter, where certain Deists, as they seem to have been, laugh at the prophecy of the day of Judgment, and of the Conflagration of the World, using this argument against it, *That since the Fathers fell asleep, all things have continued as they were from the beginning.* All external Nature hath continued the same without any remarkable change or alteration, and why should we believe (say they) there will be any? what appearance or what foundation is there of such a revolution, that all Nature will be dissolv'd, and the Heavens and the Earth consum'd with Fire, as your prophecies pretend? So from the permanency and immutability of Nature hitherto, they argu'd its permanency and immutability for the future. To this the *Apostle* answers, that they are willing to forget that the Heavens and the Earth of old had a particular form and constitution as to Water, by reason whereof the World that then was perisht by a Deluge. And the Heavens and the Earth that are now or since the Deluge, have a particular

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vers. 5, 6, 7.

particular constitution in reference to Fire, by reason whereof they are expos'd to another sort of destruction or dissolution, namely by Fire, or by an universal Conflagration. The words of the Apostle are these; *For this they are willingly ignorant of, that by the Word of God the Heavens were of old, and the Earth, consisting of Water, and by Water; or (as we render it) standing out of the Water, and in the Water; whereby the World that then was, being overflow'd with Water, perisht. But the Heavens and the Earth that are now, by the same Word are kept in store, reserv'd unto Fire against the day of Judgment.* We shall have occasion, it may be, hereafter to give a full illustration of these words; but at present we shall only take notice of this in general, that the Apostle here doth plainly intimate some difference that was between the old World and the present World, in their form and constitution; or betwixt the Ante-diluvian and the present Earth, by reason of which difference, that was subject to perish by a Deluge, as this is subject to perish by Conflagration. And as this is the general Air and importance of this discourse of the Apostles, which every one at first sight would discover; so we may in several particular ways prove from it our first Proposition, which now we must return to; (*viz.*) *That the form and constitution of the Ante-diluvian Earth was different from that of the present Earth.* This may be infer'd from the Apostles discourse, first, because he makes an opposition betwixt these two Earths, or these two natural Worlds; and that not only in respect of their fate, the one perishing by Water, as the other will perish by Fire, but also in respect of their different disposition and constitution leading to this different fate, for otherwise his *fifth verse* is superfluous, and his Inference in the *sixth* ungrounded; you see he premiseth in the *fifth verse* as the ground of his discourse, what the constitution of the Ante-diluvian Heavens and Earth was, and then infers from it in the *sixth verse*, that they therefore perisht in a Deluge of water. Now if they had been the same with ours, there had neither been any ground for making an opposition betwixt them, nor any ground of making

king a contrary inference as to their fate. Besides, in that he implies, that the constitution of the Ante-diluvian Earth was such, as made it subject to a Deluge; he shews, that it was different from the constitution of the present Earth; for the form of that is such, as makes it rather incapable of a Deluge, as we have shewn in the second Chapter. Then we are to observe further, that when he saith (*verse 6.*) that the first World perish'd in a Deluge, or was destroy'd by it; this is not to be understood of the Animate world only, Men and living Creatures, but of the Natural world, and the frame of it; for he had describ'd it before by the Heavens and the Earth, which make the Natural world. And the objection of the Atheists, or Deists rather, which he was to answer, proceeded upon the Natural world. And lastly, this perishing of the world in a Deluge, is set against, or compar'd with the perishing of the world in the Conflagration, when the frame of Nature will be dissolv'd. We must therefore, according to the tenor of the Apostles arguing, suppose that the Natural world was destroy'd or perisht in the Deluge; and seeing it did not perish as to matter and substance, it must be as to the form, frame, and composition of it, that it perisht; and consequently, the present Earth is of another form and frame from what it had before the Deluge; which was the thing to be proved.

Lastly, let us consider what it is the Apostle tells these Scoffers that they were ignorant of, not that there was a Deluge, they could not be ignorant of that; nor doth he tell them that they were; But he tells them that they were ignorant that the Heavens and the Earth of old were so and so constituted, after a different manner than they are now, and that the state of Nature was chang'd at the Deluge. If they had known or attended to this, they had made no such objection, nor us'd any such argument as they did against the future Conflagration of the world. They pretended that there had been no change in Nature since the beginning, and the Apostle in answer tells them, that they are willingly ignorant of the first
constitu-

constitution of the Heavens, and the Earth, and of that change and dissolution that happen'd to them in the Deluge ; and how the present Heavens and Earth have another constitution, whereby in like manner they are expos'd, in Gods due time, to be consum'd or dissolv'd by Fire. This is the plain, easie and natural import of the Apostles discourse ; thus all the parts of it are coherent, and the sense genuine and apposite, and this is a full confirmation of our first and general assertion, That *the Ante-diluvian Earth was of another form from the present Earth.* This hath been observ'd formerly by some of the Ancients from this Text, but that it hath not been generally observ'd, was, partly because they had no Theory to back such an interpretation, and make it intelligible ; and partly because they did not observe, that the Apostles discourse here was an argumentation, and not a bare affirmation, or simple contradiction to those that rais'd the scruple ; 'tis an answer upon a ground taken, he premiseth and then infers ; in the *fifth* and *sixth* Verses, concerning the Deluge ; and in the *seventh*, concerning the Conflagration. And when I had discover'd in my thoughts from the consideration of the Deluge, and other natural reasons, that the Earth was certainly once in another form, it was a great assurance and confirmation to me, when I reflected on this place of *S. Peters* ; which seems to be so much directed and intended for the same purpose, or to teach us the same conclusion, that though I design'd chiefly a Philosophical Theory of these things, yet I should not have thought we had been just to Providence, if we had neglected to take notice of this passage and Sacred evidence ; which seems to have been left us on purpose, to excite our enquiries, and strengthen our reasonings concerning the first state of things. Thus much from Divine Authority : We proceed now to prove the same Proposition from Reason and Philosophy, and the contemplation of the Chaos, from whence the first Earth arose.

We need not upon this occasion make a particular description of the Chaos, but only consider it as a
Fluid

Fluid Mass, or a Mass of all sorts of little parts and particles of matter, mixt together, and floating in confusion, one with another. 'Tis impossible that the surface of this mass should be of such a form and figure, as the surface of our present Earth is. Or that any concretion or consistent state which this mass could flow into immediately, or first settle in, could be of such a form and figure as our present Earth. The first of these Assertions is of easie proof; for a fluid body, we know, whether it be water or any other liquor, always casts it self into a smooth and spherical surface; and if any parts by chance, or by some agitation, become higher than the rest, they do not continue so, but glide down again every way into the lower places, till they all come to make a surface of the same height, and of the same distance every where from the center of their gravity. A mountain of water is a thing impossible in Nature, and where there are no Mountains, there are no Valleys. So also a Den or Cave within the water, that hath no walls but the liquid Element, is a structure unknown to Art or Nature; all things there must be full within, and even and level without, unless some External force keep them by violence in another posture. But is this the form of our Earth, which is neither regularly made within nor without? The surface and exterior parts are broken into all sorts of inequalities, Hills and Dales, Mountains and Valleys; and the plainer tracts of it lie generally inclin'd or bending one way or other, sometimes upon an easie descent, and other times with a more sensible and uneasie steepness; and though the great Mountains of the Earth were taken all away, the remaining parts would be more unequal than the roughest Sea; whereas the face of the Earth should resemble the face of the calmest Sea, if it was still in the form of its first mass. But what shall we say then to the huge Mountains of the Earth, which lie sometimes in lumps or clusters, heapt up by one another, sometimes extended in long ridges or chains for many hundred miles in length? And 'tis remarkable, that in every Continent, and in every ancient and original Island, there is either such

a cluster, or such a chain of Mountains. And can there be any more palpable demonstrations than these are, that the surface of the Earth is not in the same form that the surface of the Chaos was, or that any fluid mass can stand or hold it self in ?

Then for the form of the Earth within or under its surface, 'tis no less impossible for the Chaos to imitate that ; for 'tis full of cavities and empty places, of dens and broken holes, whereof some are open to the Air, and others cover'd and enclosed wholly within the ground. These are both of them unimitable in any liquid substance, whose parts will necessarily flow together into one continued mass, and cannot be divided into apartments and separate rooms, nor have vaults or caverns made within it ; the walls would sink, and the roof fall in : For liquid bodies have nothing to sustain their parts, nor any thing to cement them ; they are all loose and incoherent, and in a perpetual flux : Even an heap of Sand or fine Powder will suffer no hollownes within them, though they be dry substances, and though the parts of them being rough, will hang together a little, and stand a little upon an heap ; but the parts of liquors being glib, and continually in motion, they fall off from one another, which way soever gravity inclines them, and can neither have any hills or eminencies on their surface, nor any hollownes within their substance.

You will acknowledge, it may be, that this is true, and that a liquid mass or Chaos, while it was liquid, was incapable of either the outward or inward form of the Earth ; but when it came to a concretion, to a state of consistency and firmness, then it might go, you'll say, into any form. No, not in its first concretion, nor in its first state of consistence ; for that would be of the same form that the surface of it was when it was liquid ; as water, when it congeals, the surface of the Ice is smooth and level, as the surface of the water was before ; so Metals, or any other substances melted, or Liquors that of themselves grow stiff and harden, always settle into the same form which they had when they were last liquid, and are always solid within, and smooth without, unless they
be

be cast in a mould, that hinders the motion and flux of the parts. So that the first concrete state or consistent surface of the Chaos, must be of the same form or figure with the last liquid state it was in; for that is the mould, as it were, upon which it is cast; as the shell of an Egg is of the like form with the surface of the liquor it lies upon. And therefore by analogy with all other liquors and concretions, the form of the Chaos, whether liquid or concrete, could not be the same with that of the present Earth, or like it: And consequently, that form of the first or primigenial Earth which rise immediately out of the Chaos, was not the same, nor like to that of the present Earth. Which was the first and preparatory Proposition we laid down to be prov'd. And this being prov'd by the authority both of our Reason and our Religion, we will now proceed to the Second, which is more particular.

C H A P. V.

The Second Proposition is laid down, viz. That the face of the Earth before the Deluge was smooth, regular and uniform; without Mountains, and without a Sea. The Chaos out of which the World rise is fully examin'd, and all its motions observ'd, and by what steps it wrought it self into an habitable World. Some things in Antiquity relating to the first state of the Earth are interpreted, and some things in the Sacred Writings. The Divine Art and Geometry in the construction of the first Earth is observ'd and celebrated.

WE have seen it prov'd, in the foregoing Chapter, that the form of the first or Ante-diluvian Earth, was not the same, nor like the form of the

present Earth ; this is our first discovery at a distance, but 'tis only general and negative, tells us what the form of that Earth was not, but tells us not expressly what it was; that must be our next enquiry, and advancing one step further in our Theory, we lay down this Second Proposition : *That the face of the Earth before the Deluge was smooth, regular, and uniform ; without Mountains, and without a Sea.* This is a bold step, and carries us into an other World, which we have never seen nor ever yet heard any relation of ; and a World, it seems, of very different scenes and prospects from ours, or from any thing we have yet known. An Earth without a Sea, and plain as the *Elysian* fields ; if you travel it all over, you will not meet with a Mountain or a Rock, yet well provided of all things requisite for an habitable World ; and the same indeed with the Earth we still inhabit, only under another form. And this is the great thing that now comes into debate, the great Paradox which we offer to be examin'd, and which we affirm, that the Earth in its first rise and formation from a Chaos, was of the form here describ'd, and so continu'd for many hundreds of years.

To examine and prove this, we must return to the beginning of the World, and to that Chaos out of which the Earth and all Sublunary things arose : 'Tis the motions and progress of this which we must now consider, and what form it settled into when it first became an habitable World.

Neither is it perhaps such an intricate thing as we imagine it at first sight, to trace a Chaos into an habitable World ; at least there is a particular pleasure in it to see things in their Origin, and by what degrees and successive changes they rise into that order and state we see them in afterwards, when compleated. I am sure if ever we would view the paths of Divine Wisdom, in the works and in the conduct of Nature, we must not only consider how things are, but how they came to be so. 'Tis pleasant to look upon a Tree in the Summer, cover'd with its green Leaves, deckt with Blossoms, or laden with Fruit, and casting a pleasing shade under its spreading Boughs ;

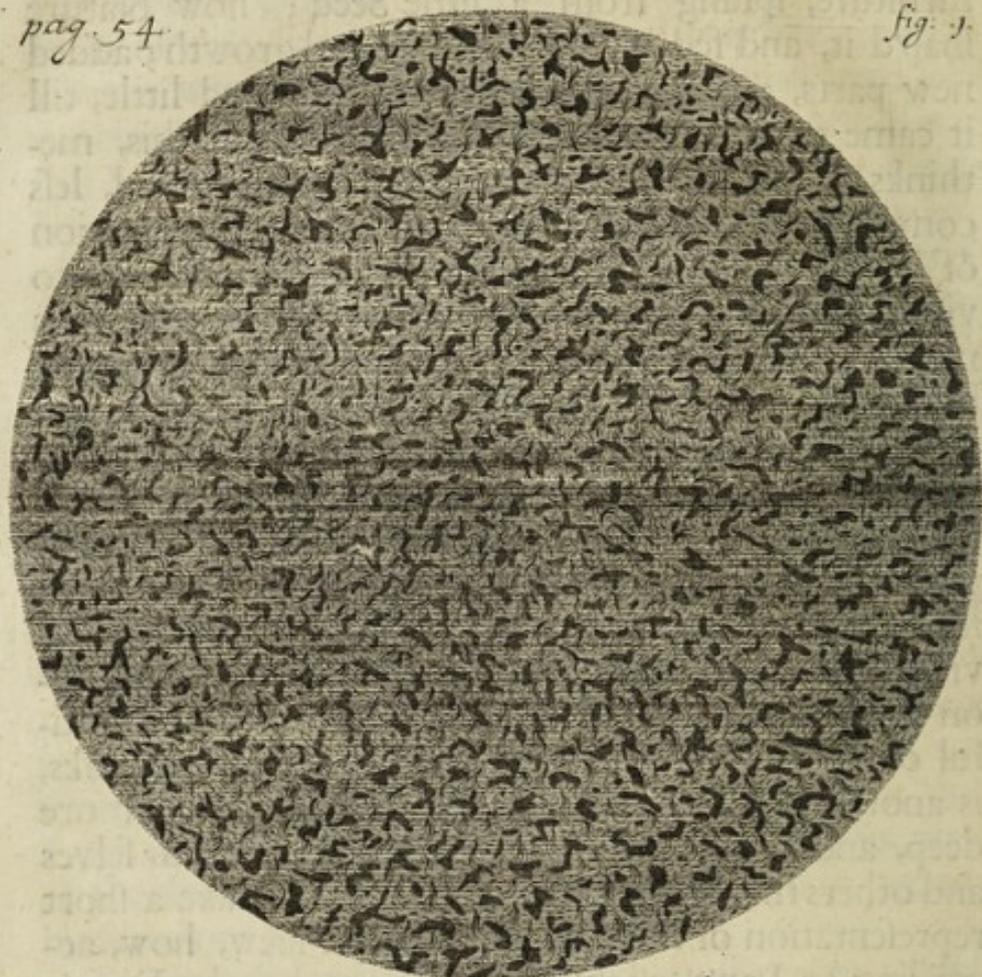
Boughs; but to consider how this Tree with all its furniture, sprang from a little Seed; how Nature shap'd it, and fed it, in its infancy and growth; added new parts, and still advanc'd it by little and little, till it came to this greatness and perfection, this, methinks, is another sort of pleasure, more rational, less common, and which is properly the contemplation of Divine Wisdom in the works of Nature. So to view this Earth, and this Sublunary World, as it is now compleat, distinguish'd into the several orders of bodies of which it consists, every one perfect and admirable in its kind; this is truly delightful, and a very good entertainment of the mind; But to see all these in their first Seeds, as I may so say; to take in pieces this frame of Nature, and melt it down into its first principles; and then to observe how the Divine Wisdom wrought all these things out of confusion into order, and out of simplicity into that beautiful composition we now see them in; this, methinks, is another kind of joy, which pierceth the mind more deep, and is more satisfactory. And to give our selves and others this satisfaction, we will first make a short representation of the Chaos, and then shew, how, according to Laws establish'd in Nature by the Divine Power and Wisdom, it was wrought by degrees from one form into another, till it settled at length into an habitable Earth; and that of such a frame and structure, as we have describ'd in this second Proposition.

By the Chaos I understand the matter of the Earth and Heavens, without form or order; reduc'd into a fluid mass, wherein are the materials and ingredients of all bodies, but mingled in confusion one with another. As if you should suppose all sorts of Metals, Gold, Silver, Lead, &c. melted down together in a common mass, and so mingled, that the parts of no one Metal could be discern'd as distinct from the rest, this would be a little metallick Chaos: Suppose then the Elements thus mingled, Air, Water and Earth, which are the principles of all Terrestrial bodies; mingled, I say, without any order of higher or lower, heavier or lighter, solid or volatile, in such a kind of confus'd mass as is here represented in this first Scheme.

Let

pag. 54.

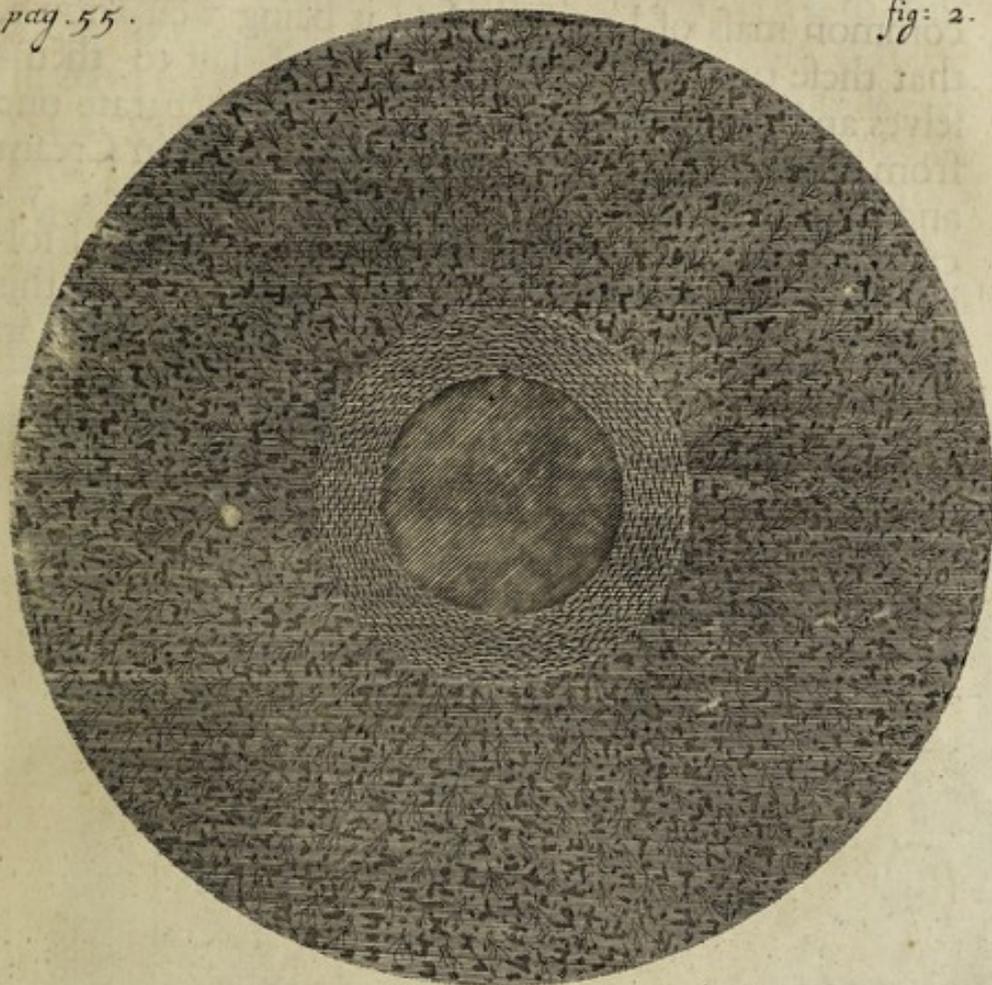
fig. 1.



Let this then represent to us the Chaos; in which the first change that we should imagine to happen would be this, that the heaviest and grossest parts would sink down towards the middle of it, (for there we suppose the center of its gravity) and the rest would float above. These grosser parts thus sunk down and compressed more and more, would harden by degrees, and constitute the interior parts of the Earth. The rest of the mass, which swims above, would be also divided by the same principle of gravity into two orders of Bodies, the one Liquid like Water, the other Volatile like Air. For the more fine and active parts disentangling themselves by degrees from the rest, would mount above them; and having motion enough to keep them upon the wing, would play in those open places where they constitute that body we call AIR. The other parts being

pag. 55.

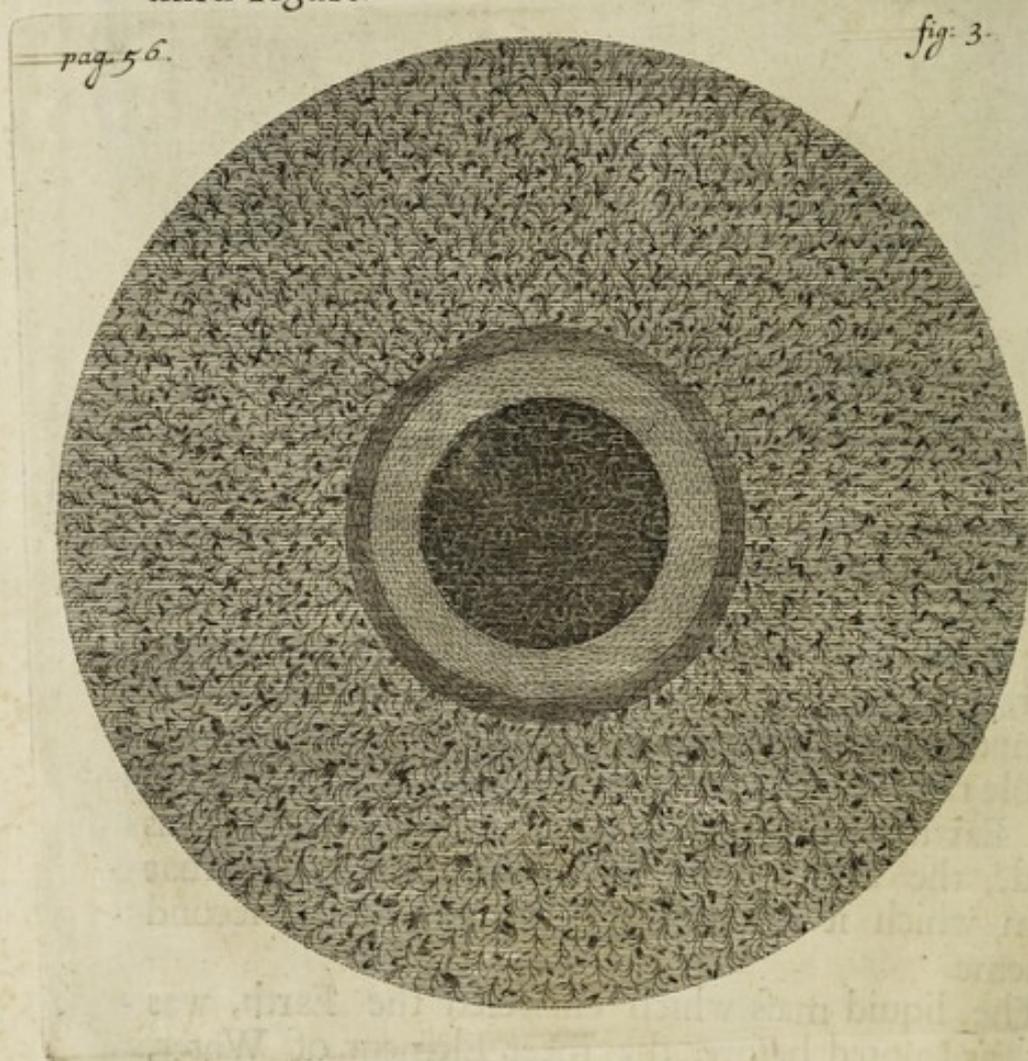
fig: 2.



ing grosser than these, and having a more languid motion, could not fly up and down separate from one another, as these did, but settled in a mass together, under the Air, upon the body of the Earth, composing not only Water strictly so call'd, but the whole mass of liquors or liquid bodies belonging to the Earth. And these first separations being thus made, the body of the Chaos would stand in that form which it is here represented in by the second Scheme.

The liquid mass which encircled the Earth, was not, as I noted before, the meer Element of Water, but a collection of all Liquors that belong to the Earth. I mean of all that do originally belong to it. Now seeing there are two chief kinds of Terrestrial liquors, those that are fat, oily, and light; and those that are lean and more Earthy, like common Water; which two are generally found in compound liquors;

we cannot doubt but there were of both sorts in this common mass of liquids. And it being well known, that these two kinds mixt together, if left to themselves and the general action of Nature, separate one from another when they come to settle, as in Cream and thin Milk, Oil and Water, and such like; we cannot but conclude, that the same Effect would follow here, and the more oily and light part of this mass would get above the other, and swim upon it. The whole mass being divided into two lesser masses, and so the Globe would stand as we see it in this third Figure.

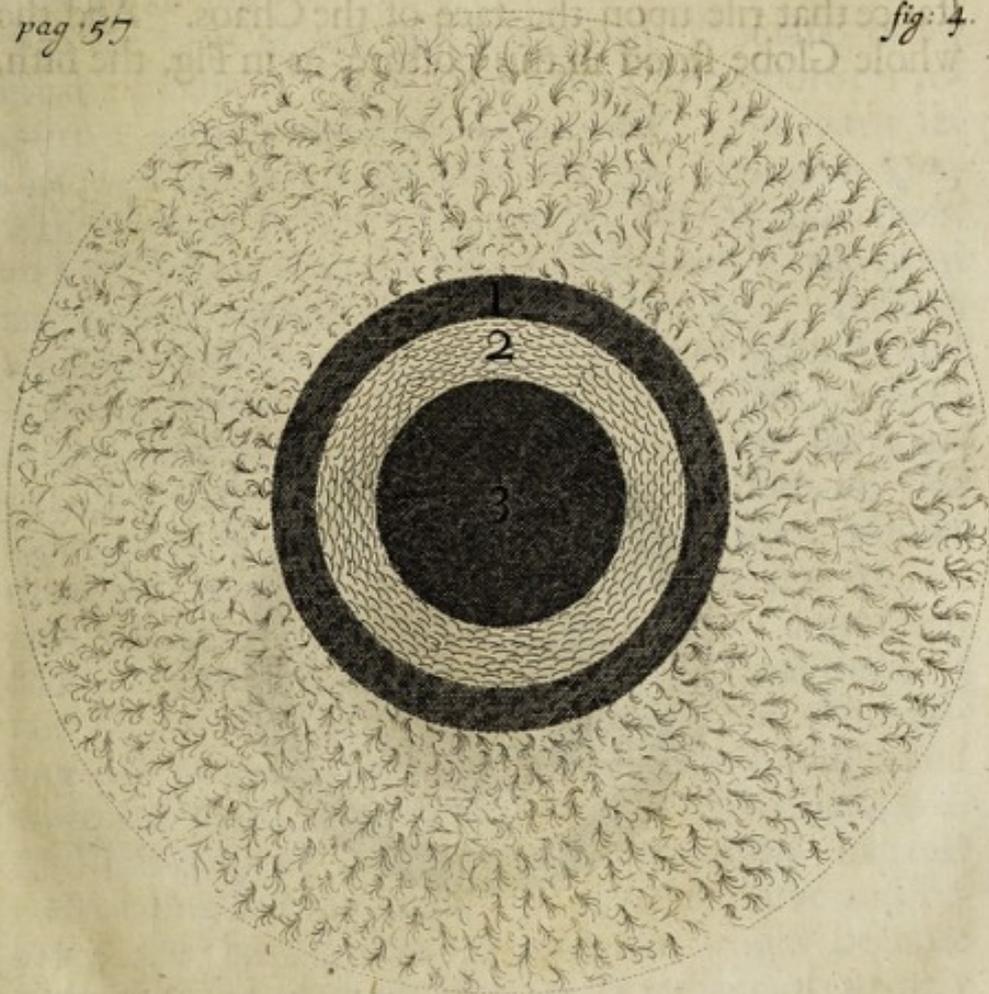


Hitherto the changes of the Chaos are easie and unquestionable, and would be dispatcht in a short time; we must now look over again these two great masses of the *Air* and *Water*, and consider how their impurities or grosser parts would be dispos'd of; for we cannot imagine but they were both at first very muddy

muddy and impure: And as the Water would have its sediment, which we are not here concern'd to look after, so the great Regions of the Air would certainly have their sediment too; for the Air was as yet thick, gross, and dark; there being an abundance of little Terrestrial particles swimming in it still, after the grossest were sunk down; which by their heaviness and lumpish figure, made their way more easily and speedily. The lesser and lighter which remain'd would sink too, but more slowly, and in a longer time, so as in their descent they would meet with that oily liquor upon the face of the Deep, or upon the

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fig: 4

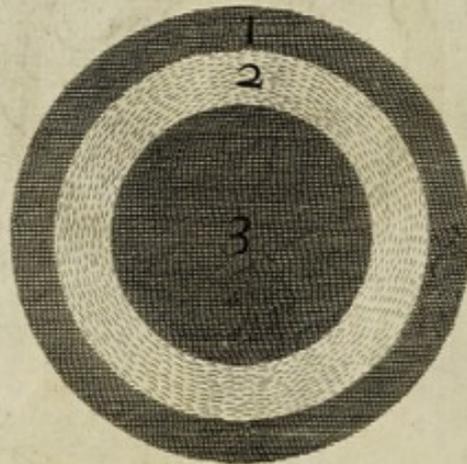


watery mass, which would entangle and stop them from passing any further; so as mixing there with that unctious substance, they compos'd a certain slime, or fat, soft, and light Earth, spread upon the face of the Waters; as 'tis represented in this fourth Figure.

This thin and tender Orb of Earth increas'd still more and more, as the little Earthy parts that were detain'd in the Air could make their way to it. Some having a long journey from the upper Regions, and others being very light would float up and down a good while, before they could wholly disengage themselves and descend. But this was the general rendezvous, which sooner or later they all got to, and mingling more and more with that oily liquor, they suckt it all up at length, and were wholly incorporate together, and so began to grow more stiff and firm, making both but one substance, which was the first concretion, or firm and consistent substance that rise upon the face of the Chaos. And the whole Globe stood in this posture, as in Fig. the fifth.

pag. 58.

fig: 5.



It may be, you will say, we take our liberty, and our own time for the separation of these two liquors, the Oily and the Earthy, the lighter and the heavier ;
and

and suppose that done before the Air was clear'd of Earthy particles, that so they might be catcht and stopt there in their descent. Whereas if all these particles were fallen out of the Air before that separation was made in the liquid mass, they would fall down through the Water, as the first did, and so no concretion would be made, nor any Earthy crust form'd upon the face of the Waters, as we here suppose there was. 'Tis true, there could be no such Orb of Earth form'd there, if the Air was wholly purg'd of all its Earthy parts before the Mass of liquids began to purifie it self, and to separate the Oily parts from the more heavy : But this is an unreasonable and incredible supposition, if we consider, that the mass of the Air was many thousand times greater than the Water, and would in proportion require a greater time to be purified ; The particles that were in the Regions of the Air having a long way to come before they reacht the Watery mass, and far longer than the Oily particles had to rise from any part of that mass to the surface of it. Besides, we may suppose a great many degrees of littleness and lightness in these Earthy particles, so as many of them might float in the Air a good while, like Exhalations, before they fell down. And lastly, we do not suppose the separation of these two liquors wholly made and finisht before the purgation of the Air began, though we represent them so for distinction sake ; Let them begin to purifie at the same time, if you please, these parts rising upwards, and those falling downwards, they will meet in the middle, and unite and grow into one body, as we have describ'd. And this body or new concretion would be increast daily, being fed and suppli'd both from above and below ; and having done growing, it would become more dry by degrees, and of a temper of greater consistency and firmness, so as truly to resemble and be fit to make an habitable Earth, such as Nature intended it for.

But you will further object, it may be, that such an effect as this would indeed be necessary in some degree and proportion, but not in such a proportion,

and in such quantity as would be sufficient to make this crust or concrete Orb an habitable Earth. This I confess appear'd to me at first a real difficulty, till I consider'd better the great disproportion there is betwixt the Regions of the Air and the Circumference of the Earth, or of that exterior Orb of the Earth, which we now are making; which being many thousand times less in depth and extent than the Regions of the Air, taken as high as the Moon, though these Earthy particles, we speak of, were very thinly dispers'd through those vast tracts of the Air, when they came to be collected and amass'd together upon the surface of a far lesser Sphere, they would constitute a body of a very considerable thickness and solidity. We see the Earth sometimes cover'd with Snow two or three feet deep, made up only of little flakes or pieces of Ice, which falling from the middle Region of the Air, and meeting with the Earth in their descent, are there stopt and heapt up one upon another. But if we should suppose little particles of Earth to shower down, not only from the middle Region, but from the whole capacity and extent of those vast spaces that are betwixt us and the Moon, we could not imagine but these would constitute an Orb of Earth some thousands of times deeper than the greatest Snow; which being increas'd and swoln by that oily liquor it fell into, and incorporated with, it would be thick, strong, and great enough in all respects to render it an habitable Earth.

We cannot doubt therefore but such a body as this would be form'd, and would be sufficient in quantity for an habitable Earth. Then for the quality of it, it will answer all the purposes of a *Rising World*. What can be a more proper Seminary for Plants and Animals, than a soil of this temper and composition? A finer and lighter sort of Earth mixt with a benign Juice, easie and obedient to the action of the Sun, or of what other causes were imploy'd by the Author of Nature, for the production of things in the new-made Earth. What sort or disposition of matter could be more fit and ready to catch life from Heaven, and to be drawn into all forms that the rudiments

diments of life, or the bodies of living Creatures would require? What soil more proper for Vegetation than this warm moisture, which could have no fault, unless it was too fertile and luxuriant? and that is no fault neither at the beginning of a World. This I am sure of, that the learned amongst the Ancients, both *Greeks, Egyptians, Phœnicians*, and others, <sup>Ἰανὸς ἀρετὸ-
γενής.</sup> have describ'd the primigenial soil, or the temper of the Earth, that was the first subject for the Generation and Origin of Plants and Animals, after such a manner, as is truly express'd, and I think with advantage, by this draught of the primigenial Earth.

Thus much concerning the matter of the first Earth. Let us reflect a little upon the form of it also, whether External or Internal; whereof both do manifestly shew themselves from the manner of its production or formation. As to the External form, you see it is according to the Proposition we were to prove, *smooth, regular and uniform, without Mountains, and without a Sea.* And the proof we have given of it is very easie; The Globe of the Earth could not possibly rise immediately from a Chaos into the irregular form in which it is at present. The Chaos being a fluid mass, which we know doth necessarily fall into a Spherical surface, whose parts are equi-distant from the Center, and consequently in an equal and even convexity one with another. And seeing upon the distinction of a Chaos and separation into several Elementary masses, the Water would naturally have a superiour place to the Earth, 'tis manifest, that there could be no habitable Earth form'd out of the Chaos, unless by some concretion upon the face of the Water. Then lastly, seeing this concrete Orb of Earth upon the face of the Water would be of the same form with the surface of the Water it was spread upon, there being no causes that we know of to make any inequality in it, we must conclude it equal and uniform, and without Mountains; as also without a Sea; for the Sea and all the mass of Waters was enclos'd within this exterior Earth, which had no other basis or foundation to rest upon.

The contemplation of these things, and of this posture of the Earth upon the Waters, doth so strongly bring to mind certain passages of Scripture, that we cannot, without injury to truth, pass them by in silence. Passages that have such a manifest resemblance and agreement to this form and situation of the Earth, that it is not possible to believe, but that they allude to it, or rather literally express it; such are those expressions of the Psalmist, *God hath founded the Earth upon the Seas.* And in another Psalm, speaking of the wisdom and power of God in the Creation, he saith, *To him who alone doth great wonders; to him that by wisdom made the Heavens; to him that extended or stretched out the Earth above the Waters.* What can be more plain and positive to denote that form of the Earth that we have describ'd, and to express particularly the inclosure of the Waters within the Earth, as we have represented them? He saith in another place; *By the Word of the Lord were the Heavens made; he shut up the Waters of the Sea as in Bags, (for so the word is to be render'd, and is render'd by all, except the English) and laid up the Abyſſe as in store-houses.* We cannot easily imagine any thing more express, or more conformable to that System of the Earth and Sea, which we have propos'd here. Yet there is something more express than all this in that remarkable place in the *Proverbs of Solomon*, where *Wisdom* declaring her Antiquity and Existence before the foundation of the Earth, amongst other things, saith; *When he prepared the Heavens, I was there: When he drew an Orb over the surface of the Abyſſe; or when he set an Orb upon the face of the Abyſſe.* We render it in the *English* a *Compass*, or *Circle*, but 'tis more truly rendred an Orb or Sphere; and what Orb or Spherical body was this, which at the formation of the Earth was built and plac'd round about the Abyſſe; but that wonderful Arch, whose form and production we have describ'd, encompassing the mass of Waters, which in Scripture is often call'd the Abyſſe or Deep? This Orb is represented by the Circle 1, and the Abyſſe by the Region 2. Lastly, this Scheme of the first Earth gives light to that place we mention'd

Prov. 8. 27.

Vid. Fig. 5.
p. 53.

tion'd before of *S. Peter's*, where the difference between the Ante-diluvian and Post-diluvian Earth is made to consist in their different constitution, as to Water, by reason whereof that first Earth was obnoxious to a Deluge: Which last part shall be made appear hereafter. And of these passages of Scripture, which we have cited, we may truly and modestly say, that though they would not, it may be, without a Theory premis'd have been taken or interpreted in this sence, yet this Theory being premis'd, I dare appeal to any unprejudic'd person, if they have not a fairer and easier, a more full and more emphatical sence, when appli'd to this form of the Earth and Sea, than to their present form, or to any other we can imagine.

Thus much concerning the external form of the first Earth. Let us now reflect a little upon the Internal form of it, which consists of several Regions, involving one another like Orbs about the same Center, or of the several Elements cast circularly about each other; as it appears in the Fourth and Fifth Figure. And as we have noted the External form of this primæval Earth, to have been markt and celebrated in the Sacred Writings; so likewise in the Philosophy and Learning of the Ancients, there are several remains and indications of this Internal form and composition of it. For 'tis observable, that the Ancients in treating of the Chaos, and in raising the World out of it, rang'd it into several Regions or Masses, as we have done; and in that order successively, rising one from another, as if it was a Pedigree or Genealogy; and therefore they call it the Genealogy of the Gods. And those parts and Regions of Nature, into which the Chaos was by degrees divided, they signifi'd commonly by dark and obscure names, as the *Night*, *Tartarus*, *Oceanus*, and such like, which we have express'd in their plain and proper terms. And whereas the Chaos, when it was first set on work, ran all into divisions, and separations of one Element from another, which afterwards were all in some measure united and associated in this primigenial Earth; the Ancients accordingly made *Contention*

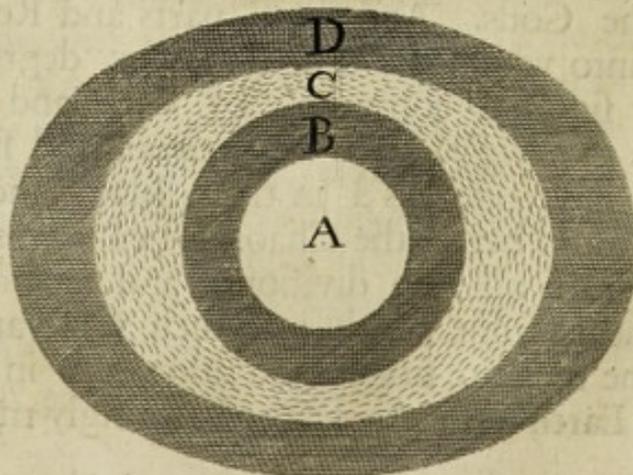
tention the principle that reign'd in the Chaos at first, and then *Love*: The one to express the divisions, and the other the union of all parties in this middle and common bond. These, and such like notions which we find in the writings of the Ancients figuratively and darkly deliver'd, receive a clearer light, when compar'd with this Theory of the Chaos; which representing every thing plainly, and in its natural colours, is a Key to their thoughts, and an illustration of their obscurer Philosophy, concerning the Original of the World; as we have shewn at large in the *Latin Treatise*.

*Lib. 2.
Chap. 7.*

There is another thing in Antiquity, relating to the form and construction of the Earth, which is very remarkable, and hath obtain'd throughout all learned Nations and Ages. And that is the comparison or resemblance of the Earth to an *Egg*. And this is not so much for its External Figure, though that be true too, as for the inward composition of it; consisting of several Orbs, one including another, and in that order, as to answer the several Elementary Regions of which the new-made Earth was constituted. For if we admit for the *Yolk* a Central fire (which, though very reasonable, we had no occasion to take notice of in our Theory of the Chaos) and suppose the Figure of the Earth *Oval*, and a little extended towards the Poles, as very probably it is; those two bodies do very naturally represent one another; as in this Scheme, which represents the Interior faces of both, or a divided *Egg* or Earth. As the

Fig. 7.

pag. 64.



two

two inmost Regions A. B. represent the Yolk and the Membrane that lies next above it ; so the Exteriour Region of the Earth (D) is as the Shell of the Egg, and the Abyſſe (C) under it as the White that lies under the Shell. And conſidering that this notion of the *Mundane Egg*, or that the World was *Oviſorm*, hath been the ſence and Language of all Antiquity, *Latins, Greeks, Perfians, Egyptians*, and others, as we have ſhew'd elſewhere ; I thought it worthy our notice in this place ; ſeeing it receives ſuch a clear and eaſie explication from that Origin and Fabrick we have given to the firſt Earth, and alſo reflects light upon the Theory it ſelf, and confirms it to be no fiction : This notion, which is a kind of Epitome or Image of it, having been conſerv'd in the moſt ancient Learning.

Tell Theor:
Sac. lib. 2:
c. 10.

Thus much concerning the firſt Earth, its production and form ; and concerning our Second Propoſition relating to it : Which being prov'd by Reason, the laws of Nature, and the motions of the Chaos ; then attested by Antiquity, both as to the matter and form of it ; and confirm'd by Sacred Writers, we may take it now for a well eſtabliſht truth, and proceed upon this ſuppoſition, *That the Ante-diluvian Earth was ſmooth and uniform, without Mountains or Sea*; to the explication of the univerſal Deluge.

Give me leave only before we proceed any further, to annex here a ſhort Adverſement, concerning the cauſes of this wonderful ſtructure of the firſt Earth: 'Tis true, we have propos'd the Natural Cauſes of it, and I do not know wherein our Explication is falſe or defective ; but in things of this kind we may eaſily be too credulous. And this ſtructure is ſo marvellous, that it ought rather to be conſider'd as a particular effect of the Divine Art, than as the work of Nature. The whole Globe of the Water vaulted over, and the Exteriour Earth hanging above the Deep, ſuſtain'd by nothing but its own meaſures and manner of conſtruction : A Building without foundation or corner-ſtone. This ſeems to be a piece of Divine Geometry or Architecture ; and to this, I think, is to be refer'd that magnificent challenge which God Almighty

Job 38. 4, 5,
6, 7, &c.

mighty made to Job ; Where wast thou when I laid the foundations of the Earth ? declare if thou hast understanding ; Who hath laid the measures thereof, if thou knowest ; or who hath stretched the line upon it ? Whereupon are the foundations thereof fastned, or who laid the corner-stone thereof ? When the morning Stars sang together, and all the sons of God shouted for joy. Moses also when he had describ'd the Chaos, saith, *The spirit of God mov'd upon, or sat brooding upon, the face of the waters ;* without all doubt to produce some effects there. And *S. Peter*, when he speaks of the form of the Ante-diluvian Earth, how it stood in reference to the Waters, adds, *By the Word of God, or by the Wisdom of God it was made so.* And this same *Wisdom* of God, in the *Proverbs*, as we observed before, takes notice of this very piece of work in the formation of the Earth. *When he set an Orb over the face of the Deep I was there.* And lastly, the Ancient Philosophers, or at least the best of them, to give them their due, always brought in *Mens* or *Amor*, as a Supernatural principle, to unite and consociate the parts of the Chaos ; which was first done in the composition of this wonderful Arch of the Earth. Wherefore to the great Architect, who made the boundless Universe out of nothing, and form'd the Earth out of a Chaos, let the praise of the whole Work, and particularly of this Master-piece, for ever with all honour be given.

Τῶ ἀβύσσου
ἐστίν.

C H A P. VI.

The dissolution of the First Earth : The Deluge ensuing thereupon. And the form of the present Earth rising from the Ruines of the First.

Vid. Fig. 5,
& 6. pag.
58, & 64.

WE have now brought to light the Ante-diluvian Earth out of the dark mass of the Chaos ; and not only described the surface of it, but laid open the inward parts, to shew in what order its Regions

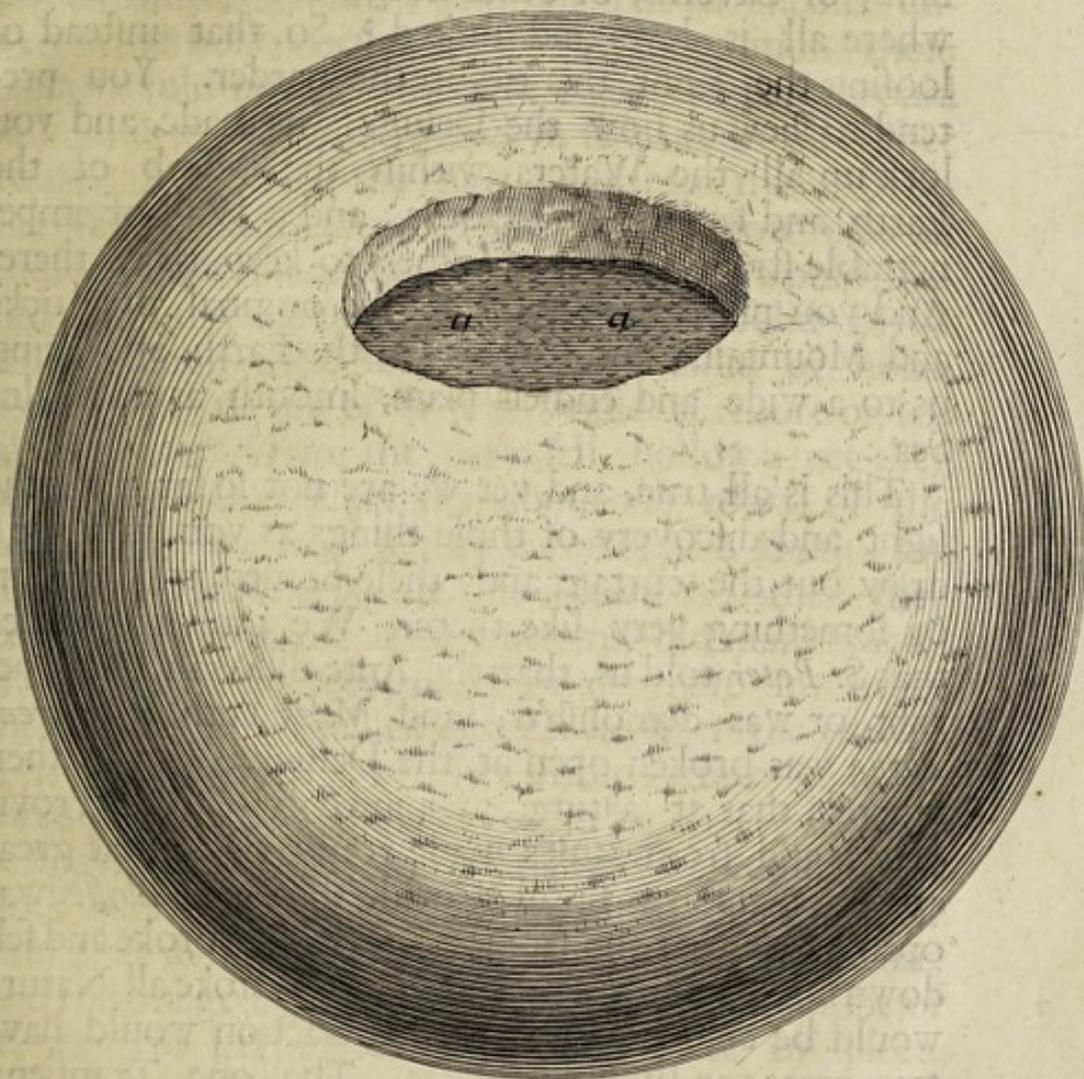
Chap. 6. *The Deluge and Dissolution of the Earth.* 67

gions lay. Let us now close it up, and represent the Earth entire, and in larger proportions, more like an habitable World; as in this Figure, where you see the smooth convex of the Earth, and may imagine the great Abyſſe spread under it *; which two are to be the only subject of our further contemplation.

* As at the aperture
a. a.

Booke 1st

p. 67



In this smooth Earth were the first Scenes of the World, and the first Generations of Mankind; it had the beauty of Youth and blooming Nature, fresh and fruitful, and not a wrinkle, scar or fracture in all its body; no Rocks nor Mountains, no hollow Caves, nor gaping Channells, but even and uniform all over. And the smoothness of the Earth made the face of the Heavens so too; the Air was calm and serene; none of those tumultuary motions and conflicts of

vapours, which the Mountains and the Winds cause in ours: 'Twas suited to a golden Age, and to the first innocency of Nature.

All this you'll say is well, we are got into a pleasant World indeed, but what's this to the purpose? what appearance of a Deluge here, where there is not so much as a Sea, nor half so much water as we have in this Earth? or what appearance of Mountains, or Caverns, or other irregularities of the Earth, where all is level and united? So that instead of loosing the Knot, this ties it the harder. You pretend to shew us how the Deluge was made, and you lock up all the Waters within the womb of the Earth, and set Bars and Doors, and a Wall of impenetrable strength and thickness to keep them there. And you pretend to shew us the original of Rocks and Mountains, and Caverns of the Earth, and bring us to a wide and endless plain, smooth as the calm Sea.

This is all true, and yet we are not so far from the sight and discovery of those things as you imagine; draw but the curtain and these Scenes will appear, or something very like them. We must remember that *S. Peter* told us, that the Ante-diluvian Earth perisht, or was demolish'd; and *Moses* saith, the *great Abyffe* was broken open at the Deluge. Let us then suppose, that at a time appointed by Divine Providence, and from causes made ready to do that great execution upon a sinful World, that this *Abyffe* was open'd, or that the frame of the Earth broke and fell down into the *Great Abyffe*. At this one stroke all Nature would be chang'd, and this single action would have two great and visible Effects. The one Transient, and the other Permanent. First an universal Deluge would overflow all the parts and Regions of the broken Earth, during the great commotion and agitation of the *Abyffe*, by the violent fall of the Earth into it. This would be the first and unquestionable effect of this dissolution, and all that World would be destroyed. Then when the agitation of the *Abyffe* was aswag'd, and the Waters by degrees were retir'd into their Channels, and the dry land appear'd, you would see

see the true image of the present Earth in the ruins of the first. The surface of the Globe would be divided into Land and Sea; the Land would consist of Plains and Valleys and Mountains, according as the pieces of this ruine were plac'd and dispos'd: Upon the banks of the Sea would stand the Rocks, and near the shore would be Islands, or lesser fragments of Earth compass'd round by Water. Then as to Subterraneous Waters, and all Subterraneous Caverns and hollowneses, upon this supposition those things could not be otherwise; for the parts would fall hollow in many places in this, as in all other ruins: And seeing the Earth fell into this Abyffe, the Waters at a certain height would flow into all those hollow places and cavities; and would also sink and insinuate into many parts of the solid Earth. And though these Subterraneous Vaults or holes, whether dry or full of Water, would be more or less in all places, where the parts fell hollow; yet they would be found especially about the roots of the Mountains, and the higher parts of the Earth; for there the sides bearing up one against the other, they could not lie so close at the bottoms, but many vacuities would be intercepted. Nor are there any other inequalities or irregularities observable in the present form of the Earth; whether in the surface of it, or interior construction, whereof this *hypothesis* doth not give a ready, fair, and intelligible account; and doth at one view represent them all to us, with their causes, as in a glass: And whether that Glass be true, and the Image answer to the Original, if you doubt of it, we will hereafter examine them piece by piece. But in the first place, we must consider the General Deluge, how easily and truly this supposition represents and explains it, and answers all the properties and conditions of it.

I think it will be easily allow'd, that such a dissolution of the Earth as we have propos'd, and fall of it into the Abyffe, would certainly make an universal Deluge; and effectually destroy the old World, which perisht in it. But we have not yet particularly prov'd this dissolution, and in what manner the Deluge

uge follow'd upon it : And to assert things in gross never makes that firm impression upon our understandings, and upon our belief, as to see them deduc'd with their causes and circumstances ; And therefore we must endeavour to shew what preparations there were in Nature for this great dissolution, and after what manner it came to pass, and the Deluge in consequence of it.

We have noted before, that *Moses* imputed the Deluge to the disruption of the Abyffe ; and *S. Peter*, to the particular constitution of that Earth, which made it obnoxious to be absorpt in Water ; so as our Explication so far is justifi'd. But it was below the dignity of those Sacred Pen-men, or the Spirit of God that directed them, to shew us the causes of this disruption, or of this absorption ; this is left to the enquiries of men. For it was never the design of Providence, to give such particular explications of Natural things, that should make us idle, or the use of Reason unnecessary ; but on the contrary, by delivering great conclusions to us, to excite our curiosity and inquisitiveness after the methods, by which such things were brought to pass : And it may be there is no greater trial or instance of Natural wisdom, than to find out the Chanel, in which these great revolutions of Nature, which we treat on, flow and succeed one another.

Let us therefore resume that System of the Antediluvian Earth, which we have deduc'd from the Chaos, and which we find to answer *S. Peter's* description, and *Moses* his account of the Deluge. This Earth could not be obnoxious to a Deluge, as the Apostle supposeth it to have been, but by a dissolution ; for the Abyffe was enclos'd within its bowels. And *Moses* doth in effect tell us, there was such a dissolution, when he saith, *The fountains of the great Abyffe were broken open.* For fountains are broken open no otherwise than by breaking up the ground that covers them : We must therefore here enquire in what order, and from what causes the frame of this exterior Earth was dissolv'd, and then we shall soon see how, upon that dissolution, the Deluge immediately prevail'd and overflow'd all the parts of it. I do

I do not think it in the power of humane wit to determine how long this frame would stand, how many Years, or how many Ages; but one would soon imagine, that this kind of structure would not be perpetual, nor last indeed many thousands of Years, if one consider the effect that the heat of the Sun would have upon it, and the Waters under it; drying and parching the one, and rarifying the other into vapours. For we must consider, that the course of the Sun at that time, or the posture of the Earth to the Sun, was such, that there was no diversity or alternation of seasons in the Year, as there is now; by reason of which alternation, our Earth is kept in an equality of temper, the contrary seasons balancing one another; so as what moisture the heat of the Summer sucks out of the Earth, 'tis repaid in the Rains of the next Winter; and what chaps were made in it, are fill'd up again, and the Earth reduc'd to its former constitution. But if we should imagine a continual Summer, the Earth would proceed in driness still more and more, and the cracks would be wider and pierce deeper into the substance of it: And such a continual Summer there was, at least an equality of seasons in the Ante-diluvian Earth, as shall be prov'd in the following Book, concerning *Paradise*. In the mean time this being suppos'd, let us consider what effect it would have upon this Arch of the exterior Earth, and the Waters under it.

We cannot believe, but that the heat of the Sun, within the space of some hundreds of years, would have reduc'd this Earth to a considerable degree of driness in certain parts; and also have much rarif'd and exhal'd the Waters under it: And considering the structure of that Globe, the exterior crust, and the Waters lying round under it, both expos'd to the Sun, we may fitly compare it to an *Æolipile*, or an hollow Sphere with Water in it, which the heat of the Fire rarifies and turns into Vapours and Wind. The Sun here is as the Fire, and the exterior Earth is as the Shell of the *Æolipile*, and the Abyſſe as the Water within it; now when the heat of the Sun had pierced through the Shell and reacht the Waters, it began

began to rarifie them, and raise them into Vapours ; which rarefaction made them require more space and room than they needed before, while they lay close and quiet. And finding themselves pent'd in by the exterior Earth, they press'd with violence against that Arch, to make it yield and give way to their dilatation and eruption. So we see all Vapours and Exhalations enclos'd within the Earth, and agitated there, strive to break out, and often shake the ground with their attempts to get loose. And in the comparison we us'd of an *Æolipile*, if the mouth of it be stopt that gives the vent, the Water rarifi'd will burst the Vessel with its force. And the resemblance of the Earth to an Egg, which we us'd before, holds also in this respect ; for when it heats before the Fire, the moisture and Air within being rarifi'd, makes it often burst the Shell. And I do the more willingly mention this last comparison, because I observe that some of the Ancients, when they speak of the doctrine of the *Mundane Egg*, say, that after a certain period of time it was broken.

But there is yet another thing to be consider'd in this case ; for as the heat of the Sun gave force to these Vapours more and more, and made them more strong and violent ; so on the other hand, it also weaken'd more and more the Arch of the Earth, that was to resist them ; sucking out the moisture that was the cement of its parts, drying it immoderately, and chapping it in sundry places. And there being no Winter then to close up and unite its parts, and restore the Earth to its former strength and compactness, it grew more and more dispos'd to a dissolution. And at length, these preparations in Nature being made on either side, the force of the Vapours increas'd, and the walls weaken'd, which should have kept them in, when the appointed time was come, that All-wise Providence had design'd for the punishment of a sinful World, the whole fabrick brake, and the frame of the Earth was torn in pieces, as by an Earthquake ; and those great portions or fragments, into which it was divided, fell down into the Abyſſe, some in one posture, and some in another.

This

This is a short and general account how we may conceive the dissolution of the first Earth, and an universal Deluge arising upon it. And this manner of dissolution hath so many examples in Nature every Age, that we need not insist farther upon the Explication of it. The generality of Earthquakes arise from like causes; and often end in a like effect, a partial Deluge, or Inundation of the place or Country where they happen; and of these we have seen some instances even in our own times: But whensoever it so happens, that the Vapours and Exhalations shut up in the caverns of the Earth, by rarefaction or compression come to be straitned, they strive every way to set themselves at liberty, and often break their prison, or the cover of the Earth that kept them in; which Earth upon that disruption falls into the Subterraneous Caverns that lie under it: And if it so happens that those Caverns are full of Water, as generally they are, if they be great or deep, that City or tract of Land is drown'd. And also the fall of such a mass of Earth, with its weight and bulk, doth often force out the Water so impetuously, as to throw it upon all the Country round about. There are innumerable examples in History (whereof we shall mention some hereafter) of Cities and Countries thus swallow'd up, or overflow'd, by an Earthquake, and an Inundation arising upon it. And according to the manner of their fall or ruine, they either remain'd wholly under water, and perpetually drown'd, as *Sodom* and *Gomorrah*, *Plato's Atlantis*, *Bura* and *Helice*, and other Cities and Regions in *Greece* and *Asia*; or they partly emerg'd, and became dry Land again; when (their situation being pretty high) the Waters, after their violent agitation was abated, retir'd into the lower places, and into their Channels.

Now if we compare these partial dissolutions of the Earth with an universal dissolution, we may as easily conceive an universal Deluge from an universal Dissolution, as a partial Deluge from a partial. If we can conceive a City, a Country, an Island, a Continent thus absorpt and overflown; if we do but enlarge our thought and imagination a little, we may con-

ceive it as well of the whole Earth. And it seems strange to me, that none of the Ancients should hit upon this way of explaining the universal Deluge; there being such frequent instances in all Ages and Countries of Inundations made in this manner, and never of any great Inundation made otherwise, unless in maritim Countries, by the irruption of the Sea into grounds that lie low. 'Tis true, they would not so easily imagine this Dissolution, because they did not understand the true form of the Ante-diluvian Earth; but, methinks, the examination of the Deluge should have led them to the discovery of that: For observing the difficulty, or impossibility of an universal Deluge, without the Dissolution of the Earth; as also frequent instances of these Dissolutions accompanied with Deluges, where the ground was hollow, and had Subterraneous Waters; this, methinks, should have prompted them to imagine, that those Subterraneous Waters were universal at that time, or extended quite round the Earth; so as a dissolution of the exterior Earth could not be made any where, but it would fall into Waters, and be more or less overflow'd. And when they had once reacht this thought, they might conclude both what the form of the Ante-diluvian Earth was, and that the Deluge came to pass by the dissolution of it. But we reason with ease about the finding out of things, when they are once found out; and there is but a thin paper-wall sometimes between the greatest discoveries and a perfect ignorance of them. Let us proceed now to consider, whether this supposition will answer all the conditions of an universal Deluge, and supply all the defects which we found in other Explications.

The great difficulty propos'd, was to find Water sufficient to make an universal Deluge, reaching to the tops of the Mountains; and yet that this Water should be transient, and after some time should so return into its Channels, that the dry Land would appear, and the Earth become again habitable. There was that double impossibility in the common opinion, that the quantity of water necessary for such a Deluge was no where to be found, or could no way
be

be brought upon the Earth; and then if it was brought, could no way be remov'd again. Our Explication quite takes off the edge of this Objection; for, performing the same effect with a far less quantity of water, 'tis both easie to be found, and easily remov'd when the work is done. When the exterior Earth was broke, and fell into the Abyſſe, a good part of it was cover'd with water by the meer depth of the Abyſſe it fell into, and those parts of it that were higher than the Abyſſe was deep, and consequently would stand above it in a calm water, were notwithstanding reacht and overtop'd by the waves, during the agitation and violent commotion of the Abyſſe. For it is not imaginable what the commotion of the Abyſſe would be upon this dissolution of the Earth, nor to what height its waves would be thrown, when those prodigious fragments were tumbled down into it. Suppose a stone of ten thousand weight taken up into the Air a mile or two, and then let fall into the middle of the Ocean, I do not believe but that the dashing of the water upon that impression, would rise as high as a Mountain. But suppose a mighty Rock or heap of Rocks to fall from that height, or a great Island, or a Continent; these would expel the waters out of their places, with such a force and violence, as to fling them among the highest Clouds.

'Tis incredible to what height sometimes great Stones and Cinders will be thrown, at the eruptions of fiery Mountains; and the pressure of a great mass of Earth falling into the Abyſſe, though it be a force of another kind, could not but impel the water with so much strength, as would carry it up to a great height in the Air; and to the top of any thing that lay in its way, any eminency, or high fragment whatsoever: And then rowling back again, it would sweep down with it whatsoever it rusht upon, Woods, Buildings, living Creatures, and carry them all headlong into the great gulf. Sometimes a mass of water would be quite struck off and separate from the rest, and tost through the Air like a flying River; but the common motion of the waves was to climb up the hills,

Pfal. 104.
6, 7, 8, 9.

or inclin'd fragments, and then return into the valleys and deeps again, with a perpetual fluctuation going and coming, ascending and descending, till the violence of them being spent by degrees, they settled at last in the places allotted for them; where *bounds are set that they cannot pass over, that they return not again to cover the Earth.*

Neither is it to be wonder'd, that the great Tumult of the waters, and the extremity of the Deluge lasted for some months; for besides, that the first shock and commotion of the Abyſſe was extremely violent, from the general fall of the Earth, there were ever and anon some secondary ruines; or some parts of the great ruine, that were not well settled, broke again, and made new commotions: And 'twas a considerable time before the great fragments that fell, and their lesser dependencies could be so adjusted and fitted, as to rest in a firm and immoveable posture: For the props and stays whereby they lean'd one upon another, or upon the bottom of the Abyſſe, often fail'd, either by the incumbent weight, or the violent impulses of the water against them; and so renew'd, or continu'd the disorder and confusion of the Abyſſe. Besides, we are to observe, that these great fragments falling hollow, they inclos'd and bore down with them under their concave surface a great deal of Air; and while the water compass'd these fragments, and overflow'd them, the Air could not readily get out of those prisons, but by degrees, as the Earth and Water above would give way; so as this would also hinder the settlement of the Abyſſe, and the retiring of the Water into those Subterraneous Channels, for some time. But at length, when this Air had found a vent, and left its place to the Water, and the ruines both primary and secondary were settled and fixt, then the Waters of the Abyſſe began to settle too, and the dry Land to appear; first the tops of the Mountains, then the high Grounds, then the Plains and the rest of the Earth. And this gradual subsidency of the Abyſſe (which *Moses* also hath particularly noted) and discovery of the several parts of the Earth, would also take up a considerable time.

Thus

Chap. 6. *The Deluge and Dissolution of the Earth.* 77

Thus a new World appear'd, or the Earth put on its new form, and became divided into Sea and Land; and the Abyffe, which from several Ages, even from the beginning of the World, had lain hid in the womb of the Earth, was brought to light and discover'd; the greatest part of it constituting our present Ocean, and the rest filling the lower cavities of the Earth: Upon the Land appear'd the Mountains and the Hills, and the Islands in the Sea, and the Rocks upon the shore. And so the Divine Providence, having prepar'd Nature for so great a change, at one stroke dissolv'd the frame of the old World, and made us a new one out of its ruins, which we now inhabit since the Deluge. All which things being thus explain'd, deduc'd, and stated, we now add and pronounce our Third and last Proposition; *That the disruption of the Abyffe, or dissolution of the primæval Earth and its fall into the Abyffe, was the cause of the Universal Deluge, and of the destruction of the old World.*

CHAP.

C H A P. VII.

That the Explication we have given of an Universal Deluge is not an Idea only, but an account of what really came to pass in this Earth, and the true Explication of Noah's Flood; as is prov'd by Argument and from History. An Examination of Tehom-Rabba, or the great Abyссе, and that by it the Sea cannot be understood, nor the Subterraneous Waters, as they are at present. What the true Notion and Form of it was, collected from Moses and other Sacred Writers; The frequent allusions in Scripture to the opening and shutting the Abyссе, and the particular stile of Scripture in its reflections on the Origin, and the Formation of the Earth. Observations on Deucalion's Deluge.

WE have now given an account of the first great revolution of Nature, and of the Universal Deluge, in a way that is intelligible, and from causes that answer the greatness of the effect; We have suppos'd nothing but what is also prov'd, both as to the first form of the Earth, and as to the manner of its Dissolution, and how far from that would evidently and necessarily arise a general Deluge; which was that which put a period to the old World, and the first state of things. And though all this hath been deduc'd in due order, and with connexion and consequence of one thing upon another, so far as I know, which is the true evidence of a Theory; yet it may not be sufficient to command the Assent and Belief of some persons, who will allow, it may be, and acknowledge, that this is a fair *Idea* of a possible Deluge

luge in general, and of the destruction of a World by it; but this may be only an *Idea*, they'll say; we desire it may be prov'd from some collateral arguments, taken either from Sacred History, or from observation, that this hath really been exemplified upon the Earth, and that *Noah's Flood* came to pass this way. And seeing we have design'd this first Book chiefly for the Explication of *Noah's Deluge*, I am willing to add here a Chapter or two extraordinary upon this occasion; to shew, that what we have deliver'd is more than an *Idea*, and that it was in this very way that *Noah's Deluge* came to pass. But they who have not this doubt, and have a mind to see the issue of the Theory, may skip this long Chapter, and proceed to the following.

To satisfy then the doubtful in this particular, let us lay down in the first place that conclusion which they seem to admit, *viz.* That this is a possible and consistent Explication of an Universal Deluge; and let's see how far this would go, if well consider'd, towards the proof of what they desire, or towards the demonstration of *Noah's Deluge* in particular. It is granted on both hands, that there hath been an Universal Deluge upon the Earth, which was *Noah's Deluge*; and it is also granted, that we have given a possible and consistent *Idea* of an Universal Deluge; Now we have prov'd *Chap. II.* and *III.* that all other ways assign'd for the Explication of *Noah's Flood* are false or impossible; therefore it came to pass in that possible way which we have propos'd. And if we have truly prov'd, in the foremention'd Chapters, the impossibility of it in all other ways, this argumentation is undeniable. Besides, we may argue thus, As it is granted that there hath been an Universal Deluge upon the Earth; so I suppose it will be granted that there hath been but one: Now the dissolution of the Earth, whensoever it happen'd, would make one universal Deluge, and therefore the only one, and the same with *Noah's*. That such a Dissolution as we have describ'd, would make an universal Deluge, I think, cannot be question'd; and that there hath been such a dissolution, besides what we have already alledg'd,

ledg'd, shall be prov'd at large from natural Observations upon the Form and Figure of the present Earth, in the *Third* Section and last *Chap.* of this Book; In the mean time we will proceed to History, both Sacred and Profane, and by comparing our Explication with those, give further assurance of its truth and reality.

In the first place, it agrees, which is most considerable, with *Moses's* Narration of the Deluge; both as to the matter and manner of it. The matter of the Deluge *Moses* makes to be the Waters from above; and the Waters from below; or he distinguishes the causes of the Deluge, as we do, into Superiour and Inferiour; and the Inferiour causes he makes to be the disruption of the Abyffe, which is the principal part and the great hinge of our Explication. Then as to the manner of the Deluge, the beginning and the ending, the increase and decrease, he saith it increas'd gradually by the forty days Rain that fell, and decreas't gradually, by *going* and *coming*; that is after many repeated fluctuations and reciprocations of the waves, the waters of the Abyffe began to be more compos'd, and to retire into their Channels, whence they shall never return to cover the Earth again. This agrees wholly with our Theory; we suppose the Abyffe to have been under an extream commotion and agitation by the fall of the Earth into it, and this at first encreas't more and more, till the whole Earth was faln; Then continuing for some time at the height of its rage, overwhelming the greatest Mountains, it afterwards decreas't by the like degrees, leaving first the tops of the Mountains, then the Hills and the Fields, till the Waters came to be wholly drawn off the Earth into their Channels.

It was no doubt a great oversight in the Ancients, to fancy the Deluge like a great standing Pool of water, reaching from the bottom of the Valleys to the tops of the Mountains, every where alike, with a level and uniform surface; by reason of which mistaken notion of the Deluge, they made more water necessary to it than was possible to be had, or being had than it was possible to get quit of again; for
there

there are no Channells in the Earth that could hold so much water, either to give it, or to receive it. And the *Psalmist* speaking of the Deluge, seems to me manifestly to imply this violent commotion of the Abyſſe.

The Waters went up by the Mountains, came down by the Valleys unto the place which thou hast founded for them. *Pſal.* 104, *verſ.* 8, 9.

I know ſome interpret that paſſage of the ſtate of the waters in the beginning, when they cover'd the face of the whole Earth, *Gen.* 1. 2. but that cannot be, becauſe of what follows in the next verſe; *Thou haſt ſet a bound that they may not paſs over; that they turn not again to cover the Earth.* Which is not true, if the preceding words be underſtood of the ſtate of the waters at the beginning of the World; for they did paſs thoſe bounds, and did return ſince that time to cover the Earth, namely at the Deluge: But if theſe words be refer'd to the time of the Deluge, and the ſtate of the waters then, 'tis both a juſt deſcription of the motion of the Abyſſe, and certainly true, that the waters ſince that time are ſo ſetled in their Channells, that they ſhall never overflow the Earth again. As we are aſſured by the promiſe made to *Noah*, and that illuſtrious pledge and confirmation of it, the *Rainbow*, that the Heavens alſo ſhall never pour out ſo much waters again; their ſtate being chang'd as well as that of the Earth, or Sea, from what they were before the Deluge.

But before we leave *Moſes's* Narration of the Deluge, we muſt examine further, what is, or can be underſtood by his *TEHOM-RABBA*, or *great Abyſſe*, which he ſaith was broken up at the Deluge; for this will help us to diſcover, whether our Explication be the ſame with his, and of the ſame Flood. And firſt we muſt conſider, whether by the *Tehom-Rabba*, or Moſaical Abyſſe can be underſtood the Sea or Ocean, under that form we ſee it in at preſent; and 'tis plain, methinks, that the Sea cannot be underſtood by this great Abyſſe, both becauſe the Sea is not capable upon any diſruption to make ſuch an univerſal Deluge; and becauſe the Narration of *Moſes*, and his expreſſions concerning this Abyſſe, do not agree to the Sea. Some of the Ancients indeed

did imagine, that the waters of the Sea were much higher than the Land, and stood, as it were, on an heap; so as when these waters were let loose, they overflow'd the Earth, and made a Deluge. But this is known to be a gross mistake; the Sea and the Land make one Globe, and the Waters couch themselves, as close as may be, to the Center of this Globe in a Spherical convexity; so that if all the Mountains and Hills were scal'd, and the Earth made even, the Waters would not overflow its smooth surface; much less could they overflow it in the form that it is now in, where the Shores are higher than the Sea, the Inland parts than the Shores, and the Mountains still far above all: So as no disruption of the Sea could make an universal Deluge, by reason of its situation. But besides that, the quantity of Water contain'd in the Sea is no way sufficient to make a Deluge in the present form of the Earth; for we have shewn before, *Chap. 2.* that Eight such Oceans as ours would be little enough for that purpose. Then as to the expressions of *Moses* concerning this Abyffe, if he had meant the Sea by it, and that the Deluge was made by the disruption of the Sea, why did he not say so? There is no mention of the Sea in all the History of the Deluge: *Moses* had mention'd the Sea before, *Gen. 1. 10.* and us'd a word that was common and known to signify the Sea; And if he had a mind to express the same thing here, why should he not use the same word and the same term: In an Historical relation we use terms that are most proper and best known; but instead of that he useth the same term here that he did, *Gen. 1. 2.* when he saith, *Darkness was upon the face of the Abyffe, or of the Deep,* as we render it; there the Abyffe was open, or cover'd with darkness only, namely before the exterior Earth was form'd; Here the same Abyffe is mention'd again, but cover'd, by the formation of the Earth upon it; and the covering of this Abyffe was broken or *cloven asunder,* and the Waters gusht out that made the Deluge. This I am sure is the most natural interpretation or signification of this word, according as it is us'd in *Moses's* writings. Furthermore, we must observe what *Moses* saith

saith concerning this Abyffe, and whether that will agree with the Sea or no ; he saith the *Fountains of the great Abyffe were broken open* ; now if by the great Abyffe you understand the Sea, how are its Fountains broken open ? To break open a Fountain, is to break open the ground that covers it, and what ground covers the Sea ? So that upon all considerations, either of the word that *Moses* here useth, *Tehom-Rabba*, or of the thing affirmed concerning it, *breaking open its Fountains* ; or of the effect following the breaking open its Fountains, *drowning of the Earth* ; from all these heads it is manifest, that the Sea cannot be understood by the great Abyffe, whose disruption was the cause of the Deluge.

And as the *Mosaical* Abyffe cannot be the Sea, so neither can it be those Subterraneous waters that are disperst in the Cells and Caverns of the Earth ; for as they are now lodg'd within the Earth, they are not one *Abyffe*, but several Cisterns and Receptacles of water, in several places, especially under the roots of Mountains and Hills ; separate one from another, sometimes by whole Regions and Countries interpos'd. Besides what Fountains, if they were broken up, could let out this water, or bring it upon the face of the Earth ? When we sink a Mine, or dig a Well, the waters, when uncover'd, do not leap out of their places, or out of those Cavities, and flow upon the Earth ; 'Tis not as if you open'd a Vein, where the Bloud spirts out, and riseth higher than its Source ; but as when you take off the cover of a Vessel, the water doth not fly out for that : So if we should imagine all the Subterraneous Caverns of the Earth uncover'd, and the waters laid bare, there they would lie unmov'd in their beds, if the Earth did not fall into them to force them up. Furthermore, if these waters were any way extracted and laid upon the surface of the ground, nothing would be gain'd as to the Deluge by that, for as much water would run into these holes again when the Deluge begun to rise ; so that this would be but an useles labour, and turn to no account. And lastly, these waters are no way sufficient for quantity to answer to the *Mosaical* Abyffe,

Abyſſe, or to be the principal cauſe of the Deluge, as that was.

Now ſeeing neither the Sea, as it is at preſent, nor the Subterraneous waters, as they are at preſent, can answer to the *Mosaical Abyſſe*, we are ſure there is nothing in this preſent Earth that can answer to it. Let us then on the other hand compare it with that Subterraneous Abyſſe, which we have found in the Ante-diluvian Earth, represented 5 *Fig. 2.* and examine their characters and correſpondency: Firſt, *Moses's* Abyſſe was cover'd and Subterraneous, for the *Fountains* of it are ſaid to have been cloven or burſt open; then it was vaſt and capacious; and thirdly, it was ſo diſpos'd, as to be capable of a diſruption, that would cauſe an univerſal Deluge to the Earth. Our Ante-diluvian Abyſſe answers truly to all theſe characters; 'twas in the womb of the Earth; the Earth was founded upon thoſe *Waters*, as the *Pſalmiſt* ſaith; or they were enclos'd within the Earth *as in a Bag*, as 'tis ſaid in another *Pſalm*, and will be explain'd hereafter: Then for the capacity of it, it contained both all the waters now in the Ocean, and all thoſe that are diſpers'd in the Caverns of the Earth: And laſtly, it is manifeſt its ſituation was ſuch, that upon a diſruption or diſſolution of the Earth which cover'd it, an univerſal Deluge would ariſe. Seeing then this answers the deſcription, and all the properties of the *Mosaical Abyſſe*, and nothing elſe will, how can we in reaſon judge it otherwiſe than the ſame, and the very thing intended and propos'd in the Hiſtory of *Noah's* Deluge under the name of *Tebom-Rabba*, or the great Abyſſe, at whoſe diſruption the World was overflow'd. And as we do not think it an unhappy diſcovery to have found out (with a moral certainty) the ſeat of the *Mosaical Abyſſe*, which hath been almoſt as much ſought for, and as much in vain, as the ſeat of *Paradiſe*; ſo this gives us a great aſſurance, that the Theory we have given of a general Deluge, is not a meer *Idea*, but is to be appropriated to the Deluge of *Noah*, as a true explication of it.

And to proceed now from *Moses* to other Divine writers ; That our Description is a reality, both as to the Ante-diluvian Earth, and as to the Deluge, we may further be convinc'd from *S. Peter's* discourse ^{2 Epist. 3. 6.} concerning those two things. *S. Peter* saith, that the constitution of the Ante-diluvian Earth was such, in reference to the Waters, that by reason of that it was obnoxious to a Deluge ; we say these Waters were the great *Abyss* it stood upon, by reason whereof that World was really expos'd to a Deluge, and overwhelm'd in it upon the disruption of this *Abyss*, as *Moses* witnesses. 'Tis true, *S. Peter* doth not specify what those waters were, nor mention either the Sea, or the *Abyss* ; but seeing *Moses* tells us, that it was by the waters of the *Abyss* that the Earth was overwhelm'd, *S. Peter's* waters must be understood of the same *Abyss*, because he supposeth them the cause of the same Deluge. And, I think, the Apostle's discourse there cannot receive a better illustration, than from *Moses's* History of the Deluge. *Moses* distinguishes the causes of the Flood into those that belong to the Heavens, and those that belong to the Earth ; the Rains and the *Abyss* : *S. Peter* also distinguisheth the causes of the Deluge into the constitution of the Heavens, in reference to its waters ; and the constitution of the Earth in reference to its waters ; and no doubt they both aim at the same causes, as they refer to the same effect ; only *Moses* mentions the immediate causes, the Rains and the Waters of the *Abyss* ; and *S. Peter* mentions the more remote and fundamental causes, that constitution of the Heavens, and that constitution of the Earth, in reference to their respective waters, which made that World obnoxious to a Deluge : And these two speaking of *Noah's* Deluge, and agreeing thus with one another, and both with us, or with the Theory which we have given of a General Deluge, we may safely conclude, that it is no imaginary *Idea*, but a true account of that Ancient Flood, whereof *Moses* hath left us the History.

And seeing the right understanding of the *Mosaical Abyss* is sufficient alone to prove all we have deliver'd concerning

Chap. 6.

concerning the Deluge, as also concerning the frame of the Ante-diluvian Earth, give me leave to take notice here of some other places of Scripture that seem manifestly to describe this same form of the Abyſſe with the Earth above it, *Pſal. 24. 2. He founded the Earth upon the Seas, and eſtabliſh'd it upon the Floods*; and *Pſal. 136. 6. He ſtretched out the Earth above the Waters.* Now this Foundation of the Earth upon the Waters, or *extension* of it above the Waters, doth moſt aptly agree to that ſtructure and ſituation of the Abyſſe and the Ante-diluvian Earth, which we have aſſign'd them, and which we have before deſcrib'd; but very improperly and forc'dly to the preſent form of the Earth and the Waters. In that ſecond place of the *Pſalmiſt* the word may be render'd either, he *ſtretch'd*, as we read it, or he *fixt and conſolidated* the Earth above the Waters, as the Vulgate and Septuagint tranſlate it: For 'tis from the ſame word with that which is uſed for the *Firmament*, *Gen. 1.* So that as the Firmament was ſtretch'd over and above the Earth, ſo was the Earth ſtretcht over and above the Waters, in that firſt conſtitution of things; and I remember ſome of the Ancients uſe this very comparison of the Firmament and Earth, to expreſs the ſituation of the *Paradiſiacal* Earth in reference to the Sea or Abyſſe.

There is another remarkable place in the *Pſalms*, to ſhew the diſpoſition of the Waters in the firſt Earth; *Pſal. 33. 7. He gathereth the Waters of the Sea as in a Bag, he layeth up the Abyſſes in ſtorehouſes.* This answers very fitly and naturally to the place and diſpoſition of the Abyſſe which it had before the Deluge, inclos'd within the vault of the Earth, as in a *Bag* or in a *Storehouſe*. I know very well what I render here in a *Bag* is render'd in the *Engliſh*, as an *heap*; but that tranſlation of the word ſeems to be grounded on the old Error, that the Sea is higher than the Land, and ſo doth not make a true ſence. Neither are the two parts of the verſe ſo well ſuited and conſequent one to another, if the firſt expreſs an high ſituation of the Waters, and the ſecond a low one. And accordingly the Vulgate, Septuagint, and Oriental Verſions
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and Paraphrase render it as we do here, *in a Bag*, or by terms equivalent.

To these passages of the *Psalmist*, concerning the form of the *Abyss* and the first *Earth*, give me leave to add this general remark, that they are commonly ushered in, or followed with something of *Admiration* in the *Prophet*. We observ'd before, that the formation of the first *Earth*, after such a wonderful manner, being a piece of *Divine Architecture*, when it was spoken of in *Scripture*, it was usually ascrib'd to a particular *Providence*, and accordingly we see in these places now mention'd, that it is still made the object of praise and admiration: In that 136 *Psalms* 'tis reckon'd among the wonders of God, *Vers. 4, 5, 6. Give praise to him who alone doth great wonders; To him that by wisdom made the Heavens: To him that stretched out the Earth above the Waters.* And in like manner, in that 33 *Psalms*, 'tis joyn'd with the forming of the *Heavens*, and made the subject of the *Divine Power and Wisdom: Vers. 6, 7, 8, 9. By the word of the Lord were the Heavens made, and all the Host of them by the breath of his mouth; He gathereth the Waters of the Sea together, as in a Bag, he layeth up the Abyss in Storehouses. Let all the Earth fear the Lord; Let all the Inhabitants of the World stand in awe of him; For he spake, and it was; he commanded, and it stood fast.* Namely, all things stood in that wonderful posture in which the *Word* of his *Power and Wisdom* had establish'd them. *David* often made the works of *Nature*, and the *External World* the matter of his *Meditations*, and of his *praises and Philosophical Devotions*; reflecting sometimes upon the present form of the *World*, and sometimes upon the primitive form of it: And though *Poetical expressions*, as the *Psalms* are, seldom are so determinate and distinct, but that they may be interpreted more than one way, yet, I think, it cannot but be acknowledg'd, that those expressions and passages that we have instanc'd in, are more fairly and aptly understood of the *Ancient form* of the *Sea*, or the *Abyss*, as it was enclos'd within the *Earth*, than of the present form of it in an open *Channel*.

There are also in the book of *Job* many noble reflections upon the works of Nature, and upon the formation of the Earth and the Abyſſe; whereof that in *Chap. 26. 7.* *He stretcheth out the North over the Empty places, and hangeth the Earth upon nothing,* seems to parallel the expression of *David*; *He stretched out the Earth upon the Waters*; for the word we render the empty place is TOHU, which is appli'd to the Chaos and the first Abyſſe, *Gen. 1. 2.* and *the hanging the Earth upon nothing* is much more wonderful, if it be understood of the first habitable Earth, that hung over the Waters, sustain'd by nothing but its own peculiar form, and the libration of its parts, than if it be understood of the present Earth, and the whole body of it; for if it be in its Center or proper place, whither should it sink further, or whither should it go? But this passage, together with the foregoing and following verses, requires a more critical examination than this Discourse will easily bear.

There is another remarkable discourse in *Job*, that contains many things to our present purpose, 'tis *Chap. 38.* where God reproaches *Job* with his ignorance of what pass'd at the beginning of the World, and the formation of the Earth, *Verſ. 4, 5, 6.* *Where wast thou when I laid the foundations of the Earth? Declare if thou hast understanding: Who hath laid the measures thereof, if thou knowest; or who hath stretched the line upon it? Whereupon are the foundations thereof fastned, or who laid the corner-stone? All these questions have far more force and Emphasis, more propriety and elegancy, if they be understood of the first and Ante-diluvian form of the Earth, than if they be understood of the present; for in the present form of the Earth there is no Architecture, no structure no more than in a ruine; or at least none comparatively to what was in the first form of it. And that the exterior and superficial part of the Earth is here spoken of, appears by the *rule* and *line* appli'd to it; but what rule or regularity is there in the surface of the present Earth? what line was us'd to level its parts? But in its original construction when it lay smooth and regular in its surface, as if it had been drawn by rule and line*

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in every part ; and when it hung pois'd upon the Deep, without pillar or foundation stone, then just proportions were taken, and every thing plac'd by weight and measure : And this, I doubt not, was that artificial structure here alluded to, and when this work was finisht, then *the morning Stars sang together,* *Vers. 7.* and *all the sons of God shouted for joy.*

Thus far the questions proceed upon the form and construction of the first Earth ; in the following *verses* (8, 9, 10, 11.) they proceed upon the demolition of that Earth, the opening the Abyffe, and the present state of both. *Or who shut up the Sea with doors when it brake forth, as if it had issu'd out of a womb? Who can doubt but this was at the breaking open of the Fountains of the Abyffe, Gen. 7. 11.* when the waters gusht out, as out of the great womb of Nature ; and by reason of that confusion and perturbation of Air and Water that rise upon it, a thick mist and darkness was round the Earth, and all things as in a second Chaos, *When I made the cloud the garment thereof, and thick darkness a swadling band for it, and brake up for it my decreed place, and made bars and doors.* Namely, (taking the words as thus usually render'd) the present Chanel of the Sea was made when the Abyffe was broke up, and at the same time were made the shory Rocks and Mountains which are the bars and boundaries of the Sea. *And said hitherto shalt thou come and no further, and here shall thy proud waves be stay'd.* Which last sentence shows, that this cannot be understood of the first disposition of the waters as they were before the Flood, for their proud waves broke those bounds, whatsoever they were, when they overflow'd the Earth in the Deluge. And that the womb which they broke out of was the great Abyffe, The *Chaldee Paraphrase* in this place doth expressly mention ; and what can be understood by *the womb of the Earth*, but that Subterraneous capacity in which the Abyffe lay ? Then that which followeth is a description or representation of the great Deluge that ensu'd, and of that disorder in Nature, or in the Waters that was then, and how they were settled and bound-ed afterwards. Not unlike the description of the

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same Deluge, and of the succeeding state of the Sea in the 104 *Psalms*, *vers.* 6, 7, 8, 9. and thus much for these places in the book of *Job*.

There remains a remarkable discourse in the *Proverbs* of *Solomon*, relating to the *Mosaical* Abyss, and not only to that, but to the Origine of the Earth in general; where *Wisdom* declares her antiquity and pre-existence to all the works of this Earth, *Chap.* 8. *vers.* 23, 24, 25, 26, 27, 28. *I was set up from everlasting, from the beginning, ere the Earth was. When there were no Deeps or Abysses, I was brought forth; when no fountains abounding with water.* Then in the 27. *verse*, *When he prepared the Heavens, I was there; when he set a Compass upon the face of the Deep or Abyss.* *When he established the Clouds above, when he strengthened the fountains of the Abyss.* Here is mention made of the *Abyss*, and of the *Fountains of the Abyss*, and who can question, but that the *Fountains of the Abyss* here are the same with the *fountains of the Abyss* which *Moses* mentions, and were broken open, as he tells us, at the *Deluge*? Let us observe therefore what form *Wisdom* gives to this *Abyss*, and consequently to the *Mosaical*: And here seem to be two expressions that determine the form of it, *vers.* 28. *He strengthened the fountains of the Abyss*, that is, the cover of those *Fountains*, for the *Fountains* could be strengthened no other way than by making a strong cover or *Arch* over them. And that *Arch* is exprest more fully and distinctly in the foregoing *verse*, *When he prepar'd the Heavens, I was there; when he set a Compass on the face of the Abyss*; we render it *Compass*, the word signifies a *Circle* or *Circumference*, or an *Orb* or *Sphere*. So there was in the beginning of the *World* a *Sphere*, *Orb* or *Arch* set round the *Abyss*, according to the testimony of *Wisdom*, who was then present. And this shews us both the form of the *Mosaical* *Abyss*, which was included within this *Vault*, and the form of the habitable *Earth*, which was the outward surface of this *Vault*, or the cover of the *Abyss* that was broke up at the *Deluge*.

And thus much, I think, is sufficient to have noted out of *Scripture*, concerning the *Mosaical* *Abyss*, to discover

discover the form, place and situation of it; which I have done the more largely, because that being determin'd, it will draw in easily all the rest of our Theory concerning the Deluge. I will now only add one or two general Observations, and so conclude this discourse; The first Observation is concerning the Abyffe; Namely, that the *opening and shutting of the Abyffe*, is the great hinge upon which Nature turns in this Earth: This brings another face of things, other Scenes and a new World upon the stage: And accordingly it is a thing often mention'd and alluded to in Scripture, sometimes in a Natural, sometimes in a Moral or Theological sence; and in both sences our Saviour shuts and opens as he pleaseth. Our Saviour, who is both Lord of Nature and of Grace, whose Dominion is both in Heaven and in Earth, hath a double Key; that of the Abyffe, whereby Death and Hell are in his power, and all the revolutions of Nature are under his Conduct and Providence; And the Key of *David*, whereby he admits or excludes from the City of God and the Kingdom of Heaven whom he pleaseth. Of those places that refer to the shutting and opening the Abyffe in a natural sence, I cannot but particularly take notice of that in *Job, Chap. 12. vers. 14, 15. God breaketh down, and it cannot be built again: he shutteth up man, and there can be no opening: Behold, he withholdeth the waters, and they dry up; also he sendeth them out, and they overturn the Earth.* Though these things be true of God in lesser and common instances, yet to me it is plain, that they principally refer to the Deluge, the opening and shutting the Abyffe, with the dissolution or subversion of the Earth thereupon; and accordingly they are made the great effects of the Divine Power and Wisdom in the foregoing Verse, *With God is wisdom and strength, he hath counsel and understanding; Behold, he breaketh down, &c.* And also in the conclusion 'tis repeated again, *With him is strength and wisdom;* which solemnity would scarce have been us'd for common instances of his power. When God is said to build or pull down, and no body can build again, 'tis not to be understood of an House or a Town, God builds and un-

*Job 11. 10,
12, 14.
Apoc. 1. 18.
20. 1, 2, 3.
21. 1.
Apoc. 3. 7.
Isa. 22. 22.*

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builds Worlds ; and who shall build up that Arch that was broke down at the Deluge ? Where shall they lay the Foundation, or how shall the Mountains be rear'd up again to make part of the Roof ? This is the Fabrick, which when God breaketh down, none can build up again. *He withholdeth the waters and they dry up* : As we shew'd the Earth to have been immoderately chapt and parcht before its dissolution. *He sendeth them forth and they overturn the Earth.* What can more properly express the breaking out of the waters at the disruption of the Abyffe ? and the subversion or dissolution of the Earth in consequence of it ? 'Tis true this last passage may be applied to the breaking out of waters in an ordinary Earthquake, and the subversion of some part of the Earth, which often follows upon it ; but it must be acknowledg'd, that the sense is more weighty, if it be refer'd to the great Deluge, and the great Earthquake which laid the World in ruines and in water. And Philosophical descriptions in Sacred writings, like Prophecies, have often a lesser and a greater accomplishment and interpretation.

I could not pass by this place without giving this short Explication of it. We proceed now to the second Observation, which is concerning the stile of Scriptures, in most of those places we have cited, and others upon the same subject. The reflections that are made in several parts of the Divine writings, upon the Origin of the World, and the formation of the Earth, seem to me to be writ in a stile something approaching to the nature of a Prophetical stile, and to have more of a Divine Enthusiasm and Elocution in them, than the ordinary text of Scripture ; the expressions are lofty, and sometimes abrupt, and often figurative and disguis'd, as may be observ'd in most of those places we have made use of, and particularly in that speech of *Wisdom, Prov. 8.* where the 26. *verse* is so obscure, that no two Versions that I have yet met with, whether Ancient or Modern, agree in the Translation of that Verse. And therefore though I fully believe that the construction of the first Earth is really intended in those words, yet seeing it could
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not be made out clear without a long and critical discussion of them, I did not think it proper to be insisted upon here. We may also observe, that whereas there is a double form or composition of the Earth, that which it had at first, or till the Deluge, and that which it hath since; sometimes the one, and sometimes the other may be glanc'd upon in these Scripture phrases and descriptions; and so there may be in the same discourse an intermixture of both. And it commonly happens so in an Enthusiastick or Prophetick stile, that by reason of the eagerness and trembling of the Fancy, it doth not always regularly follow the same even thred of discourse, but strikes many times upon some other thing that hath relation to it, or lies under or near the same view. Of this we have frequent examples in the *Apocalypse*, and in that Prophecy of our Saviour's, *Matth. 24.* concerning the destruction of *Jerusalem*, and of the World. But notwithstanding any such unevenness or indistinctness in the stile of those places which we have cited concerning the Origin and form of the Earth, we may at least make this remark, that if there never was any other form of the Earth but the present, nor any other state of the Abyffe, than what it is in now, 'tis not imaginable what should give occasion to all those expressions and passages that we have cited; which being so strange in themselves and paradoxical, should yet so much favour, and so fairly comply with our suppositions. What I have observ'd in another place, Tell Theor. lib. 2. c. 6. in treating of *Paradise*, that the expressions of the Ancient Fathers were very extravagant, if *Paradise* was nothing but a little plot of ground in *Mesopotamia*, as many of late have fancied; may in like manner be observ'd concerning the ancient Earth and Abyffe, if they were in no other form, nor other state than what they are under now, the expressions of the Sacred writers concerning them are very strange and inaccountable, without any sufficient ground, or any just occasion for such uncouth representations. If there was nothing intended or refer'd to in those descriptions, but the present form and state of the Earth, that is so well known, that in describing of it there

there would be nothing dark or mysterious, nor any occasion for obscurity in the stile or expression, whereof we find so much in those. So as, all things consider'd, what might otherwise be made an exception to some of these Texts alledg'd by us, *viz.* that they are too obscure, becomes an argument for us, as implying that there is something more intended by them, than the present and known form of the Earth. And we having propos'd another form and structure of the Earth, to which those characters suit and answer more easily, as this opens and gives light to those difficult places, so it may be reasonably concluded to be the very sense and notion intended by the holy writers.

And thus much, I think, is sufficient to have observ'd out of Scripture, to verifie our Explication of the Deluge, and our Application of it to *Noah's Flood*, both according to the *Mosaical History* of the Flood, and according to many occasional reflections and discourses dispers'd in other places of Scripture, concerning the same Flood, or concerning the Abyſſe and the first form of the Earth. And though there may be some other passages of a different aspect, they will be of no force to disprove our conclusions, because they respect the present form of the Earth and Sea; and also because expressions that deviate more from the common opinion are more remarkable and more proving; in that there is nothing could give occasion to such, but an intention to express the very truth. So, for instance, if there was one place of Scripture that said *the Earth was mov'd*, and several that seem'd to imply, that the *Sun* was mov'd, we should have more regard to that one place for the motion of the Earth, than to all the other that made against it; because those others might be spoken and understood according to common opinion and common belief, but that which affirm'd the motion of the Earth, could not be spoke upon any other ground, but only for instruction sake. I leave this to be appli'd to the present subject.

Thus much for the Sacred writings. As to the History of the ancient Heathens, we cannot expect an
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account or Narration of *Noah's Flood*, under that name and notion ; but it may be of use to observe two things out of that History. First, that the Inundations recorded there came generally to pass in the manner we have describ'd the Universal Deluge ; namely, by Earthquakes and an eruption of Subterraneous waters, the Earth being broken and falling in : and of this we have elsewhere given a full account out of their Authors. Secondly, that *Deucalion's Deluge* in particular, which is suppos'd by most of the Ancient Fathers to represent *Noah's Flood*, is said to have been accompanied with a gaping or disruption of the Earth ; *Apollodorus* saith, that the Mountains of *Thes-*
saly were divided asunder, or separate one from another at that time : And *Lucian* (*de dea Syria*) tells a very remarkable story to this purpose, concerning *Deucalion's Deluge*, and a ceremony observ'd in the Temple of *Hieropolis*, in commemoration of it ; which ceremony seems to have been of that nature, as impli'd that there was an opening of the Earth at the time of the Deluge, and that the waters subsided into that again when the Deluge ceas'd. He saith, that this Temple at *Hieropolis* was built upon a kind of Abyss, or had a bottomless pit, or gaping of the Earth in one part of it, and the people of *Arabia* and *Syria*, and the Countries thereabouts twice a year repair'd to this Temple, and brought with them every one a vessel of water, which they pour'd out upon the floor of the Temple, and made a kind of an Inundation there in memory of *Deucalion's Deluge* ; and this water sunk by degrees into a Chasm or opening of a Rock, which the Temple stood upon, and so left the floor dry again. And this was a rite solemnly and religiously perform'd both by the Priests and by the People. If *Moses* had left such a Religious rite among the *Jews*, I should not have doubted to have interpreted it concerning his Abyss, and the retiring of the waters into it ; but the actual disruption of the Abyss could not well be represented by any ceremony. And thus much concerning the present question, and the true application of our Theory to *Noah's Flood*.

*Doct. Ant.
circa, &c.*

Bibl. lib. 1.

C H A P. VIII.

The particular History of Noah's Flood is explain'd in all the material parts and circumstances of it, according to the preceding Theory. Any seeming difficulties removed, and the whole Section concluded, with a Discourse how far the Deluge may be lookt upon as the effect of an ordinary Providence, and how far of an extraordinary.

WE have now proved our Explication of the Deluge to be more than an *Idea*, or to be a true piece of Natural History; and it may be the greatest and most remarkable that hath yet been since the beginning of the World. We have shown it to be the real account of *Noah's Flood*, according to Authority both Divine and Humane; and I would willingly proceed one step further, and declare my thoughts concerning the manner and order wherein *Noah's Flood* came to pass; In what method all those things happen'd and succeeded one another, that make up the History of it, as causes or effects, or other parts or circumstances: As how the Ark was born upon the waters, what effect the Rains had that fell first, at what time the Earth broke, and the Abyſſe was open'd; and what the condition of the Earth was upon the ending of the Flood, and such like. But I desire to propose my thoughts concerning these things only as conjectures, which I will ground as near as I can upon Scripture and Reason, and am very willing they should be rectifi'd where they happen to be amiss. I know how subject we are to mistakes in these great and remote things, when we descend to particularities; but I am willing to expose the Theory to a full trial, and to shew the way for any to examine it, provided they do it with equity

equity and sincerity. I have no other design than to contribute my endeavours to find out the truth in a subject of so great importance, and wherein the World hath hitherto had so little satisfaction: And he that in an obscure argument proposeth an *Hypothesis* that reacheth from end to end, though it be not exact in every particular, 'tis not without a good effect; for it gives aim to others to take their measures better, and opens their invention in a matter which otherwise, it may be, would have been impenetrable to them: As he that makes the first way through a thick Forest, though it be not the straightest and shortest, deserves better, and hath done more than he that makes it straighter and smoother afterwards.

Providence that ruleth all things and all Ages, after the Earth had stood above sixteen hundred Years, thought fit to put a period to that World, and accordingly, it was reveal'd to *Noah*, that for the wickedness and degeneracy of men, God would destroy mankind with the *Earth* (*Gen. 6. 13.*) in a Deluge of water; whereupon he was commanded, in order to the preserving of himself and family, as a stock for the new World, to build a great Vessel or Ark to float upon the waters, and had instructions given him for the building of it both as to the matter and as to the form. *Noah* believed the word of God, though against his senses, and all external appearances, and set himself to work to build an Ark, according to the directions given, which after many years labour was finish'd; whilst the incredulous World, secure enough, as they thought, against a Deluge, continu'd still in their excesses and insolencies, and laugh'd at the admonition of *Noah*, and at the folly of his design of building an extravagant machine, a floating house, to save himself from an imaginary Inundation; for they thought it no less, seeing it was to be in an Earth where there was no Sea, nor any Rain neither in those parts, according to the ordinary course of Nature; as shall be shown in the second Book of this Treatise.

But when the appointed time was come, the Heavens began to melt, and the Rains to fall, and these
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were the first surprizing causes and preparatives to the Deluge ; They fell for forty days and forty nights together, and that throughout the face of the whole Earth ; which could not but have a considerable effect on that Earth, being even and smooth, without Hills and eminencies, and would lay it all under water to some depth ; so as the Ark, if it could not float upon those Rain-waters, at least taking the advantage of a River, or of a Dock or Cistern made to receive them, it might be a float before the Abyffe was broken open. For I do not suppose the Abyffe broken open till after the forty days Rain ; and I do not know but that very Rain, so covering up and enclosing the Earth on every side, might providentially contribute to the disruption of it ; not only by softning and weakning the Arch of the Earth in the bottom of those cracks and Chasms which were made by the Sun, and which the Rain would first run into, but especially by stopping on a sudden all the pores of the Earth, and all evaporation, which would make the Vapours within struggle more violently, as we get a Fever by a Cold ; and it may be in that struggle the Doors and the Bars were broke, and the great Abyffe gusht out, as out of a womb.

However, when the Rains were fallen, we may suppose the face of the Earth cover'd over with water ; and whether it was these waters that *S. Peter* refers to, or that of the Abyffe afterwards, I cannot tell, when he saith in his first Epistle, *Chap. 3. 20. Noah and his family were sav'd by water ;* so as the water which destroy'd the rest of the World, was an instrument of their conservation, in as much as it bore up the Ark, and kept it from that impetuous shock, which it would have had, if either it had stood upon dry land when the Earth fell, or if the Earth had been dissolv'd without any water on it or under it. However, things being thus prepar'd, let us suppose the great frame of the exterior Earth to have broke at this time, or the Fountains of the great Abyffe, as *Moses* saith, to have been then open'd, from thence would issue, upon the fall of the Earth, with an unspeakable violence, such a Flood of waters as would overrun and
over-

overwhelm for a time all those fragments which the Earth broke into, and bury in one common Grave all mankind, and all the inhabitants of the Earth. Besides, if the *Floodgates* of Heaven were any thing distinct from the forty days Rain, their effusion, 'tis likely, was at this same time when the Abyss was broken open; for the sinking of the Earth would make an extraordinary convulsion of the Regions of the Air, and that crack and noise that must be in the falling World, and in the collision of the Earth and the Abyss, would make a great and universal Concussion above, which things together, must needs so shake, or so squeeze the Atmosphere, as to bring down all the remaining Vapours; But the force of these motions not being equal throughout the whole Air, but drawing or pressing more in some places than in other, where the Center of the convulsion was, there would be the chiefest collection, and there would fall, not showers of Rain, or single drops, but great spouts or caskades of water; and this is that which *Moses* seems to call, not improperly, the *Cataracts* of Heaven, or the *Windows of Heaven being set open*.

Thus the Flood came to its height; and 'tis not easie to represent to our selves this strange Scene of things, when the Deluge was in its fury and extremity; when the Earth was broken and swallow'd up in the Abyss, whose raging waters rise higher than the Mountains, and fill'd the Air with broken waves, with an universal mist, and with thick darkness, so as Nature seem'd to be in a second Chaos; and upon this Chaos rid the distressed Ark, that bore the small remains of Mankind. No Sea was ever so tumultuous as this, nor is there any thing in present Nature to be compar'd with the disorder of these waters; All the Poetry, and all the Hyperboles that are us'd in the description of Storms and raging Seas, were literally true in this, if not beneath it. The Ark was really carri'd to the tops of the highest Mountains, and into the places of the Clouds, and thrown down again into the deepest Gulfs; and to this very state of the Deluge and of the Ark, which was a Type of the Church

in this World, *David* seems to have alluded in the name of the Church, *Psal.* 42. 7. *Abyssè calls upon Abyssè at the noise of thy Cataracts or water-spouts; all thy waves and billows have gone over me.* It was no doubt an extraordinary and miraculous Providence, that could make a Vessel, so ill man'd, live upon such a Sea; that kept it from being dash't against the Hills, or overwhelm'd in the Deeps. That Abyssè which had devour'd and swallow'd up whole Forests of Woods, Cities, and Provinces, nay the whole Earth, when it had conquer'd all, and triumph'd over all, could not destroy this single Ship. I remember in the story of the *Argonauticks*, when *Jason* set out to fetch the Golden Fleece, the Poet saith, all the Gods that day look'd down from Heaven, to view the Ship; and the *Nymphs* stood upon the Mountain-tops to see the noble Youth of *Theffaly* pulling at the Oars; We may with more reason suppose the good Angels to have lookt down upon this Ship of *Noah's*; and that not out of curiosity, as idle spectators, but with a passionate concern for its safety and deliverance. A Ship whose *Cargo* was no less than a whole World; that carri'd the fortune and hopes of all posterity, and if this had perisht, the Earth, for any thing we know, had been nothing but a Desert, a great ruine, a dead heap of Rubbish, from the Deluge to the Conflagration. But Death and Hell, the Grave, and Destruction have their bounds. We may entertain our selves with the consideration of the face of the Deluge, and of the broken and drown'd Earth, in this Scheme, with the floating Ark, and the guardian Angels.

Dion. Argonaut. li. 1. v. 47.

Thus



Thus much for the beginning and progress of the Deluge. It now remains only that we consider it in its decrease, and the state of the Earth after the waters were retir'd into their Channels, which makes the present state of it. *Moses* saith, God brought a wind upon the waters, and the tops of the Hills became bare, and then the lower grounds and Plains by degrees,

grees; the waters being sunk into the Channels of the Sea, and the hollowness of the Earth, and the whole Globe appearing in the form it is now under. There needs nothing be added for explication of this, 'tis the genuine consequence of the Theory we have given of the Deluge; and whether this wind was a descending wind to depress and keep down the swellings and inequalities of the Abyſſe, or whether it was only to dry the Land as fast as it appear'd, or might have both effects, I do not know; But as nothing can be perpetual that is violent, so this commotion of the Abyſſe abated after a certain time, and the great force that impell'd the waters, decreasing, their natural gravity began to take effect, and to reduce them into the lowest places, at an equal height, and in an even surface, and level one part with another: That is, in short, the Abyſſe became our Sea, fixt within its Chanel, and bounded by Rocks and Mountains: *Then was the decreed place establisht for it, and Bars and Doors were set; then was it said, hitherto shalt thou come, and no further, and here shall thy proud waves be stopt.* And the Deluge being thus ended, and the waters settled in their Channels, the Earth took such a Figure as is here represented; And this will be the form and state of it till its great change comes in the Conflagration, when we expect *a new Heaven and a new Earth.*

Job 38. 10,
11.

But to pursue this prospect of things a little further; we may easily imagine, that for many years after the Deluge ceas'd, the face of the Earth was very different from what it is now, and the Sea had other bounds than it hath at present. I do not doubt but the Sea reach'd much further in-land, and climb'd higher upon the sides of the Mountains; And I have observ'd in many places, a ridge of Mountains some distance from the Sea, and a Plain from their roots to the shore; which Plain no doubt was formerly cover'd by the Sea, bounded against those Hills as its first and natural Ramparts, or as the ledges or lips of its Vessel. And it seems probable, that the Sea doth still grow narrower from Age to Age, and sinks more within its Chanel and the bowels of the Earth, according

ording as it can make its way into all those Subterraneous Cavities, and crowd the Air out of them. We see whole Countries of Land gain'd from it, and by several indications, as ancient Sea-ports left dry and useles, old Sea-marks far within the Land, pieces of Ships, Anchors, &c. left at a great distance from the present shores; from these signs, and such like, we may conclude that the Sea reach'd many places formerly that now are dry Land, and at first I believe was generally bound on either side with a chain of Mountains. So I should easily imagine the Mediterranean Sea, for instance, to have been bounded by the continuation of the *Alps* through *Dauphiné* and *Languedock* to the *Pyreneans*, and at the other end by the *Darmatick* Mountains almost to the Black Sea. Then *Atlas major* which runs along with the Mediterranean from *Ægypt* to the *Atlantick* Ocean, and now parts *Barbary* and *Numidia*, may possibly have been the Ancient Barriere on the *Africk* side. And in our own Island I could easily figure to my self, in many parts of it, other Sea-bounds than what it hath at present; and the like may be observ'd in other Countries.

And as the Sea had much larger bounds for some time after the Deluge, so the Land had a different face in many respects to what it hath now; for we suppose the Valleys and lower grounds, where the descent and derivation of the water was not so easie, to have been full of Lakes and Pools for a long time; and these were often converted into Fens and Bogs, where the ground being spongy, suckt up the water, and the loosen'd Earth swell'd into a soft and pappy substance; which would still continue so, if there was any course of water sensible or insensible, above or within the ground, that fed this moist place: But if the water stood in a more firm Basin, or on a soil which for its heaviness or any other reason would not mix with it, it made a Lake or clear Pool. And we may easily imagine there were innumerable such Lakes, and Bogs and fastnesses for many years after the Deluge, till the World begun to be pretty well stockt with people, and humane industry cleans'd and drain'd those unfruitful and uninhabitable places. And those

those Countries that have been later cultivated, or by a lazier people, retain still, in proportion to their situation and soil, a greater number of them.

Neither is it at all incongruous or inconvenient to suppose, that the face of the Earth stood in this manner for many years after the Deluge; for while Mankind was small and few, they needed but a little ground for their seats or sustenance; and as they grew more numerous, the Earth proportionably grew more dry, and more parts of it fit for habitation. I easily believe that *Plato's* observation or tradition is true, that Men at first, after the Flood, liv'd in the Up-lands and sides of the Mountains, and by degrees sunk into the Plains and lower Countries, when Nature had prepar'd them for their use, and their numbers requir'd more room. The History of *Moses* tells us, that sometime after the Deluge, *Noah* and his posterity, his Sons and his Grandchildren chang'd their quarters, and fell down into the Plains of *Shiner*, from the sides of the Hills where the Ark had rested; and in this Plain was the last general rendezvous of Mankind; so long they seem to have kept in a body, and from thence they were divided and broken into companies, and dispers'd, first, into the neighbouring Countries, and then by degrees throughout the whole Earth; the several successive Generations, like the waves of the Sea when it flows, overreaching one another, and striking out further and further, till they had peopled the Earth.

De Rep.

Gen. 11.

And this may be sufficient to have discours'd concerning all the parts of the Deluge, and the restitution of the Earth to an habitable form, for the further union of our Theory with the History of *Moses*; There rests only one thing in that History to be taken notice of, which may be thought possibly not to agree so well with our account of the Deluge; namely, that *Moses* seems to shut up the Abyſſe again at the end of the Deluge, which our Explication supposeth to continue open. But besides that half the Abyſſe is still really cover'd, *Moses* saith the same thing of the *windows of Heaven*, that they were shut up too; and he seemeth in both to express only the cessation of the
Effect

Effect which proceeded from their opening: For as *Moses* had ascrib'd the Deluge to the opening of these two, so when it was to cease, he saith, these two were shut up; as they were really put into such a condition, both of them, that they could not continue the Deluge any longer, nor ever be the occasion of a second; and therefore in that sense, and as to that effect were for ever shut up. Some may possibly make that also an Objection against us, that *Moses* mentions and supposes the *Mountains* at the Deluge, for he saith, the waters reached fifteen Cubits above the tops of them; whereas we suppose the Ante-diluvian Earth to have had a plain and uniform surface, without any inequality of Hills and Valleys. But this is easily answer'd, 'twas in the height of the Deluge that *Moses* mention'd the Mountains, and we suppose them to have risen then or more towards the beginning of it, when the Earth was broke; and these Mountains continuing still upon the face of the Earth, *Moses* might very well take them for a standard to measure and express to posterity the height of the waters, though they were not upon the Earth when the Deluge begun. Neither is there any mention made, as is observ'd by some, of Mountains in Scripture, or of Rain, till the time of the Deluge.

We have now finish'd our account of *Noah's Flood*, both generally and particularly; and I have not wittingly omitted or conceal'd any difficulty that occur'd to me, either from the History, or from abstract reason: Our Theory, so far as I know, hath the consent and authority of both: And how far it agrees and is demonstrable from natural observation, or from the form and *Phænomena* of this Earth, as it lies at present, shall be the subject of the remaining part of this First Book. In the mean time I do not know any thing more to be added in this part, unless it be to conclude with an Advertisement to prevent any mistake or misconstruction, as if this Theory, by explaining the Deluge in a natural way, or by natural causes, did detract from the power of God, by which that great judgment was brought upon the World in a Providential and miraculous manner.

To satisfy all reasonable and intelligent persons in this particular, I answer and declare, first, That we are far from excluding Divine Providence, either ordinary or extraordinary, from the causes and conduct of the Deluge. I know a Sparrow doth not fall to the ground without the will of our Heavenly Father, much less doth the great World fall in pieces without his good pleasure and superintendency. In him all things live, move, and have their being; Things that have Life and Thought have it from him, he is the Fountain of both: Things that have motion only, without Thought, have it also from him: And what hath only naked Being, without Thought or Motion, owe still that Being to him. And these are not only deriv'd from God at first, but every moment continued and conserv'd by him. So intimate and universal is the dependance of all things upon the Divine Will and Power.

In the second place, they are guilty, in my Judgment, of a great Error or indiscretion, that oppose the course of Nature to Providence. Our Saviour *Mat. 6. 28.* makes those things instances of Divine Providence, which yet come to pass in an ordinary course of Nature: In that part of his excellent Sermon upon the Mount, that concerns Providence, He bids them *Consider the Lilies how they grow, they toil not, neither do they spin, and yet Solomon in all his glory was not arrayed like one of these*; He bids them also *consider the Ravens, they neither sow nor reap, neither have they Storehouse nor Barn, and God feedeth them.* *Luk. 12. 24.* The Lilies grow, and the Ravens are fed according to the ordinary course of Nature, and yet they are justly made arguments of Providence by our Saviour; nor are these things less Providential, because constant and regular; on the contrary, such a disposition or establishment of second causes, as will in the best order, and for a long succession, produce the most regular effects, assisted only with the ordinary concurrence of the first cause, is a greater argument of wisdom and contrivance, than such a disposition of causes as will not in so good an order, or for so long a time produce regular effects, without an extraordinary course

course and interposition of the First cause. This, I think, is clear to every mans judgment. We think him a better Artist that makes a Clock that strikes regularly at every hour from the Springs and Wheels which he puts in the work, than he that hath so made his Clock that he must put his finger to it every hour to make it strike : And if one should contrive a piece of Clock-work so that it should beat all the hours, and make all its motions regularly for such a time, and that time being come, upon a signal given, or a Spring toucht, it should of its own accord fall all to pieces ; would not this be look'd upon as a piece of greater Art, than if the workman came at that time prefixt, and with a great Hammer beat it into pieces ? I use these comparisons to convince us, that it is no detraction from Divine Providence, that the course of Nature is exact and regular, and that even in its greatest changes and revolutions it should still conspire and be prepar'd to answer the ends and purposes of the Divine Will in reference to the *Moral* World. This seems to me to be the great Art of Divine Providence, so to adjust the two Worlds, Humane and Natural, Material and Intellectual, as seeing thorough the possibilities and futuritions of each, according to the first state and circumstances he puts them under, they should all along correspond and fit one another, and especially in their great Crises and Periods.

Thirdly, Besides the ordinary Providence of God in the ordinary course of Nature, there is doubtless an extraordinary Providence that doth attend the greater Scenes and the greater revolutions of Nature. This, methinks, besides all other proof from the Effects, is very rational and necessary in it self ; for it would be a limitation of the Divine Power and Will so to be bound up to second causes, as never to use, upon occasion, an extraordinary influence or direction : And 'tis manifest, taking any Systeme of Natural causes, if the best possible, that there may be more and greater things done, if to this, upon certain occasions you joyn an extraordinary conduct. And as we have taken notice before, that there was an extraordinary Providence in the formation or composition of the

first Earth, so I believe there was also in the dissolution of it ; And I think it had been impossible for the Ark to have liv'd upon the raging Abyffe, or for *Noah* and his family to have been preserv'd, if there had not been a miraculous hand of Providence to take care of them. But 'tis hard to separate and distinguish an ordinary and extraordinary Providence in all cases, and to mark just how far one goes, and where the other begins. And writing a Theory of the Deluge here, as we do, we were to exhibit a Series of causes whereby it might be made intelligible, or to shew the proximate Natural causes of it ; wherein we follow the example both of *Moses* and *S. Peter* ; and with the same veneration of the Divine Power and Wisdom in the government of Nature, by a constant ordinary Providence, and an occasional extraordinary.

So much for the Theory of the Deluge, and the second Section of this Discourse.

C H A P. IX.

The Second Part of this Discourse, proving the same Theory from the Effects and present Form of the Earth. First, by a general Scheme of what is most remarkable in this Globe, and then by a more particular Induction ; beginning with an Account of Subterraneous Cavities and Subterraneous Waters.

WE have now finish'd our explication of the Universal Deluge, and given an account, not only of the possibility of it, but of its Causes ; and of that form and structure of the Earth, whereby the *Old World* was subject to that sort of Fate. We have not beg'd any Principles or Suppositions for the proof of this, but taking that common ground, which

which both *Moses* and all Antiquity presents to us, *viz. That this Earth rose from a Chaos*; We have from that deduc'd, by an easie train of consequences, what the first Form of it would be; and from that Form, as from a nearer ground, we have by a second train of consequences made it appear, that at some time or other that first Earth would be subject to a dissolution, and by that dissolution to a Deluge. And thus far we have proceeded only by the intuition of causes, as is most proper to a Theory; but for the satisfaction of those that require more sensible arguments, and to compleat our proofs on either hand, we will now argue from the Effects; And from the present state of Nature, and the present form of the Earth, prove that it hath been broken, and undergone such a dissolution as we have already describ'd, and made the immediate occasion of the Deluge. And that we may do this more perspicuously and distinctly, we will lay down this Proposition to be prov'd, *viz. That the present form and structure of the Earth, both as to the surface and as to the Interiour parts of it, so far as they are known and accessible to us, doth exactly answer to our Theory concerning the form and dissolution of the first Earth, and cannot be explain'd upon any other Hypothesis.*

Oratours and Philosophers treat Nature after a very different manner; Those represent her with all her graces and ornaments, and if there be any thing that is not capable of that, they dissemble it, or pass it over slightly. But Philosophers view Nature with a more impartial eye, and without favour or prejudice give a just and free account, how they find all the parts of the Universe, some more, some less perfect. And as to this Earth in particular, if I was to describe it as an Oratour, I would suppose it a beautiful and regular Globe, and not only so, but that the whole Universe was made for its sake; that it was the darling and favourite of Heaven, that the Sun shin'd only to give it light, to ripen its Fruit, and make fresh its Flowers; And that the great Concave of the Firmament, and all the Stars in their several Orbs, were design'd only for a spangled Cabinet to keep this Jewel in. This *Idea* I would give of it as an Oratour;

But

But a Philosopher that overheard me, would either think me in jest or very injudicious, if I took the Earth for a body so regular in it self, or so considerable, if compar'd with the rest of the Universe. This, he would say, is to make the great World like one of the Heathen Temples, a beautiful and magnificent structure, and of the richest materials, yet built only for a little brute Idol, a Dog or a Crocodile, plac'd in some corner of it.

We must therefore be impartial where the Truth requires it, and describe the Earth as it is really in it self; and though it be handsome and regular enough to the eye in certain parts of it, single tracts and single Regions; yet if we consider the whole surface of it, or the whole Exteriour Region, 'tis as a broken and confus'd heap of bodies, plac'd in no order to one another, nor with any correspondency or regularity of parts: And such a body as the Moon appears to us, when 'tis look'd upon with a good Glass, rude and ragged; as it is also represented in the modern Maps of the Moon; such a thing would the Earth appear if it was seen from the Moon. They are both in my judgment the image or picture of a great Ruine, and have the true aspect of a World lying in its rubbish.

*Vide Fig.
præced. pag.
102.*

Our Earth is first divided into Sea and Land, without any regularity in the portions, either of the one or the other; In the Sea lie the Islands, scatter'd like limbs torn from the rest of the body; great rocks stand rear'd up in the waters; The Promontories and Capes shoot into the Sea, and the Sinus's and Creeks on the other hand run as much into the Land; and these without any order or uniformity. Upon the other part of our Globe stand great heaps of Earth or stone, which we call Mountains; and if these were all plac'd together, they would take up a very considerable part of the dry Land; In the other part of it are lesser Hills, Valleys, Plains, Lakes, and Marishes, Sands and Defarts, &c. and these also without any regular disposition. Then the inside of the Earth or inward parts of it are generally broken or hollow, especially about the Mountains and high Lands, as
also

also towards the shores of the Sea, and among the rocks. How many Holes and Caverns, and strange Subterraneous passages do we see in many Countries; and how many more may we easily imagine, that are unknown and unaccessible to us.

This is the pourtraicture of our Earth, drawn without flattery; and as oddly as it looks, it will not be at all surprizing to one that hath consider'd the foregoing Theory; For 'tis manifest enough, that upon the dissolution of the first Earth, and its fall into the Abyffe, this very face and posture of things, which we have now describ'd, or something extreamly like it, would immediately result. The Sea would be open'd, and the face of the Globe would be divided into Land and Water: And according as the fragments fell, some would make Islands or Rocks in the Sea, others would make Mountains or Plains upon the Land; and the Earth would generally be full of Caverns and hollowneses, especially in the Mountainous parts of it. And we see the resemblance and imitation of this in lesser ruines, when a Mountain sinks and falls into Subterraneous water; or which is more obvious, when the Arch of a Bridge is broken, and falls into the water, if the water under it be not so deep as to overflow and cover all its parts, you may see there the image of all these things in little, Continents, and Islands, and Rocks under water: And in the parts that stand above the water, you may see Mountains, and Precipices, and Plains, and most of the varieties that we see and admire in the parts of the Earth. What need we then seek any further for the Explication of these things? Let us suppose this Arch as the great Arch of the Earth, which once it had, and the water under it as the Abyffe, and the parts of this ruine to represent the parts of the Earth; There will be scarce any difference but of lesser and greater, the same things appearing in both. But we have naturally that weakness or prejudice, that we think great things are not to be explain'd from easie and familiar instances; We think there must be something difficult and operose in the explication of them, or else we are not satisfied; whether

ther it is that we are asham'd to see our ignorance and admiration to have been so groundless, or whether we fancy there must be a proportion between the difficulty of the explication, and the greatness of the thing explain'd; but that is a very false Judgment, for let things be never so great, if they be simple, their explication must be simple and easie; And on the contrary, some things that are mean, common, and ordinary, may depend upon causes very difficult to find out; for the difficulty of explaining an effect doth not depend upon its greatness or littleness, but upon the simplicity or composition of its causes. And the effects and *Phænomena* we are here to explain, though great, yet depending upon causes very simple, you must not wonder if the Explication, when found out, be familiar and very intelligible.

And this is so intelligible, and so easily deducible from the forementioned causes, that a man born blind or brought up all his life in a Cave, that had never seen the face of the Earth, nor ever heard any description of it, more than that it was a great Globe, having this Theory propos'd to him, or being instructed what the form of the first Earth was, how it stood over the waters, and then how it was broke and fell into them, he would easily of his own accord foretel what changes would arise upon this dissolution; and what the new form of the Earth would be. As in the first place he would tell you, that this second Earth would be distinguish'd and checker'd into Land and Water; for the Orb which fell being greater than the circumference it fell upon, all the fragments could not fall flat and lie drown'd under water; and those that stood above, would make the dry Land or habitable part of the Earth. Then in the second place, he would plainly discern that these fragments that made the dry Land, could not lie all plain and smooth and equal, but some would be higher and some lower, some in one posture and some in another, and consequently would make Mountains, Hills, Valleys, and Plains, and all other varieties we have in the situation of the parts of the Earth. And lastly, a blind man would easily divine that

that such a great ruine could not happen but there would be a great many holes and cavities amongst the parts of it, a great many intervals and empty places in the rubbish, as I may so say; for this we see happens in all ruines more or less; And where the fragments are great and hard, 'tis not possible they should be so adjusted in their fall, but that they would lie hollow in many places, and many unfill'd spaces would be intercepted amongst them; some gaping in the surface of the Earth, and others hid within; so as this would give occasion to all sorts of fractures and cavities, either in the skin of the Earth, or within its body. And these Cavities, that I may add that in the last place, would be often fill'd with Subterraneous waters, at least at such a depth; for the foundations of the Earth standing now within the waters, so high as those waters reach'd they would more or less propagate themselves every way.

Thus far our Blind man could tell us what the new World would be, or the form of the Earth upon the great dissolution; and we find his reasonings and inferences very true, these are the chief lineaments and features of our Earth; which appear indeed very irregular and very inaccountable when they are lookt upon naked in themselves, but if we look upon them through this Theory, we see as in a glass all the reasons and causes of them. There are different Genius's of men, and different conceptions, and every one is to be allow'd their liberty as to things of this nature; I confess, for my own part, when I observe how easily and naturally this *Hypothesis* doth apply it self to all the particularities of this Earth, hits and falls in so luckily and surprizingly with all the odd postures of its parts, I cannot, without violence, bear off my mind from fully assenting to it: And the more odd and extravagant, as I may so say, and the more diversifi'd the effects and appearances are, to which an *Hypothesis* is to be appli'd, if it answers them all and with exactness, it comes the nearer to a moral certitude and infallibility. As a Lock that consists of a great deal of workmanship, many Wards, and many odd pieces and contrivances, if you find a Key

that answers to them all, and opens it readily, 'tis a thousand to one that 'tis the true Key, and was made for that purpose.

An eminent Philosopher of this Age, *Monsieur des Cartes*, hath made use of the like *Hypothesis* to explain the irregular form of the present Earth; though he never dream'd of the Deluge, nor thought that first Orb built over the Abyſſe, to have been any more than a tranſient cruſt, and not a real habitable World that laſted for more than ſixteen hundred years, as we ſuppoſe it to have been. And though he hath, in my opinion, in the formation of that firſt Orb, and upon the diſſolution of it, committed ſome great overſights, whereof we have given an account in the Latin Treatiſe; however he ſaw a neceſſity of ſuch a thing, and of the diſruption of it, to bring the Earth into that form and poſture wherein we now find it.

C. 7. 6.
lib. 2. c. 4.

Thus far we have ſpoken in general concerning the agreement and congruity of our ſuppoſition with the preſent face of the Earth, and the eaſie account it gives of the cauſes of it. And though I believe to ingenuous perſons that are not prejudic'd by the forms and opinions of the Schools againſt every thing that looks like a novelty or invention, thus much might be ſufficient; yet for the ſatiſfaction of all, we will, as a farther proof of our Theory, or that part of it which concerns the diſſolution of the Earth, deſcend to a particular explication of three or four of the moſt conſiderable and remarkable things that occur in the fabrick of this preſent Earth; namely, *the great Chanel of the Ocean; Subterraneous Cavities and Subterraneous Waters*; and laſtly, *Mountains and Rocks*. Theſe are the wonders of the Earth as to the viſible frame of it; and who would not be pleas'd to ſee a rational account of theſe? of their Origin, and of their properties; Or who would not approve of that *Hypothesis*, when they ſee that Nature in her greateſt and ſtrangeſt works may eaſily be underſtood by it, and is in no other way intelligible.

We will ſpeak firſt of Subterraneous Cavities and Waters, becauſe they will be of eaſier diſpatch, and an introduction to the reſt.

That

That the inside of the Earth is hollow and broken in many places, and is not one firm and united mass, we have both the Testimony of Sence and of easie Observations to prove : How many Caves and Dens and hollow passages into the ground do we see in many Countries, especially amongst Mountains and Rocks ; and some of them endless and bottomless so far as can be discover'd. We have many of these in our own Island, in *Derbyshire, Somersetshire, Wales,* and other Counties, and in every Continent or Island they abound more or less. These hollowneses of the Earth the Ancients made prisons, or storehouses for the winds, and set a God over them to confine them, or let them loose at his pleasure. For some Ages after the Flood, as all Antiquity tells us, These were the first houses men had, at least in some parts of the Earth ; here rude mortals shelter'd themselves, as well as they could, from the injuries of the Air, till they were beaten out by wild beasts that took possession of them. The Ancient Oracles also us'd to be given out of these Vaults and recesses under ground, the *Sibyls* had their Caves, and the *Delphick* Oracle, and their Temples sometimes were built upon an hollow Rock. Places that are strange and solemn strike an awe into us, and incline us to a kind of superstitious timidity and veneration, and therefore they thought them fit for the seats and residences of their Deities. They fancied also that steams rise sometimes, or a sort of Vapour in those hollow places, that gave a kind of Divine fury or inspiration. But all these uses and imployments are now in a great measure worn out, we know no use of them but to make the places talkt on where they are, to be the wonders of the Country, to please our curiosity to gaze upon and admire ; but we know not how they came, nor to what purpose they were made at first.

It would be very pleasant to read good descriptions of these Subterraneous places, and of all the strange works of Nature there ; how she furnisheth these dark neglected Grottoes ; they have often a little Brook runs murmuring through them, and the roof is commonly a kind of petrif'd Earth or Icy fret-

work; proper enough for such rooms. But I should be pleas'd especially to view the Sea-caves, or those hollow Rocks that lie upon the Sea, where the waves roll in a great way under ground, and wear the hard Rock into as many odd shapes and figures as we see in the Clouds. 'Tis pleasant also to see a River in the middle of its course throw it self into the mouth of a Cave, or an opening of the Earth, and run under ground sometimes many miles; still pursuing its way thorough the dark pipes of the Earth, till at last it find an out-let. There are many of these Rivers taken notice of in History in the several parts of the Earth, as the *Rhone* in *France*, *Guadiana* in *Spain*, and several in *Greece*, *Alpheus*, *Lycus*, and *Eracinus*; then *Niger* in *Africa*, *Tigris* in *Asia*, &c. And I believe if we could turn *Derwent*, or any other River into one of the holes of the Peak, it would groap its way till it found an issue, it may be in some other Country. These subterraneous Rivers that emerge again, shew us that the holes of the Earth are longer and reach farther than we imagine, and if we could see into the ground, as we ride or go, we should be affrighted to see so often Waters or Caverns under us.

But to return to our dry Caves; These commonly stand high, and are sometimes of a prodigious greatness: *Strabo* mentions some in the Mountains towards *Arabia*, that are capable to receive four thousand men at once. The Cave of *Engedi* hid *David* and six hundred men, so as *Saul*, when he was in the mouth of it, did not perceive them. In the Mountains of the *Traconites*, there are many of these vast dens and recesses, and the people of that Country defended themselves a long time in those strong Holds against *Herod* and his Army; They are plac'd among such craggy Rocks and Precipices, that, as *Josephus* tells us, *Herod* was forc'd to make a sort of open chests, and in those by chains of Iron he let down his Souldiers from the top of the Mountains, to go fight them in their dens. I need add no more instances of this kind; In the Natural History of all Countries, or the Geographical descriptions of them, you find such places taken notice of more or less; yet if there was a good collection

Geo. l. 16.

1 Sam. 24.
3, 4.

Ant. Jud.
li. 14. ch. 27.

lection made of the chief of them in several parts, it might be of use and would make us more sensible how broken and torn the body of the Earth is.

There are subterraneous Cavities of another nature, and more remarkable, which they call *Volcano's*, or fiery Mountains; that belch out flames and smoke and ashes, and sometimes great stones and broken Rocks, and lumps of Earth, or some metallick mixture; and throw them to an incredible distance by the force of the eruption. These argue great vacuities in the bowels of the Earth, and magazines of combustible matter treasur'd up in them. And as the Exhalations within these places must be copious, so they must lie in long Mines or Trains to do so great execution, and to last so long. 'Tis scarce credible what is reported concerning some eruptions of *Vesuvius* and *Ætna*. The Eruptions of *Vesuvius* seem to be more frequent and less violent of late; The flame and smoke break out at the top of the Mountain, where they have eaten away the ground and made a great hollow, so as it looks at the top, when you stand upon the brims of it, like an *Amphitheater*, or like a great Caldron, about a mile in circumference, and the burning Furnace lies under it. The outside of the Mountain is all spread with Ashes, but the inside much more; for you wade up to the mid-leg in Ashes to go down to the bottom of the Cavity, and 'tis extremely heavy and troublesome to get up again. The inside lies sloping, and one may safely go down if it be not in a raging fit; but the middle part of it or center, which is a little rais'd like the bottom of a Platter, is not to be ventur'd upon, the ground there lies false and hollow, there it always smoaks, and there the Funnel is suppos'd to be; yet there is no visible hole or gaping any where when it doth not rage. *Naples* stands below in fear of this fiery Mountain, which hath often cover'd its Streets and Palaces with its Ashes; and in sight of the Sea (which lies by the side of them both) and as it were in defiance to it, threatens at one time or another, to burn that fair City. History tells us, that some eruptions of *Vesuvius* have carri'd Cinders and Ashes as far as *Constantinople*;

nople ; this is attested both by Greek and Latin Authors ; particularly *Ammianus Marcellinus* saith, that they were so affrighted with them, that the Emperor left the City, and that there was a day observ'd yearly in memorial of it.

Ætna is of greater fame than *Vesuvius*, and of greater fury, all Antiquity speaks of it ; not only the Greeks and Romans, but as far as History reacheth, either real or fabulous, there is something recorded of the Fires of *Ætna*. The Figure of the Mountain is inconstant, by reason of the great consumptions and ruines it is subject to ; The Fires and Æstuations of it are excellently describ'd by *Virgil*, upon occasion of *Æneas* his passing by those Coasts.

----- *Horrisicis juxta tonat Ætna ruinis ;*
Interdumque atram prorumpit ad æthera nubem,
Turbine fumantem piceo & candente favillâ ;
Attollitque globos flammaram & sydera lambit ;
Interdum scopulos, avolsâque viscera Montis
Erigit eructans, liquefactâque saxa sub auras
Cum gemitu glomerat, fundoque exæstuat imo.
Fama est Enceladi semustum fulmine corpus
Urgeri mole hâc, ingentemque insuper Ætnam
Impositam, ruptis flammam expirare caminis.
Et fessum quoties mutet latus, intremere omnem
Murmure Trinacriam & cælum subtexere fumo.

----- *Ætna, whose ruines make a thunder ;*
Sometimes a cloud of smoak, in pitchy curles,
Mingled with burning ashes, forth it hurles ;
Or balls of flame, that scorch the Stars on high ;
Or its own bowels torn, throws in the Skie.
In its deep Cells under the Earth, a store
Of fire-materials, molten Stones, and Ore,
It gathers, then spews out, and gathers more. }
Enceladus when thunder-struck by Jove,
Was burî'd here, and Ætna thrown above ;
And when to change his wearied side, he turns,
The Island trembles and the Mountain burns.

Not far from *Ætna* lies *Strombolo*, and other adjacent Islands; where there are also such magazines of Fire; and throughout all Regions and Countries, in the *West-Indies* and in the *East*, in the Northern and Southern parts of the Earth, there are some of these *Volcano's*, which are sensible evidences that the Earth is incompact and full of Caverns; besides the roarings and bellowings that use to be heard before an eruption of these *Volcano's*, argue some dreadful hollowness in the belly or under the roots of the Mountain, where the Exhalations struggle before they can break their prison.

The subterraneous Cavities that we have spoke of hitherto, are such as are visible in the surface of the Earth, and break the skin by some gaping Orifice; but the Miners and those that work under ground, meet with many more in the bowels of the Earth, that never reach to the top of it: Burrows, and Channels, and Clefts, and Caverns, that never had the comfort of one beam of light since the great fall of the Earth. And where we think the ground is firm and solid, as upon Heaths and Downs, it often betrays its hollowness, by sounding under the Horses feet and the Chariot-wheels that pass over it. We do not know when and where we stand upon good ground, if it was examin'd deep enough; and to make us further sensible of this, we will instance in two things that argue the unsoundness and hollowness of the Earth in the inward recesses of it, though the surface be intire and unbroken; These are *Earthquakes* and the communication of *Subterraneous waters and Seas*: Of which two we will speak a little more particularly.

Earthquakes are too evident demonstrations of the hollowness of the Earth, being the dreadful effects or consequences of it; for if the body of the Earth was found and compact, there would be no such thing in Nature as an Earthquake. They are commonly accompanied with an heavy dead sound, like a dull thunder, which ariseth from the Vapours that are striving in the womb of Nature when her throes are coming upon her. And that these Caverns where
the

the Vapours lie are very large and capacious, we are taught sometimes by sad experience ; for whole Cities and Countries have been swallow'd up into them, as *Sodom* and *Gomorra*, and the Region of *Pentapolis*, and several Cities in *Greece*, and in *Asia*, and other parts. Whole Islands also have been thus absorpt in an Earthquake ; the pillars and props they stood upon being broken, they have sunk and fallen in as an house blown up. I am also of opinion that those Islands that are made by divulsion from a Continent, as *Sicily* was broken off from *Italy*, and *Great Britain*, as some think, from *France*, have been made the same way ; that is, the Isthmus or necks of Land that joyn'd these Islands with their Continents before, have been hollow, and being either worn by the water, or shak'd by an Earthquake, have sunk down, and so made way for the Sea to overflow them, and of a Promontory to make an Island. For it is not at all likely that the neck of Land continu'd standing, and the Sea overflow'd it, and so made an Island ; for then all those passages between such Islands, and their respective Continents would be extreamly shallow and unnavigable, which we do not find them to be. Nor is it any more wonder if such a neck of Land should fall, than that a Mountain should sink, or any other tract of Land, and a Lake rise in its place, which hath often happen'd. *Plato* supposeth his *Atlantis* to have been greater than *Asia* and *Africa* together, and yet to have sunk all into the Sea ; whether that be true or no, I do not think it impossible that some arms of the Sea or Sinus's might have had such an original as that ; and I am very apt to think, that for some years after the Deluge, till the fragments were well settled and adjusted, great alterations would happen as to the face of the Sea and the Land ; many of the fragments would change their posture, and many would sink into the water that stood out before, the props failing that bore them up, or the joynts and corners whereby they lean'd upon one another ; and thereupon a new face of things would arise, and a new Deluge for that part of the Earth. Such removes and interchanges, I believe, would of-

ten happen in the first Ages after the Flood; as we see in all other ruins there happen lesser and secondary ruins after the first, till the parts be so well pois'd and settled, that without some violence they scarce change their posture any more.

But to return to our Earthquakes, and to give an instance or two of their extent and violence: *Pliny* mentions one in the Reign of *Tiberius Caesar* that struck down twelve Cities of *Asia* in one night. And *Fournier* gives us an account of one in *Peru*, that reach'd three hundred leagues along the Sea-shore, and seventy leagues in-land; and level'd the Mountains all along as it went, threw down the Cities, turn'd the Rivers out of their Channels, and made an universal havock and confusion: And all this, he saith, was done within the space of seven or eight minutes. There must be dreadful Vaults and Mines under that Continent, that gave passage to the Vapours, and liberty to play for nine hundred miles in length, and above two hundred in breadth. *Asia* also hath been very subject to these desolations by Earthquakes; and many parts in *Europe*, as *Greece*, *Italy*, and others. The truth is, our Cities are built upon ruins, and our Fields and Countries stand upon broken Arches and Vaults, and so does the greatest part of the outward frame of the Earth, and therefore it is no wonder if it be often shaken; there being quantities of Exhalations within these Mines, or Cavernous passages that are capable of rarefaction and inflammation; and upon such occasions requiring more room they shake or break the ground that covers them. And thus much concerning Earthquakes.

A second observation that argues the hollowness of the Earth, is the communication of the Seas and Lakes under ground. The *Caspian* and *Mediterranean* Seas, and several Lakes, receive into them great Rivers, and yet have no visible out-let: These must have subterraneous out-lets, by which they empty themselves, otherwise they would redound and overflow the brims of their Vessel. The *Mediterranean* is most remarkable in this kind, because 'tis observ'd that at one end the great Ocean flows into it through

the straits of *Gibraltar*, with a sensible current, and towards the other end about *Constantinople* the *Pontus* flows down into it with a stream so strong, that Vessels have much ado to stem it; and yet it neither hath any visible evacuation or out-let, nor overflows its banks. And besides that it is thus fed at either end, it is fed by the navel too, as I may so say; it sucks in by their Channels several Rivers into its belly, whereof the *Nile* is one very great and considerable. These things have made it a great Problem, *What becomes of the water of the Mediterranean Sea?* And for my part, I think, the solution is very easie, namely, that it is discharg'd by Subterraneous passages, or convey'd by Channels under the ground into the Ocean. And this manner of discharge or conveyance is not peculiar to the *Mediterranean*, but is common to it with the *Caspian* Sea, and other Seas and Lakes, that receive great Rivers into them, and have no visible issue.

I know there have been propos'd several other ways to answer this difficulty concerning the efflux or consumption of the waters of the *Mediterranean*; some have suppos'd a double current in the strait of *Gibraltar*, one that carri'd the water in, and another that brought it out; like the Arteries and Veins in our Body, the one exporting our blood from the heart, and the other re-importing it: So they suppos'd one current upon the surface, which carri'd the water into the *Mediterranean*, and under it at a certain depth a counter-current, which brought the water back into the Ocean. But this hath neither proof nor foundation; for unless it was included in pipes, as our blood is, or consisted of liquors very different, these cross currents would mingle and destroy one another. Others are of opinion, that all the water that flows into the *Mediterranean*, or a quantity equal to it, is consum'd in Exhalations every day; This seems to be a bolder supposition than the other, for if so much be consum'd in Vapours and Exhalations every day as flows into this Sea, what if this Sea had an out-let, and discharg'd by that every day as much as it receiv'd; in a few days the Vapours would have consum'd

consum'd all the rest; and yet we see many Lakes that have as free an out-let as an in-let, and are not consum'd, or sensibly diminish'd by the Vapours. Besides, this reason is a Summer-reason, and would pass very ill in Winter, when the heat of the Sun is much less powerful: At least there would be a very sensible difference betwixt the height of the waters in Summer and Winter, if so much was consum'd every day as this Explication supposeth. And the truth is, this want of a visible out-let is not a property belonging only to the *Mediterranean Sea*, as we noted before, but is also in other Seas and great Lakes, some lying in one Climat and some in another, where there is no reason to suppose such excessive Exhalations; And though 'tis true some Rivers in *Africk*, and in other parts of the Earth, are thus exhal'd and dri'd up, without ever flowing into the Sea (as were all the Rivers in the first Earth) yet this is where the sands and parch'd ground suck up a great part of them; the heat of the Climat being excessively strong, and the Chanel of the River growing shallower by degrees, and, it may be, divided into lesser branches and rivulets; which are causes that take no place here. And therefore we must return to our first reason, which is universal, for all seasons of the Year and all Climats; and seeing we are assur'd that there are Subterraneous Channels and passages, for Rivers often fall into the ground, and sometimes rise again, and sometimes never return; why should we doubt to ascribe this effect to so obvious a cause? Nay, I believe the very Ocean doth evacuate it self by Subterraneous outlets; for considering what a prodigious mass of water falls into it every day from the wide mouths of all the Rivers of the Earth, it must have out-lets proportionable; and those *Syrtes* or great Whirlpools that are constant in certain parts or Sinus's of the Sea, as upon the Coast of *Norway* and of *Italy*, arise probably from Subterraneous out-lets in those places, whereby the water sinks and turns and draws into it whatsoever comes within such a compass; and if there was no issue at the bottom, though it might by contrary currents turn things round, within its Sphere, yet there

is no reason from that why it should suck them down to the bottom. But thus much for the Subterraneous communication of Seas and Lakes.

And thus much in general concerning subterraneous Cavities, and concerning the hollow and broken frame of the Earth. If I had now magick enough to show you at one view all the inside of the Earth, which we have imperfectly describ'd; If we could go under the roots of the Mountains, and into the sides of the broken rocks; or could dive into the Earth with one of those Rivers that sink under ground, and follow its course and all its windings till it rise again, or led us to the Sea, we should have a much stronger and more effectual *Idea* of the broken form of the Earth, than any we can excite by these faint descriptions collected from Reason. The Ancients I remember us'd to represent these hollow Caves and Subterraneous Regions in the nature of a *World* under-ground, and suppos'd it inhabited by the *Nymphs*, especially the *Nymphs* of the waters and the Sea-Goddesses; so *Orpheus* sung of old; and in imitation of him *Virgil* hath made a description of those Regions; feigning the Nymph *Cyrene* to send for her son to come down to her, and make her a visit in those shades where mortals were not admitted.

*Duc age, duc ad nos, fas illi limina Divûm
Tangere, ait : Simul alta jubet discedere latè
Flumina, quâ juvenis gressus inferret, at illum
Curvata in montis faciem circumstitit unda,
Accepitque sinu vasto, misitque sub amnem.
Fâmque domum mirans Genetricis & humida regna,
Speluncisque lacos clausos, lucosque sonantes,
Ibat, & ingenti motu stupefactus aquarum
Omnia sub magnâ labentia flumina terrâ
Speâbat diversa locis ; Phasimque Lycumque, &c.
Et Thalami matris pendentia pumice tectâ, &c.*

*Come lead the Youth below, bring him to me,
The Gods are pleas'd our Mansions he should see ;
Streight she commands the floods to make him way,
They open their wide bosom and obey ;*

*Soft is the path, and easie is his tread,
 A watry Arch bends o're his dewy head ;
 And as he goes he wonders, and looks round,
 To see this new-found Kingdom under ground.
 The silent Lakes in hollow Caves he sees,
 And on their banks an ecchoing grove of Trees ;
 The fall of waters 'mongst the Rocks below
 He hears, and sees the Rivers how they flow ;
 All the great Rivers of the Earth are there,
 Prepar'd, as in a womb, by Natures care.
 Last, to his mothers bed-chamber he's brought,
 Where the high roof with Pumice-stone is wrought, &c.*

If we now could open the Earth as this *Nymph* did the Water, and go down into the bosom of it, see all the dark Chambers and Apartments there, how ill contriv'd, and how ill kept, so many holes and corners, some fill'd with smoak and fire, some with water, and some with vapours and mouldy Air ; how like a ruine it lies gaping and torn in the parts of it ; we should not easily believe that God created it into this form immediately out of nothing ; It would have cost no more to have made things in better order ; nay, it had been more easie and more simple ; and accordingly we are assured that all things were made at first in Beauty and proportion. And if we consider Nature and the manner of the first formation of the Earth, 'tis evident that there could be no such holes and Caverns, nor broken pieces, made then in the body of it ; for the grosser parts of the Chaos falling down towards the Center, they would there compose a mass of Earth uniform and compact, the water swimming above it ; and this first mass under the water could have no Caverns or vacuities in it ; for if it had had any, the Earthy parts, while the mass was liquid or semiliquid, would have sunk into them and fill'd them up, expelling the Air or Water that was there ; And when afterwards there came to be a crust or new Earth form'd upon the face of the Waters, there could be no Cavities, no dens, no fragments in it, no more than in the other ; And for the same general reason, that is, passing from
 a li-

a liquid form into a concrete or solid leisurely and by degrees, it would flow and settle together in an entire mass; There being nothing broken, nor any thing hard, to bear the parts off from one another, or to intercept any empty spaces between them.

'Tis manifest then that the Earth could not be in this Cavernous form originally, by any work of Nature; nor by any immediate action of God, seeing there is neither use nor beauty in this kind of construction: Do we not then, as reasonably, as aptly ascribe it to that desolation that was brought upon the Earth in the general Deluge? When its outward frame was dissolv'd and fell into the great Abyſſe: How easily doth this answer all that we have observ'd concerning the Subterraneous Regions? That hollow and broken posture of things under ground, all those Caves, and holes, and blind recesses, that are otherwise so inaccountable, say but that they are a *Ruine*, and you have in one word explain'd them all. For there is no sort of Cavities, interior or exterior, great or little, open or shut, wet or dry, of what form or fashion soever, but we might reasonably expect them in a ruine of that nature. And as for the Subterraneous waters, seeing the Earth fell into the Abyſſe, the pillars and foundations of the present (exterior) Earth must stand immers'd in water, and therefore at such a depth from the surface every where, there must be water found, if the soil be of a nature to admit it. 'Tis true all Subterraneous waters do not proceed from this original, for many of them are the effects of Rains and melted Snows sunk into the Earth; but that in digging any where you constantly come to water at length, even in the most solid ground, this cannot proceed from these Rains or Snows, but must come from below, and from a cause as general as the effect is; which can be no other in my judgment than this, that the roots of the exterior Earth stand within the old Abyſſe, whereof as a great part lies open in the Sea, so the rest lies hid and cover'd among the fragments of the Earth; sometimes dispers'd and only moistening the parts, as our blood lies in the flesh, and in the habit of the body; sometimes

times in greater or lesser masses, as the bloud in our Vessels. And this I take to be the true account of Subterraneous waters as distinguish'd from Fountains and Rivers, and from the matter and causes of them.

Thus much we have spoke to give a general *Idea* of the inward parts of the Earth, and an easie *Explication* of them by our *Hypothesis*; which, whether it be true or no, if you compare it ingenuously with Nature, you will confess at least, that all these things are just in such a form and posture as if it was true.

C H A P. X.

Concerning the Chanel of the Sea, and the Original of it: The Causes of its irregular form and unequal depths: As also of the Original of Islands, their situation, and other properties.

WE have hitherto given an account of the Subterraneous Regions, and of their general form; We now come above ground to view the surface of the Globe, which we find *Terraqueous*, or divided into Sea and Land: These we must survey, and what is remarkable in them as to their frame and structure, we must give an account of from our *Hypothesis*, and shew to be inaccountable from any other.

As for the Ocean, there are two things considerable in it, the Water and the Chanel that contains it. The Water, no doubt, is as ancient as the Earth and contemporary with it, and we suppose it to be part of the great Abyffe wherein the World was drown'd; the rest lying cover'd under the hollow fragments of Continents and Islands. But that is not so much the subject of our present discourse as the Chanel of the Ocean, that vast and prodigious Cavity that runs quite round the Globe, and reacheth, for ought we know,

know, from Pole to Pole, and in many places is unsearchably deep: When I present this great Gulf to my imagination, emptied of all its waters, naked and gaping at the Sun, stretching its jaws from one end of the Earth to another, it appears to me the most ghastly thing in Nature. What hands or instruments could work a Trench in the body of the Earth of this vastness, and lay Mountains and Rocks on the side of it as Ramparts to enclose it?

But as we justly admire its greatness, so we cannot at all admire its beauty or elegancy, for 'tis as deform'd and irregular as it is great. And there appearing nothing of order or any regular design in its parts, it seems reasonable to believe that it was not the work of Nature, according to her first intention, or according to the first model that was drawn in measure and proportion, by the Line and by the Plummet, but a secondary work, and the best that could be made of broken materials. And upon this supposition 'tis easie to imagine, how upon the dissolution of the primæval Earth the Chanel of the Sea was made, or that huge Cavity that lies between the several Continents of the Earth; which shall be more particularly explain'd after we have view'd a little better the form of it, and the Islands that lie scatter'd by its shores.

There is no Cavity in the Earth, whether open or Subterraneous, that is comparably so great as that of the Ocean, nor would any appear of that deformity if we could see it empty. The inside of a Cave is rough and unsightly; The beds of great Rivers and great Lakes when they are laid dry, look very raw and rude; The Valleys of the Earth, if they were naked, without Trees and without Grass, nothing but bare ground and bare stones, from the tops of their Mountains would have a gasty aspect; but the Sea-chanel is the complex of all these; here Caves, empty Lakes, naked Valleys are represented as in their original, or rather far exceeded and out-done as to all their irregularities; for the Cavity of the Ocean is universally irregular, both as to the shores and borders of it; as to the uncertain breadth and the uncertain

tain depth of its several parts, and as to its ground and bottom and the whole mould: If the Sea had been drawn round the Earth in regular figures and borders, it might have been a great beauty to our Globe, and we should reasonably have concluded it a work of the first Creation, or of Nature's first production; but finding on the contrary all the marks of disorder and disproportion in it, we may as reasonably conclude, that it did not belong to the first order of things, but was something succedaneous, when the degeneracy of mankind, and the judgments of God had destroy'd the first World, and subjected the Creation to some kind of Vanity.

Nor can it easily be imagin'd, if the Sea had been always, and the Earth in this *Terraqueous* form, broke into Continents and Islands, how mankind could have been propagated at first through the face of the Earth, all from one head and from one place. For Navigation was not then known, at least as to the grand Ocean, or to pass from Continent to Continent; And, I believe, *Noah's* Ark was the first Ship or Vessel of bulk that ever was built in the World; how could then the posterity of *Adam* overflow the Earth, and stock the several parts of the World, if they had been distant or separate then, -as they are now, by the interposal of the great Ocean? But this consideration we will insist upon more largely in another place; let us reflect upon the irregularities of the Sea-chanel again, and the possible causes of it.

If we could imagine the Chanel of the Sea to have been made as we may imagine the Chanels of Rivers to have been, by long and insensible attrition, the water wearing by degrees the ground under it, by the force it hath from its descent and course, we should not wonder at its irregular form; but 'tis not possible it should have had any such original; whence should its waters have descended, from what Mountains, or from what Clouds? Where is the spring-head of the Sea? what force could eat away half the surface of the Earth, and wear it hollow to an immeasurable depth? This must not be from feeble and lingering causes, such as the attrition of waters, but

from some great violence offer'd to Nature, such as we suppose to have been in the general Deluge, when the frame of the Earth was broken. And after we have a little survey'd the Sea-coast, and so far as we can, the form of the Sea-chanel, we shall the more easily believe that they could have no other original than what we assign.

The shores and coasts of the Sea are no way equal or uniform, but go in a line uncertainly crooked and broke; indented and jag'd as a thing torn, as you may see in the Maps of the Coasts and the Sea-charts; and yet there are innumerable more inequalities than are taken notice of in those draughts; for they only mark the greater Promontories and Bays; but there are besides those a multitude of Creeks and out-lets, necks of Land and Angles, which break the evenness of the shore in all manner of ways. Then the height and level of the shore is as uncertain as the line of it; 'Tis sometimes high and sometimes low, sometimes spread in sandy Plains, as smooth as the Sea it self, and of such an equal height with it, that the waves seem to have no bounds but the meer figure and convexity of the Globe; In other places 'tis rais'd into banks and ramparts of Earth, and in others 'tis wall'd in with Rocks; And all this without any order that we can observe, or any other reason than that this is what might be expected in a ruine.

As to the depths and foundings of the Sea, they are under no rule nor equality any more than the figures of the Shores; Shallows in some places, and Gulfs in others; beds of Sands sometimes, and sometimes Rocks under water; as Navigators have learn'd by a long and dangerous experience: And though we that are upon dry Land, are not much concern'd how the Rocks and the Shelves lie in the Sea, yet a poor Ship-wreckt Mariner when he hath run his Vessel upon a Rock in the middle of the Chanel, expostulates bitterly with Nature, who it was that plac'd that Rock there, and to what purpose? was there not room enough, saith he, upon the Land or the Shore to lay your great Stones, but they must be thrown into the middle of the Sea, as it were in spite
to

to Navigation? The best Apology that can be made for Nature in this case, so far as I know, is to confess that the whole business of the Sea-chanel is but a ruine, and in a ruine things tumble uncertainly, and commonly lie in confusion: Though to speak the truth, it seldom happens, unless in narrow Seas, that Rocks or Banks or Islands lie in the middle of them, or very far from the Shores.

Having view'd the more visible parts of the Channel of the Sea, we must now descend to the bottom of it, and see the form and contrivance of that; but who shall guide us in our journey, while we walk, as *Job* saith, in the search of the deep? Or who can make a description of that which none hath seen? It is reasonable to believe, that the bottom of the Sea is much more rugged, broken and irregular than the face of the Land; There are Mountains, and Valleys, and Rocks, and ridges of Rocks, and all the common inequalities we see upon Land; besides these, 'tis very likely there are Caves under water, and hollow passages into the bowels of the Earth, by which the Seas circulate and communicate one with another, and with Subterraneous waters; Those great *Eddees* and infamous *Syrtes* and Whirlpools that are in some Seas, as the *Baltick* and the *Mediterranean*, that suck into them and overwhelm whatever comes within their reach, show that there is something below that sucks from them in proportion, and that drinks up the Sea as the Sea drinks up the Rivers. We ought also to imagine the Shores within the water to go inclin'd and sloping, but with great inequality; there are many Shelves in the way, and Chambers, and sharp Angles; and many broken Rocks and great Stones lie tumbled down to the bottom.

'Tis true these things affect us little, because they are not expos'd to our senses; and we seldom give our selves the trouble to collect from reason what the form of the invisible and inaccessible parts of the Earth is; Or if we do sometimes, those *Idea's* are faint and weak, and make no lasting impression upon our imagination and passions; but if we should suppose the Ocean dry, and that we lookt down from

the top of some high Cloud upon the empty Shell, how horridly and barbarously would it look? And with what amazement should we see it under us like an open Hell, or a wide bottomless pit? So deep, and hollow, and vast; so broken and confus'd, so every way deform'd and monstrous. This would effectually waken our imagination, and make us inquire and wonder how such a thing came in Nature; from what causes, by what force or engines could the Earth be torn in this prodigious manner? did they dig the Sea with Spades, and carry out the moulds in hand-baskets? where are the entrails laid? and how did they cleave the Rocks asunder? if as many Pioneers as the Army of *Xerxes*, had been at work ever since the beginning of the World, they could not have made a ditch of this greatness. According to the proportions taken before in the *Second Chapter*, the Cavity or capacity of the Sea-chanel will amount to no less than 4639090 cubical miles. Nor is it the greatness only, but that wild and multifarious confusion which we see in the parts and fashion of it, that makes it strange and inaccountable; 'tis another Chaos in its kind, who can paint the Scenes of it? Gulfs, and Precipices, and Cataracts; Pits within Pits, and Rocks under Rocks, broken Mountains and ragged Islands, that look as if they had been Countries pull'd up by the roots, and planted in the Sea.

If we could make true and full representations of these things to our selves, I think we should not be so bold as to make them the immediate product of Divine Omnipotence; being destitute of all appearance of Art or Counsel. The first orders of things are more perfect and regular, and this *Decorum* seems to be observ'd afterwards, Nature doth not fall into disorder till mankind be first degenerate and leads the way. Monsters have been often made an argument against Providence; if a Calf have two heads, or five legs, streight there must not be a God in Heaven, or at least not upon Earth; and yet this is but a chance that happens once in many years, and is of no consequence at all to the rest of the World: but if we make the standing frame of Nature monstrous, or deform'd

deform'd and disproportion'd, and to have been so not by corruption and degeneracy, but immediately by Divine Creation or Formation, it would not be so easie to answer that objection against Providence. Let us therefore prevent this imputation, and supposing, according to our Theory, that these things were not originally thus, let us now explain more distinctly how they came to pass at the Deluge, or upon the dissolution of the first Earth.

And we will not content our selves with a general answer to these observations concerning the Sea-channel, as if it was a sufficient account of them to say they were the effects of a ruine; there are other things to be consider'd and explain'd besides this irregularity, as the vast hollownes of this Cavity, bigger incomparably than any other belonging to the Earth; and also the declivity of the sides of it, which lye shelving from top to bottom; For notwithstanding all the inequalities we have taken notice of in the Chanel of the Sea, it hath one general form, which may, though under many differences, be observ'd throughout, and that is, that the shores and sides within the water lie inclin'd, and you descend by degrees to the deepest part, which is towards the middle. This, I know, admits of many exceptions, for sometimes upon a rocky shore, or among rocky Islands the Sea is very deep close to the Rocks, and the deeper commonly the higher and steeper the Rocks are. Also where the descent is more leisurely, 'tis often after a different manner, in some Coasts more equal and uniform, in others more broken and interrupted, but still there is a descent to the Chanel or deepest part, and this in the deep Ocean is fathomless; And such a deep Ocean, and such a deep Chanel there is always between Continents. This, I think, is a property as determinate as any we can pitch upon in the Chanel of the Sea, and with those other two mention'd, its vast Cavity and universal irregularity, is all one can desire an account of as to the form of it; we will therefore from this ground take our rise and first measures for the Explication of the Sea-channel.

Let us suppose then in the dissolution of the Earth when it began to fall, that it was divided only into three or four fragments, according to the number of our Continents; but those fragments being vastly great could not descend at their full breadth and expansion, or at least could not descend so fast in the middle as towards the extremities; because the Air about the edges would yield and give place easily, not having far to go to get out of the way; but the Air that was under the middle of the fragment could not without a very swift motion get from under the concave of it, and consequently its descent there would be more resisted and suspended; but the sides in the mean time would continually descend, bending the fragment with their weight, and so making it of a lesser compass and expansion than it was before: And by this means there would be an interval and distance made between the two falling fragments, and a good part of the Abyſſe, after their descent, would lie uncover'd in the middle betwixt them; as may be seen in this Figure, where the fragments A. B. bending downwards in their extremities, separate as they go, and after they are fallen leave a good space in the Abyſſe betwixt them, altogether uncover'd; This space is the main Chanel of the great Ocean, lying betwixt two Continents; and the inclining sides shew the declivity of the Shores.

This we have represented here only in a Ring or Circle of the Earth, in the first Figure; but it may be better represented in a broader surface, as in the second Figure, where the two fragments A. B. that are to make the two opposite Continents, fall in like double Doors opening downwards, the Hinges being towards the Land on either side, so as at the bottom they leave in the middle betwixt them a deep Chanel of water, a. a. a. such as is betwixt all Continents; and the Water reaching a good height upon the Land on either side, makes Sea there too, but shallower, and by degrees you descend into the deepest Chanel.

fig. 1.

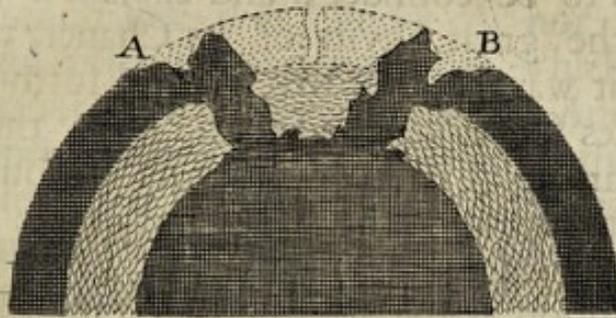


fig. 2.

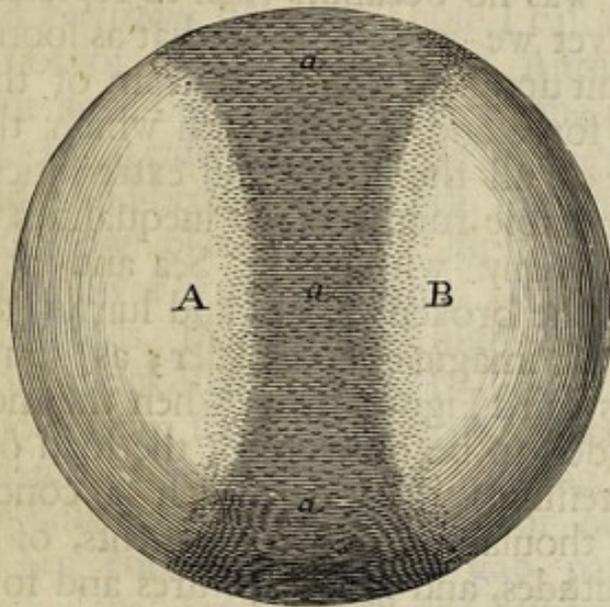
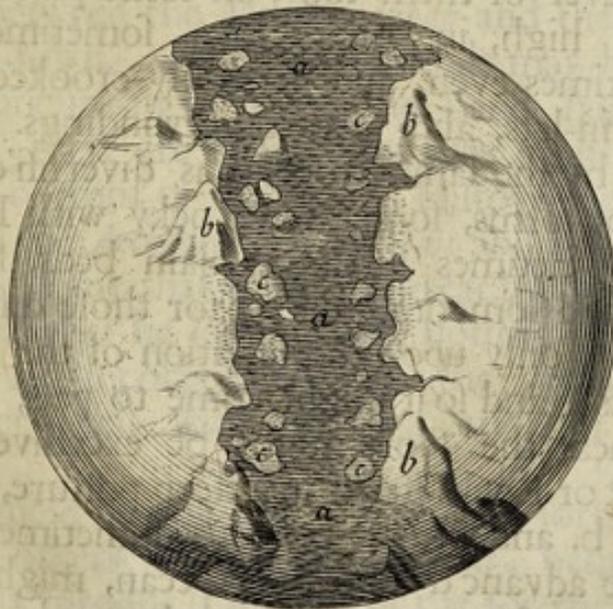


fig. 3.



This gives an account of two things that we mention'd to be consider'd and explain'd as to the Sea, how the great Cavity of its Chanel was made, and how it was made in that general form of declivity in its sides from the Land : The third thing was the irregularities of it, both as to its various depths, and as to the form of the shores and of the bottom. And this is as easily and naturally explain'd from the same supposition as the former two ; for though we have hitherto represented these fragments as even and regular after their fall, because that was most simple, and there was no occasion then to represent them otherwise, yet we must suppose that as soon as in their fall they hit upon the top or bottom of the Abyſſe, that great force and weight with which they descended broke off all the Edges and extremities, and so made innumerable ruptures and inequalities in the shores, and as many within the Sea and at the bottom ; where the broken Rocks and lumps of Earth would lie in all imaginable disorder ; as you may conceive in this third Figure. For when the motion came on a sudden to be obstructed, the load of the fragment still pressing it forwards, such a concussion arise as made thousand of lesser fragments, of all shapes and magnitudes, and in all postures and forms, and most of them irregular. And by these fractions and secondary ruins the line of the shores was broken, and the level of them too ; In some places they would stand high, in others low, sometimes rough and sometimes even, and generally crooked, with Angles and in-lets, and uncertain windings. The bottom also, by the same stroke, was diversifi'd into all manner of forms, sometimes Rocky with Pits and Gulfs, and sometimes spread in plain beds, sometimes shallow and sometimes deep ; for those differences would depend only upon the situation of the secondary fragments ; and so it might come to pass, that some places near the shore might be excessive deep when a Rock or Rocks stood in a steep posture, as (*Figure 3.*) b. b. b. and on the contrary sometimes places much more advanc'd into the Ocean, might be less deep, where a fragment of Earth lay under water, or one
bore

bore up another, as c. c. c. but these cases would not be very frequent. To conclude, there are no properties of the Sea-chanel, that I know of, nor differences or Irregularities in the form of it, which this *Hypothesis* doth not give a fair account of: And having thus far open'd the way, and laid down the general grounds for their Explication, other things that are more minute, we leave to the curiosity of particular Genius's; being unwilling to clog the Theory at first with things that may seem unnecessary. We proceed now to the consideration of Islands.

We must in the first place distinguish between *Original* Islands and *Factitious* Islands; Those I call factitious, that are not of the same date and Antiquity with the Sea, but have been made some at one time; some at another by accidental causes, as the aggestion of Sands and Sand-beds, or the Sea leaving the tops of some shallow places that lie high, and yet flowing about the lower skirts of them; These make sandy and plain Islands, that have no high Land in them, and are but mock-Islands in effect. Others are made by divulsion from some Continent, when an Isthmus or the neck of a Promontory running into the Sea, sinks or falls in, by an Earthquake or otherwise, and the Sea entring in at the gap passeth through, and makes that Promontory or Country become an Island. Thus the Island *Sicily* is suppos'd to have been made, and all *Africa* might be an Island; if the Isthmus between the *Mediterranean* and the red Sea should sink down. And these Islands may have Rocks and Mountains in them, if the Land had so before. Lastly, there are Islands that have been said to rise from the bottom of the Sea; History mentions such in both the *Archipelago's*, *Ægean* and *Indian*; and this seems to argue that there are great fragments or tracts of Earth that lie loose at the bottom of the Sea, or that are not incorporated with the ground; which agrees very well with our Explication of the Sea-chanel.

But besides these Islands and the several sorts of them, there are others which I call *Original*; because they could not be produc'd in any of the forementi-

oned ways, but are of the same Origin and Antiquity with the Chanel of the Sea ; and such are the generality of our Islands ; They were not made of heaps of Sands, nor torn from any Continent, but are as ancient as the Continents themselves, namely, ever since the Deluge, the common Parent of them both. Nor is there any difficulty to understand how Islands were made at the dissolution of the Earth, any more than how Continents were made ; for Islands are but lesser Continents, or Continents greater Islands ; and according as Continents were made of greater masses of Earth or greater fragments standing above the Water, so Islands were made of less, but so big always, and in such a posture, as to bear their tops above the water. Yet though they agree thus far, there is a particular difference to be taken notice of as to their Origin ; for the Continents were made of those three or four primary masses into which the falling Orb of the Earth was divided, but the Islands were made of the fractures of these, and broken off by the fall from the skirts and extremities of the Continents ; We noted before, that when those great masses and primary fragments came to dash upon the Abyffe in their fall, the sudden stop of the motion, and the weighty bulk of the descending fragment broke off all the edges and extremities of it, which edges and extremities broken off made the Islands ; And accordingly we see that they generally lie scatter'd along the sides of the Continents, and are but splinters, as it were, of those greater bodies. 'Tis true, besides these, there were an infinite number of other pieces broke off that do not appear, some making Rocks under water, some shallows and banks in the Sea ; but the greatest of them when they fell either one upon another, or in such a posture as to prop up one another, their heads and higher parts would stand out of the water and make Islands.

Thus I conceive the Islands of the Sea were at first produc'd ; we cannot wonder therefore that they should be so numerous, or far more numerous than the Continents ; These are the Parents, and those are the Children ; Nor can we wonder to see along the
sides

sides of the Continents several Islands or sets of Islands, sown, as it were, by handfuls, or laid in trains; for the manner of their generation would lead us to think they would be so plac'd. So the *American* Islands lie scatter'd upon the Coast of that Continent; the *Maldivian* and *Philipine* upon the *East-Indian* shore, and the *Hesperides* upon the *Africk*; and there seldom happen to be any towards the middle of the Ocean, though, by an accident, that also might come to pass. Lastly, it suits very well with our Explication, that there should be Mountains and Rocks, sometimes in clusters, sometimes in long chains, in all Islands; (as we find there are in all that are true and Original Islands) for 'tis that makes them high enough to appear above the water, and strong enough to continue and preserve themselves in that high situation.

And thus much may suffice for a summary Explication of the causes of the Sea-chanel and Islands, according to our *Hypothesis*.

C H A P. XI.

Concerning the Mountains of the Earth, their greatness and irregular Form, their Situation, Causes, and Origin.

WE have been in the hollows of the Earth, and the chambers of the Deep, amongst the damps and steams of those lower Regions; let us now go air our selves on the tops of the Mountains, where we shall have a more free and large Horizon, and quite another face of things will present it self to our observation.

The greatest objects of Nature are, methinks, the most pleasing to behold; and next to the great Concave of the Heavens, and those boundless Regions where the Stars inhabit, there is nothing that I look upon with more pleasure than the wide Sea and the

Mountains of the Earth. There is something august and stately in the Air of these things that inspires the mind with great thoughts and passions; We do naturally upon such occasions think of God and his greatness, and whatsoever hath but the shadow and appearance of INFINITE, as all things have that are too big for our comprehension, they fill and over-bear the mind with their Excess, and cast it into a pleasing kind of stupor and admiration.

And yet these Mountains we are speaking of, to confess the truth, are nothing but great ruines; but such as show a certain magnificence in Nature; as from old Temples and broken Amphitheatres of the *Romans* we collect the greatness of that people. But the grandeur of a Nation is less sensible to those that never see the remains and monuments they have left, and those who never see the mountainous parts of the Earth, scarce ever reflect upon the causes of them, or what power in Nature could be sufficient to produce them. The truth is, the generality of people have not sense and curiosity enough to raise a question concerning these things, or concerning the Original of them. You may tell them that Mountains grow out of the Earth like Fuzz-balls, or that there are Monsters under ground that throw up Mountains as Moles do Mole-hills; they will scarce raise one objection against your doctrine; or if you would appear more Learned, tell them that the Earth is a great Animal, and these are Wens that grow upon its body. This would pass current for Philosophy; so much is the World drown'd in stupidity and sensual pleasures, and so little inquisitive into the works of God and Nature.

There is nothing doth more awaken our thoughts or excite our minds to enquire into the causes of such things, than the actual view of them; as I have had experience my self when it was my fortune to cross the *Alps* and *Appennine* Mountains, for the sight of those wild, vast and indigested heaps of Stones and Earth, did so deeply strike my fancy, that I was not easie till I could give my self some tolerable account how that confusion came in Nature. 'Tis true, the
height

Height of Mountains compar'd with the Diameter of the Earth is not considerable, but the extent of them and the ground they stand upon, bears a considerable proportion to the surface of the Earth; and if from *Europe* we may take our measures for the rest, I easily believe, that the Mountains do at least take up the tenth part of the dry land. The Geographers are not very careful to describe or note in their Charts, the multitude or situation of Mountains; They mark the bounds of Countries, the site of Cities and Towns, and the course of Rivers, because these are things of chief use to civil affairs and commerce, and that they design to serve, and not Philosophy or Natural History. But *Cluverius* in his description of *Ancient Germany, Switzerland and Italy*, hath given Maps of those Countries more approaching to the natural face of them, and we have drawn (at the end of this Chapter) such a Map of either Hemisphere, without marking Countries or Towns, or any such artificial things; distinguishing only Land and Sea, Islands and Continents, Mountains and not Mountains; and 'tis very useful to imagine the Earth in this manner; and to look often upon such bare draughts as shew us Nature in an undress; for then we are best able to judge what her true shapes and proportions are.

'Tis certain that we naturally imagine the surface of the Earth much more regular than it is; for unless we be in some Mountainous parts there seldom occur any great inequalities within so much compass of ground as we can at once reach with our Eye; and to conceive the rest we multiply the same *Idea*, and extend it to those parts of the Earth that we do not see; and so fancy the whole Globe much more smooth and uniform than it is. But suppose a man was carri'd asleep out of a Plain Country, amongst the *Alps*, and left there upon the top of one of the highest Mountains, when he wak'd and look'd about him, he would think himself in an enchanted Country, or carri'd into another World; Every thing would appear to him so different to what he had ever seen or imagin'd before. To see on every hand of him a multitude of vast bodies thrown together in
confusion;

confusion, as those Mountains are ; Rocks standing naked round about him ; and the hollow Valleys gaping under him ; and at his feet, it may be, an heap of frozen Snow in the midst of Summer. He would hear the thunder come from below, and see the black Clouds hanging beneath him : It would not be easie to him to perswade himself that he was still upon the same Earth ; but if he did, he would be convinc'd at least that there are some Regions of it strangely rude, and ruine-like, and very different from what he had ever thought of before. But the inhabitants of these wild places are even with us ; for those that live amongst the *Alps* and the great Mountains, think that all the rest of the Earth is like their Country, all broken into Mountains and Valleys and Precipices ; They never see other, and most people think of nothing but what they have seen at one time or another.

These *Alps* we are speaking of are the greatest range of Mountains in *Europe* ; and 'tis prodigious to see and to consider of what extent these heaps of Stones and Rubbish are ; one way they overspread *Savoy* and *Dauphiné*, and reach thorough *France* to the *Pyrenean* Mountains, and so to the Ocean. The other way they run along the skirts of *Germany*, through *Stiria*, *Pannonia*, and *Dalmatia*, as far as *Thrace* and the black Sea. Then backwards they cover *Switzerland* and the parts adjacent ; and that branch of them which we call the *Appennines*, strikes through *Italy*, and is, as it were, the back-bone of that Country. This must needs be a large space of ground which they stand upon ; Yet 'tis not this part of *Europe* only that is laden with Mountains, the Northern part is as rough and rude in the face of the Country as in the manners of the people ; *Bohemia*, *Silesia*, *Denmark*, *Norway*, *Sweedland*, *Lapland*, and *Iseland*, and all the coasts of the *Baltick Sea*, are full of Clifts, and Rocks, and Craggs of Mountains : Besides the *Riphean* Mountains in *Muscovy*, which the Inhabitants there use to call the *Stone-girdle*, and believe that it girds the Earth round about.

Nor are the other parts of our Continent more free from Mountains than *Europe*, nor other parts of the Earth than our Continent: They are in the New World as well as the Old; and if they could discover two or three New worlds or Continents more, they would still find them there. Neither is there any Original Island upon the Earth, but is either all a Rock, or hath Rocks and Mountains in it. And all the dry Land, and every Continent, is but a kind of Mountain, though that Mountain hath a multitude of lesser, and Valleys, and Plains, and Lakes, and Marshes, and all variety of grounds.

In *America* the *Andes*, or a ridge of Mountains so call'd, are reported to be higher than any we have, reaching above a thousand Leagues in length, and twenty in breadth, where they are the narrowest. In *Africk* the Mountain *Atlas*, that for its height was said to bear the Heavens on its back, runs all along from the Western Sea to the borders of *Aegypt*, parallel with the *Mediterranean*. There also are the Mountains of the *Moon*, and many more whereof we have but an imperfect account, as neither indeed of that Country in the remote and inner parts of it: *Asia* is better known, and the Mountains thereof better describ'd: *Taurus*, which is the principal, was adjudg'd by the ancient Geographers the greatest in the World. It divides *Asia* into two parts, which have their denomination from it: And there is an *Anti-Taurus* the greater and the less, which accordingly divide *Armenia* into greater and less. Then the *Cruciform* Mountains of *Imaus*, the famous *Caucasus*, the long Chains of *Tartary* and *China*, and the Rocky and Mountainous *Arabia*. If one could at once have a prospect of all these together, one would be easily satisfied, that the Globe of the Earth is a more rude and indigested Body than 'tis commonly imagin'd; If one could see all the Kingdoms of the Earth at one view, how they lie in broken heaps; The Sea hath overwhelm'd one half of them, and what remains are but the taller parts of a ruine. Look upon those great ranges of Mountains in *Europe* or in *Asia*, whereof we have given a short survey, in what confusion

fusion do they lie? They have neither form nor beauty, nor shape nor order, no more than the Clouds in the Air. Then how barren, how desolate, how naked are they? how they stand neglected by Nature? neither the Rains can soften them, nor the Dews from Heaven make them fruitful.

I have given this short account of the Mountains of the Earth to help to remove that prejudice we are apt to have, or that conceit that the present Earth *is regularly form'd*. And to this purpose I do not doubt but that it would be of very good use to have *natural* Maps of the Earth, as we noted before, as well as *civil*; and done with the same care and judgment. Our common Maps I call *Civil*, which note the distinction of Countries and of Cities, and represent the Artificial Earth as inhabited and cultivated: But natural Maps leave out all that, and represent the Earth as it would be if there was not an Inhabitant upon it, nor ever had been; the Skeleton of the Earth, as I may so say, with the site of all its parts. Methinks also every Prince should have such a Draught of his Country and Dominions, to see how the ground lies in the several parts of them, which highest, which lowest; what respect they have to one another, and to the Sea; how the Rivers flow, and why; how the Mountains lie, how Heaths, and how the Marches. Such a Map or Survey would be useful both in time of War and Peace, and many good observations might be made by it, not only as to Natural History and Philosophy, but also in order to the perfect improvement of a Country. But to return to our Mountains.

As this Survey of the multitude and greatness of them may help to rectifie our mistakes about the form of the Earth, so before we proceed to examine their causes, it will be good to observe farther, that these Mountains are plac'd in no order one with another, that can either respect use or beauty; And if you consider them singly, they do not consist of any proportion of parts that is referrable to any design, or that hath the least footsteps of Art or Counsel. There is nothing in Nature more shapeless and ill-figur'd than
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an old Rock or a Mountain, and all that variety that is among them is but the various modes of irregularity ; so as you cannot make a better character of them in short, than to say they are of all forms and figures except regular. Then if you could go within these Mountains, for they are generally hollow, you would find all things there more rude, if possible, than without : And lastly, if you look upon an heap of them together, or a Mountainous Country, they are the greatest examples of confusion that we know in Nature ; no Tempest or Earthquake puts things into more disorder. 'Tis true, they cannot look so ill now as they did at first ; a ruine that is fresh looks much worse than afterwards, when the Earth grows discolour'd and skin'd over. But I fancy if we had seen the Mountains when they were new-born and raw, when the Earth was fresh broken, and the waters of the Deluge newly retir'd, the fractions and confusions of them would have appear'd very gawly and frightful.

After this general Survey of the Mountains of the Earth and their properties, let us now reflect upon the causes of them. There is a double pleasure in Philosophy, first that of Admiration, whilst we contemplate things that are great and wonderful, and do not yet understand their Causes ; for though admiration proceed from ignorance, yet there is a certain charm and sweetness in that passion. Then the second pleasure is greater and more intellectual, which is that of distinct knowledge and comprehension, when we come to have the Key that unlocks those secrets, and see the methods wherein those things come to pass that we admir'd before ; The reasons why the World is so or so, and from what causes Nature or any part of Nature came into such a state ; and this we are now to enquire after as to the mountains of the Earth, what their original was, how and when the Earth came into this strange frame and structure ? In the beginning of our World, when the Earth rise from a Chaos, 'twas impossible it should come immediately into this mountainous form ; because a mass that is fluid, as a Chaos is, cannot lie

in any other figure than what is regular ; for the constant laws of Nature do certainly bring all Liquors into that form : And a Chaos is not call'd so from any confusion or brokenness in the form of it, but from a confusion and mixture of all sorts of ingredients in the composition of it. So we have already produc'd, in the precedent Chapters, a double argument that the Earth was not originally in this form, both because it rise from a Chaos, which could not of it self, or by any immediate concretion settle into a form of this nature, as hath been shown in the Fourth and Fifth Chapters ; as also because if it had been originally made thus, it could never have undergone a Deluge, as hath been prov'd in the Second and Third Chapters. If this be then a secondary and succedaneous form, the great question is from what causes it arises.

Some have thought that Mountains and all other irregularities in the Earth have rise from Earthquakes, and such like causes ; others have thought that they came from the universal Deluge ; yet not from any dissolution of the Earth that was then, but only from the great agitation of the waters, which broke the ground into this rude and unequal form. Both these causes seem to me very incompetent and insufficient. Earthquakes seldom make Mountains, they often take them away, and sink them down into the Caverns that lie under them ; Besides, Earthquakes are not in all Countries and Climates as Mountains are ; for, as we have observ'd more than once, there is neither Island that is original, nor Continent any where in the Earth, in what latitude soever, but hath Mountains and Rocks in it. And lastly, what probability is there, or how is it credible that those vast tracts of Land which we see fill'd with Mountains both in *Europe, Asia* and *Africa*, were rais'd by Earthquakes, or any eruptions from below. In what Age of the World was this done, and why not continued ? As for the Deluge, I doubt not but Mountains were made in the time of the general Deluge, that great change and transformation of the Earth happen'd then, but not from such causes as are pretended, that

that is, the bare rowling and agitation of the waters; For if the Earth was smooth and plain before the Flood, as they seem to suppose as well as we do, the waters could have little or no power over a smooth surface to tear it any way in pieces, no more than they do a meadow or low ground when they lie upon it; for that which makes Torrents and Land-floods violent, is their fall from the Mountains and high Lands, which our Earth is now full of, but if the Rain fell upon even and level ground, it would only sadden and compress it; there is no possibility how it should raise Mountains in it. And if we could imagine an universal Deluge as the Earth is now constituted, it would rather throw down the Hills and Mountains than raise new ones; or by beating down their tops and loose parts, help to fill the Valleys, and bring the Earth nearer to evenness and plainness.

Seeing then there are no hopes of explaining the Origin of Mountains, either from particular Earth-quakes, or from the general Deluge, according to the common notion and Explication of it; these not being causes answerable to such vast effects; Let us try our *Hypothesis* again; which hath made us a Channel large enough for the Sea, and room for all subterraneous Cavities, and I think will find us materials enough to raise all the Mountains of the Earth. We suppose the great Arch or circumference of the first Earth to have fallen into the Abyss at the Deluge, and seeing that was larger than the surface it fell upon, 'tis absolutely certain, that it could not all fall flat, or lie under the water: Now as all those parts that stood above the water made dry Land, or the present habitable Earth, so such parts of the dry Land as stood higher than the rest made Hills and Mountains; And this is the first and general account of them, and of all the inequalities of the Earth. But to consider these things a little more particularly; There is a double cause and necessity of Mountains, first this now mention'd, because the exterior Orb of the Earth was greater than the interior which it fell upon, and therefore it could not all fall flat; and secondly, because this exterior Orb did not fall so flat and large

as it might, or did not cover all the bottom of the Abyfs, as it was very capable to do; but as we shew'd before in explaining the Chanel of the Ocean, it left a gaping in the middle, or an *Abyfs-chanel*, as I should call it; and the broader this Abyfs-chanel was, the more Mountains there would be upon the dry Land; for there would be more Earth, or more of the falling Orb left, and less room to place it in, and therefore it must stand more in heaps.

In what parts of the Earth these heaps would lie, and in what particular manner, it cannot be expected that we should tell; but all that we have hitherto observ'd concerning Mountains, how strange soever and otherwise unaccountable, may easily be explain'd, and deduc'd from this original; we shall not wonder at their greatness and vastness, seeing they are the ruines of a broken World; and they would take up more or less of the dry Land, according as the Ocean took up more or less space of our Globe: Then as to their figure and form, whether External or Internal, 'tis just such as answers our expectation, and no more than what the *Hypothesis* leads us to; For you would easily believe that these heaps would be irregular in all manner of ways, whether consider'd apart, or in their situation to one another. And they would lie commonly in Clusters and in Ridges, for those are two of the most general postures of the parts of a ruine, when they fall inwards. Lastly, we cannot wonder that Mountains should be generally hollow; For great bodies falling together in confusion, or bearing and leaning against one another must needs make a great many hollowneses in them, and by their unequal Applications empty spaces will be intercepted. We see also from the same reason, why mountainous Countries are subject to Earthquakes; and why Mountains often sink and fall down into the Caverns that lie under them; their joynts and props being decay'd and worn, they become unable to bear their weight. And all these properties you see hang upon one and the same string, and are just consequences from our supposition concerning the dissolution of the first Earth. And there is no surer mark of a
good

good *Hypothesis*, than when it doth not only hit luckily in one or two particulars, but answers all that it is to be appli'd to, and is adequate to Nature in her whole extent.

But how fully or easily soever these things may answer Nature, you will say, it may be, that all this is but an *Hypothesis*; that is, a kind of fiction or supposition that things were so and so at first, and by the coherence and agreement of the Effects with such a supposition, you would argue and prove that they were really so. This I confess is true, this is the method, and if we would know any thing in Nature further than our senses go, we can know it no otherwise than by an *Hypothesis*. When things are either too little for our senses, or too remote and inaccessible, we have no way to know the inward Nature, and the causes of their sensible properties, but by reasoning upon an *Hypothesis*. If you would know, for example, of what parts Water, or any other Liquor consists, they are too little to be discern'd by the Eye, you must therefore take a supposition concerning their invisible figure and form, and if that agrees and gives the reason of all their sensible qualities, you understand the nature of Water. In like manner, if you would know the nature of a Comet, or of what matter the Sun consists, which are things inaccessible to us, you can do this no otherwise than by an *Hypothesis*; and if that *Hypothesis* be easie and intelligible, and answers all the *Phænomena* of those two bodies, you have done as much as a *Philosopher* or as *Humane reason* can do. And this is what we have attempted concerning the Earth and concerning the Deluge; We have laid down an *Hypothesis* that is easie and perspicuous, consisting of a few things, and those very intelligible, and from this we have given an account how the Old World was destroy'd by a Deluge of water, and how the Earth came into this present form; so distinguish'd and interrupted with Sea and Land, Mountains and Valleys, and so broken in the surface and inward parts of it.

But to speak the Truth, this Theory is something more than a bare *Hypothesis*; because we are assur'd that

2 *Ep. Chap.*
3. 5, 6.

that the general ground that we go upon is true; namely, that the Earth rise at first from a Chaos; for besides Reason and Antiquity, Scripture it self doth assure us of that; and that one point being granted, we have deduc'd from it all the rest by a direct chain of consequences, which I think cannot be broken easily in any part or link of it. Besides, the great hinge of this Theory upon which all the rest turns, is the distinction we make of the Ante-diluvian Earth and Heavens from the Post-diluvian, as to their form and constitution. And it will never be beaten out of my head, but that *S. Peter* hath made the same distinction sixteen hundred years since, and to the very same purpose; so that we have sure footing here again, and the Theory riseth above the character of a bare *Hypothesis*. And whereas an *Hypothesis* that is clear and proportion'd to Nature in every respect, is accounted morally certain, we must in equity give more than a moral certitude to this Theory. But I mean this only as to the general parts of it; for as to particularities, I look upon them only as problematical, and accordingly I affirm nothing therein but with a power of revocation, and a liberty to change my opinion when I shall be better inform'd. Neither do I know any Author that hath treated a matter new, remote, and consisting of a multitude of particulars, who would not have had occasion, if he had liv'd to have seen his *Hypothesis* fully examin'd, to have chang'd his mind and manner of explaining things, in many material instances.

To conclude both this Chapter and this Section, we have here added a Map or Draught of the Earth, according to the Natural face of it, as it would appear from the Moon, if we were a little nearer to her; or as it was at first after the Deluge, before Cities were built, distinctions of Countries made, or any alterations by humane industry. 'Tis chiefly to expose more to view the Mountains of the Earth, and the proportions of Sea and Land, to shew it as it lies in it self, and as a Naturalist ought to conceive and consider it. 'Tis true, there are far more Mountains upon the Earth than what are here represented, for
more

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Fig. 1.



pag. 151.



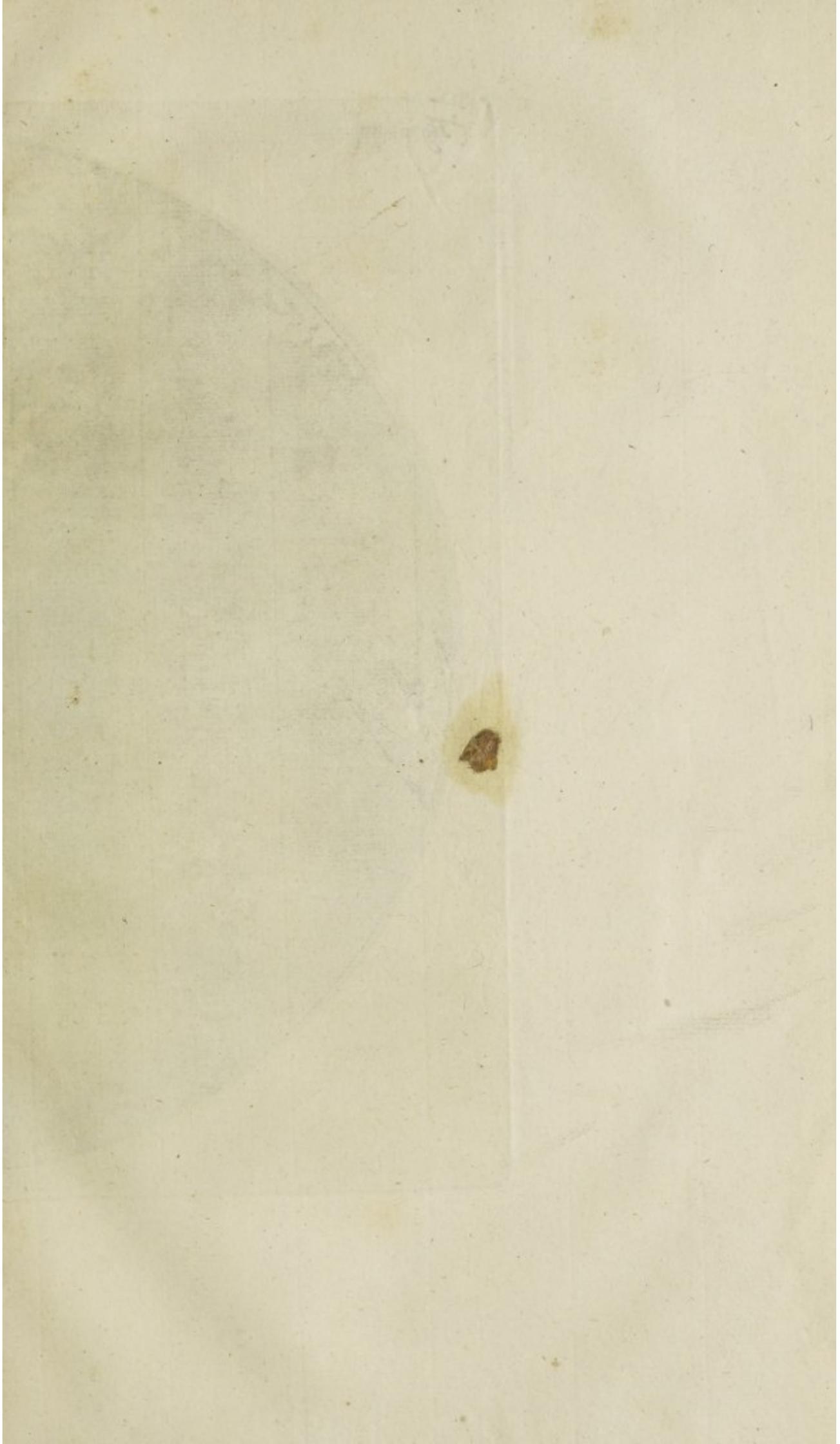
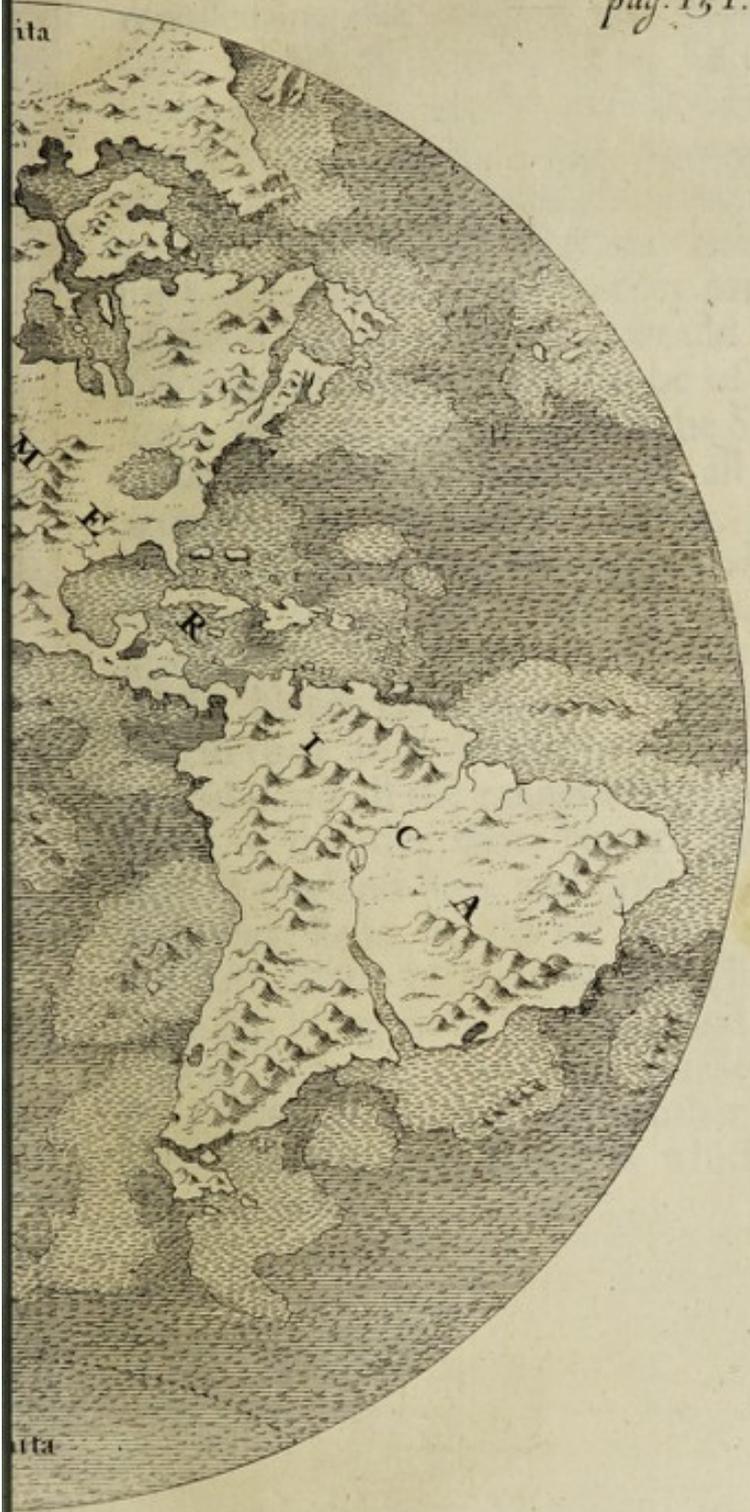
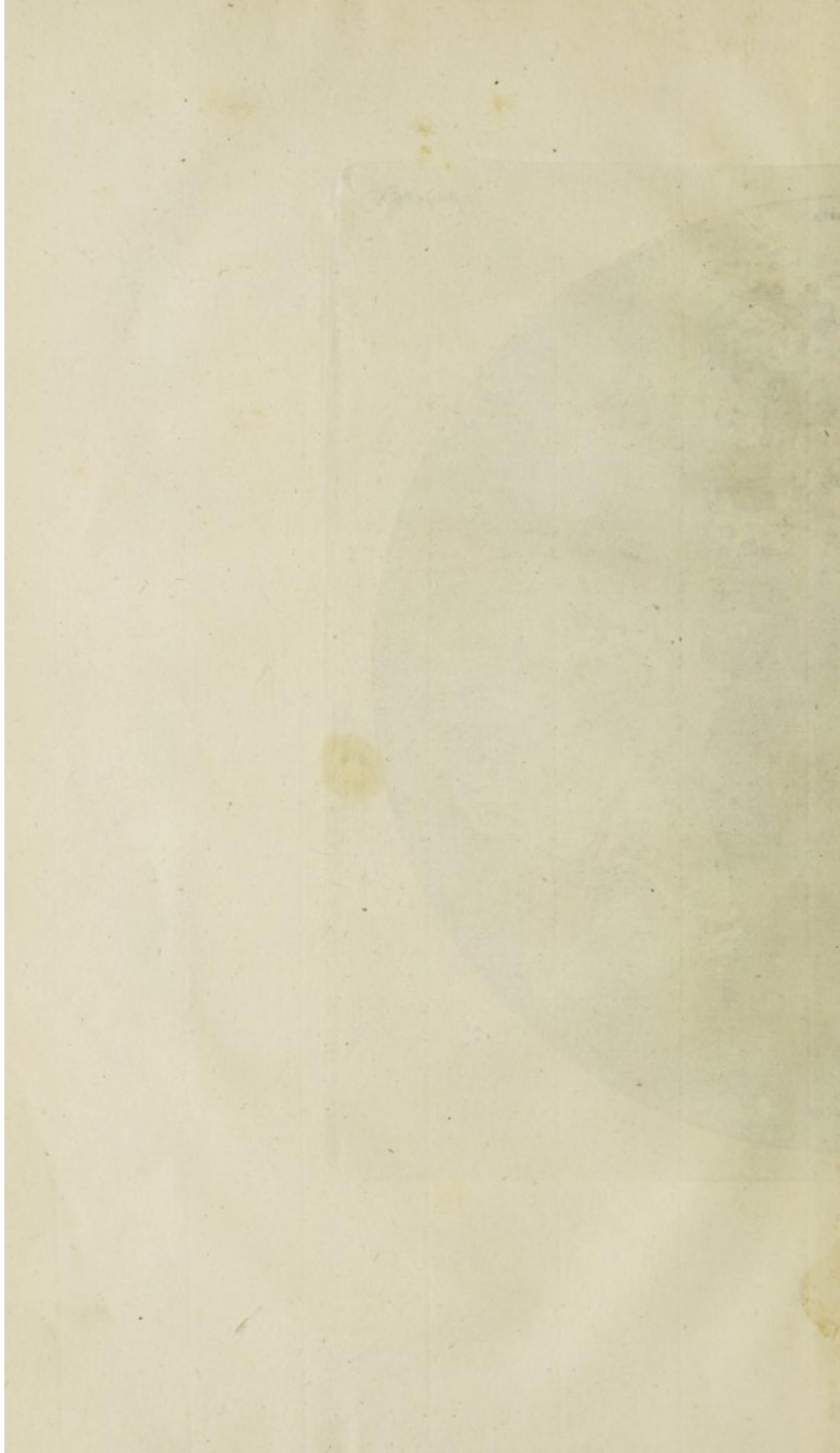


Fig. 2.



pag. 151.





more could not conveniently be plac'd in this narrow Scheme ; But the best and most effectual way of representing the body of the Earth as it is by Nature, would be, not in plain Tables, but by a *rough Globe*, expressing all the considerable inequalities that are upon the Earth. The smooth Globes that we use, do but nourish in us the conceit of the Earths regularity, and though they may be convenient enough for Geographical purposes, they are not so proper for Natural Science ; nothing would be more useful in this respect than a rough Globe of the largest dimensions, wherein the Chanel of the Sea should be really hollow, as it is in Nature, with all its unequal depths according to the best soundings, and the shores express'd both according to matter and form, little Rocks standing where there are Rocks, and Sands and Beaches in the places where they are found ; And all the Islands planted in the Sea-chanel in a due form, and in their solid dimensions. Then upon the Land should stand all the ranges of Mountains, in the same order or disorder that Nature hath set them there ; And the in-land Seas, and great Lakes, or rather the beds they lie in, should be duly represented ; as also the vast desarts of Sand as they lie upon the Earth. And this being done with care and due Art, would be a true Epitome or true model of our Earth. Where we should see, besides other instructions, what a rude Lump our World is which we are so apt to dote upon.

C H A P. XII.

A short review of what hath been already treated of, and in what manner. The several faces and Schemes under which the Earth would appear to a Stranger, that should view it first at a distance, and then more closely, and the Application of them to our subject. All methods, whether Philosophical or Theological, that have been offer'd by others for the Explication of the Form of the Earth, are examin'd and refuted. A conjecture concerning the other Planets, their Natural Form and State compared with ours.

WE have finish'd the Three Sections of this Book, and in this last Chapter we will make a short review and reflection upon what hath been hitherto treated of, and add some further confirmations of it. The Explication of the Universal Deluge was the first proposal and design of this Discourse, to make that a thing credible and intelligible to the mind of Man: And the full Explication of this drew in the whole Theory of the Earth: Whose original we have deduc'd from its first Source, and shew'd both what was its Primæval Form, and how it came into its present Form. The summ of our *Hypothesis* concerning the Universal Deluge was this; That it came not to pass, as was vulgarly believ'd, by any excess of Rains, or any Inundation of the Sea, nor could ever be effected by a meer abundance of Waters; unless we suppose some dissolution of the Earth at the same time, namely when the *Great Abyss* was broken open. And accordingly we shewed that without such a dissolution, or if the Earth had been always in the same form it is now, no mass of water any where to be found

found in the World could have equal'd the height of the Mountains, or made such an universal Deluge. Secondly, we shew'd that the form of the Earth at first, and till the Deluge, was such as made it capable and subject to a Dissolution: And thirdly, that such a dissolution being suppos'd, the Doctrine of the universal Deluge is very reasonable and intelligible; And not only the doctrine of the Deluge, but the same supposition is a Key to all Nature besides, shewing us how our Globe became Terraqueous, what was the original of Mountains, of the Sea-chanel, of Islands, of subterraneous Cavities; Things, which without this supposition, are as unintelligible as the universal Flood it self. And these things reciprocally confirming one another, our *Hypothesis* of the Deluge is arm'd both breast and back, by the causes and by the effects.

It remains now, that as to confirm our Explication of the Deluge, we shew'd all other accounts that had been given of it to be ineffectual or impossible, so to confirm our doctrine concerning the dissolution of the Earth, and concerning the original of Mountains, Seas, and all inequalities upon it, or within it, we must examine what causes have been assign'd by others, or what accounts given of these things: That seeing their defectiveness, we may have the more assurance and satisfaction in our own method.

And in order to this, let us observe first the general forms under which the Earth may be consider'd, or under which it doth appear accordingly as we view it more nearly or remotely; And the first of these and the most general is that of a *Terraqueous Globe*. If a Philosopher should come out of another World out of curiosity to see our Earth, the first discovery or observation he would make would be this, that it was a Terraqueous Globe; Thus much he might observe at a great distance when he came but near the borders of our World. This we discern in the Moon and most of the Planets, that they are divided into Sea and Land, and how this division came would be his first remark and inquiry concerning our Earth; and how also those subdivisions of Islands, or

little Earths which lie in the Water, how these were form'd, and that great Chanel that contains them both.

The second form that the Earth appears under, is that of an uneven and *Mountainous Globe*. When our Traveller had got below the Circle of the Moon, he would discern the bald tops of our Mountains, and the long ranges of them upon our Continents. We cannot from the Earth discern Mountains and Valleys in the Moon, directly, but from the motion of the light and shadows which we see there, we easily collect that there are such inequalities: And accordingly we suppose that our Mountains would appear at a great distance, and the shady Valleys lying under them; and that this curious person that came to view our Earth would make that his second Enquiry, how those Mountains were form'd? and how our Globe came to be so rude and irregular? For we may justly demand how any irregularity came into Nature, seeing all her first motions and her first forms are regular, and whatsoever is not so is but secondary, and the consequence of some degeneracy, or of some decay.

The third visible form of our Earth is that of a *broken Globe*; not broken throughout, but in the outward parts and Regions of it. This, it may be, you will say, is not a visible form; it doth not appear to the eye, without reasoning, that the surface of the Earth is so broken. Suppose our new Visitant had now pass'd the middle Region of the Air, and was alighted upon the top of *Pick Tenariffe* for his first resting place, and that sitting there he took a view of the great Rocks, the wide Sea, and of the shores of *Africk* and *Europe*; for we'll suppose his piercing Eye to reach so far; I will not say that at first sight he would pronounce that the surface of this Globe was broken, unless he knew it to be so by comparison with some other Planet like to it; but the broken form and figure of many parts of the Rocks, and the posture in which they lay, or great portions of them, some inclin'd, some prostrate, some erected, would naturally lead him to that thought, that they
were

were a ruine; He would see also the Islands tore from the Continents, and both the shores of the Continents and their in-land parts in the same disorder and irregular situation. Besides, he had this great advantage in viewing the Earth at a distance, that he could see a whole Hemisphere together, which, as he made his approaches through the Air, would have much what the same aspect and countenance as 'tis represented with in the great Scheme; And if any man should accidentally hit upon that Scheme, not knowing or thinking that it was the Earth, I believe his first thought of it would be, that it was some great broken body, or ruin'd frame of matter; and the original, I am sure, is more manifestly so. But we'll leave our stranger-Philosopher to his own observations, and wish him good Guides and Interpreters in his Survey of the Earth, and that he would make a favourable report at his return home, of our little dirty Planet.

In the mean time, let us pursue, in our own way, this Third *Idea* of the Earth a little further, as it is a *broken Globe*. Nature I know hath dissembled and cover'd this form as much as may be, and time hath helpt to repair some of the old breaches, or fill them up; besides, the changes that have been made by Art and Humane industry, by Agriculture, Planting, and Building Towns hath made the face of the Earth quite another thing from what it was in its naked rudeness. As mankind is much alter'd from its Pristine state, from what it was four thousand years ago, or towards the first Ages after the Flood, when the Nations liv'd in simplicity or barbarousness; So is the Earth too, and both so disguis'd and transform'd, that if one of those Primitive Fathers should rise from the dead, he would scarce know this to be the same World which he liv'd in before. But to discern the true form of the Earth, whether intire or broken, regular or disorder'd, we must in the first place take away all those ornaments or additions made by Art or Nature, and view the bare carcass of the Earth, as it hath nothing on it but Rocks and Mountains, Desarts and Fields, and hollow Valleys, and a wide

Cap. 10.

Sea. Then secondly, we must in our imagination empty this Chanel of the Sea, take out all the Waters that hinder the sight of it, and look upon the dry Ditch, measure the depth and breadth of it in our mind, and observe the manner of its construction, and in what a wild posture all the parts of it lie; according as it hath been formerly represented. And lastly, we must take off the cover of all Subterraneous places and deep Caverns, to see the inside of the Earth; and lay bare the roots of Mountains, to look into those holes and Vaults that are under them, fill'd sometimes with Fire, sometimes with Water, and sometimes with thick Air and Vapours. The object being thus prepar'd, we are then to look fix'dly upon it, and to pronounce what we think of this disfigur'd mass, whether this Exteriour frame doth not seem to be shatter'd; and whether it doth more aptly resemble a new-made World, or the ruines of one broken. I confess when this *Idea* of the Earth is present to my thoughts, I can no more believe that this was the form wherein it was first produc'd, than if I had seen the Temple of *Jerusalem* in its ruines, when defac'd and sack'd by the *Babylonians*, I could have perswaded my self that it had never been in any other posture, and that *Solomon* had given orders for building it so.

So much for the form of the Earth: It remains now that we examine what causes have been assign'd by others of these irregularities in the form of the Earth, which we explain by the dissolution of it; what accounts any of the Ancients have given or attempted to give, how the Earth swel'd into Mountains in certain places, and in others was deprest into low Valleys, how the body of it was so broken, and how the Chanel of the Sea was made. The Elements naturally lie in regular forms one above another, and now we find them mixt, confounded and transpos'd, how comes this disturbance and disordination in Nature? The Explications of these things that have been given by others, may be reduc'd to two general sorts, *Philosophical* or *Theological*, and we will try them both for our satisfaction.

Of Philosophers none was more concern'd to give an account of such things than *Epicurus*, both because he acknowledg'd the Origin of the Earth to have been from a *Chaos*, and also admitted no causes to act in Nature but Matter and Motion: Yet all the account we have from the *Epicureans* of the form of the Earth, and the great inequalities that are in it, is so flight and triyial, that methinks it doth not deserve the name of a Philosophical Explication. They say that the Earth and Water were mix'd at first, or rather the Earth was above the Water, and as the Earth was condens'd by the heat of the Sun, and the Winds, the Water was squeez'd out in certain places, which either it found hollow or made so; and so was the Chanel of the Sea made. Then as for Mountains, while some parts of the Earth shrunk and sunk in this manner, others would not sink, and these standing still while the others fell lower, made the Mountains. How the subterraneous Cavities were made according to them, I do not find.

This is all the Account that *Monfieur Gassendi* (who seems to have made it his business, as well as his pleasure, to embellish that Philosophy) can help us to out of the *Epicurean* Authors, how the Earth came into this form; And he that can content himself with this, is, in my mind, of an humour very easie to be pleas'd. Do the Sun and the Wind use to squeeze pools of Water out of the Earth, and that in such a quantity as to make an Ocean? They dry the Earth, and the Waters too, and rarifie them into vapours, but I never knew them to be the causes of pressing Water out of the Earth by condensation. Could they compress the Earth any otherwise, than by drying it and making it hard? and in proportion, as it was more dry, would it not the more imbibe and suck up the Water? and how were the great Mountains of the Earth made, in the North and in the South, where the influence of the Sun is not great? what sunk the Earth there, and made the flesh start from the bones? But 'tis no wonder that *Epicurus* should give such a mean account of the Origin of the Earth, and the form of its parts, who did not so
much

much as understand the general Figure of the Body of it, that it was Spherical, or that the Heavens encompass it round. One must have a blind love for that Philosophy, and for the conclusions it drives at, not to see its lameness and defects in those first and fundamental parts.

Aristotle, though he was not concern'd to give an account how the Earth came into this present form, as he suppos'd it, Eternal; yet upon another consideration he seems oblig'd to give some reason how the Elements came into this disorder, seeing he supposeth, that according to the order of Nature the Water should lie above the Earth in a Sphere, as the Air doth above the Water, and his Fire above the Air. This he toucheth upon in his *Meteors*, but so gently and fearfully, as if he was handling hot coals. He saith the Sea is to be consider'd as the Element, or body of Waters that belongs to this Earth, and that these Waters change places, and the Sea is some Ages in one part of the Globe, and some Ages in another; but that this is at such great distances of time that there can be no memory or record of it. And he seems willing to suppose that the Water was once all over the Earth, but that it dri'd up in certain places, and continuing in others, it there made the Sea.

What a miserable account is this? As to his change or removal of the Sea-chanel in several Ages, as it is without all proof or probability, if he mean it of the Chanel of the great Ocean, so 'tis nothing to the purpose here; for the question is not why the Chanel of the Sea is in such a part of the Earth, rather than in another, but why there is any such prodigious Cavity in or upon the Earth any where. And if we take his supposition, that the Element of Water was once higher than the Earth, and lay in a Sphere about it, then let him tell us in plain terms how the Earth got above, or how the Cavity of the Ocean was made, and how the Mountains rise; for this Elementary Earth which lay under the Water was, I suppose, equal and smooth when it lay there; and what reason was there that the Waters should be dri'd in one part of it, more than another, if they were every

every where of an equal depth, and the ground equal under them? It was not the Climates made any distinction, for there is Sea towards the Poles, as well as under the *Æquator*; but suppose they were dri'd up in certain places, that would make no Mountains, no more than there are Mountains in our dri'd Marches: And the places where they were not dri'd would not therefore become as deep and hollow as the Sea-channel, and tear the Earth and Rocks in pieces. If you should say that this very Elementary Earth, as it lay under the Waters, was unequal, and was so originally, form'd into Mountains and Valleys, and great Cavities; besides that the supposition is altogether irrational in it self, you must suppose a prodigious mass of Water to cover such an Earth; as much as we found requisite for the vulgar Deluge, namely, eight Oceans; and what then is become of the other seven? Upon the whole I do not see that either in *Epicurus's* way, who seems to suppose that the Waters were at first within the Earth; nor in *Aristotle's* way, who seems to suppose them upon the Earth, any rational or tolerable account can be given of the present form of the Earth.

Wherefore some modern Authors dissatisfied, as very well they might be, with these Explications given us by the Ancients concerning the form of the Earth, have pitch'd upon other causes, more true indeed in their kind, and in their degree, but that fall as much short of those effects to which they would apply them. They say that all the irregularities of the body of the Earth have risen from Earthquakes in particular places, and from Torrents and Inundations, and from eruptions of Fire, or such like causes, whereof we see some instances more or less every Age; And these have made that havock upon the face of the Earth, and turn'd things up-side down, raising the Earth in some places, and making great Cavities or Chasms in others, so as to have brought it at length into that torn, broken, and disorderly form in which we now see it.

These Authors do so far agree with us, as to acknowledge that the present irregular form of the
Earth

Earth must have proceeded from ruines and dissolutions of one sort or other, but these ruines they make to have been partial only, in this or in that Country, by piece-meal, and in several Ages, and from no other causes but such as still continue to act in Nature, namely, accidental Earthquakes and eruptions of Fires and Waters. These causes we acknowledge as readily as they do, but not as capable to produce so great effects as they would ascribe to them: The surface of the Earth may be a little changed by such accidents as these, but for the most part they rather sink the Mountains than raise new ones: As when Houses are blown up by Mines of powder, they are not set higher, but generally fall lower and flatter: Or suppose they do sometimes raise an Hill, or a little Mount, what's that to the great Mountains of our World, to those long and vast piles of Rocks and Stones, which the Earth can scarce bear? What's that to strong-backt *Taurus* or *Atlas*, to the *American Andes*, or to a Mountain that reacheth from the *Pyreneans* to the *Euxine Sea*? There's as much difference between these and those factitious Mountains they speak of, as betwixt them and Mole-hills.

And to answer more distinctly to this opinion, as before in speaking of Islands we distinguish'd betwixt Factitious and Original Islands, so if you please we may distinguish here betwixt Factitious and Original Mountains; and allowing some few, and those of the fifth or sixth magnitude, to have risen from such accidental causes, we enquire concerning the rest and the greatest, what was their original? If we should suppose that the seven Hills upon which *Rome* stands, came from ruines or eruptions, or any such causes, it doth not follow that the *Alps* were made so too. And as for Mountains, so for the Cavities of the Earth, I suppose there may be disruptions sometimes made by Earthquakes, and holes worn by subterraneous Fires and Waters; but what's that to the Chanel of the *Atlantick Ocean*, or of the *Pacifick Ocean*, which is extended an hundred and fifty degrees under the *Æquator*, and towards the Poles still further. He that should derive such mighty things from no greater

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ter causes, I should think him a very credulous Philosopher. And we are too subject indeed to that fault of credulity in matter of Philosophizing; Many when they have found out causes that are proper for certain effects within such a compass, they cannot keep them there, but they will make them do every thing for them; and extend them often to other effects of a superiour nature or degree, which their activity can by no means reach to. *Ætna* hath been a burning Mountain ever since and above the memory of Man, yet it hath not destroy'd that Island, nor made any new Chanel to the Sea, though it stands so near it. Neither is *Vesuvius* above two or three miles distant from the Sea-side, to the best of my remembrance, and yet in so many Ages it hath made no passage to it, neither open nor subterraneous. 'Tis true some *Isthmus's* have been thrown down by Earthquakes, and some Lakes have been made in that manner, but what's this to a Ditch nine thousand mile broad? such an one we have upon the Earth, and of a depth that is not measurable; what proportion have these causes to such an instance? and how many thousand Ages must be allow'd to them to do their work, more than the Chronology of our Earth will bear?

Besides, when were these great Earthquakes and disruptions, that did such great execution upon the body of the Earth? was this before the Flood or since? If before, then the old difficulty returns, how could there be a Flood, if the Earth was in this Mountainous form before that time? This, I think, is demonstrated impossible in the Second and Third Chapters. If since the Flood, where were the Waters of the Earth before these Earthquakes made a Chanel for them? Besides, where is the History or Tradition that speaks of these strange things, and of this great change of the Earth? hath any writ of the Origins of the *Alps*? In what year of *Rome*, or what *Olympiad* they were born? or how they grew from little ones? how the Earth groan'd when it brought them forth, when its bowels were torn by the ragged Rocks? Do the Chronicles of the Nations mention these things,

or ancient fable, or ancient Fables? were they made all at once, or in successive Ages? These causes continue still in Nature, we have still Earthquakes and subterraneous Fires and Waters, why should they not still operate and have the same effects? We often hear of Cities thrown down by Earthquakes, or Countries swallow'd up, but whoever heard of a new chain of Mountains made upon the Earth, or a new Chanel made for the Ocean? We do not read that there hath been so much as a new *Sinus* of the Sea ever since the memory of man: Which is far more feasible than what they pretend. And things of this nature being both strange and sensible, excite admiration and great attention when they come to pass, and would certainly have been remembered or propagated in some way or other, if they had ever happen'd since the Deluge. They have recorded the foundation of Cities and Monarchies, the appearance of blazing-Stars, the eruptions of fiery Mountains, the most remarkable Earthquakes and Inundations, the great Eclipses or obscurations of the Sun, and any thing that look'd strange or prodigy-like, whether in the Heavens or on Earth, and these which would have been the greatest prodigies and greatest changes that ever happen'd in nature, would these have escap'd all observation and memory of men? that's as incredible as the things themselves are.

Lastly, to comprehend all these opinions together, both of the Ancient and Modern Authors, they seem all to agree with us in this, *That* the Earth was once under another form; otherwise why do they go about to shew the causes how it came into this form. I desire then to know what form they suppose the Earth to have been under before the Mountains were made, the Chanel of the Sea, or subterraneous Cavities. Either they must take that form which we have assign'd it before the Deluge, or else they must suppose it cover'd with Water, till the Sea-channels were made, and the Mountains brought forth; As in that

Fig. 2. p. 55. *Fig. pag. 55.* And no doubt it was once in this form, both reason and the authority of *Moses* assures us of it; and this is the Test which every opinion must be brought

brought to, *how* the Earth emerg'd out of that watery form ? and in particular, as to that opinion which we are now examining, the question is, *how* by Earthquakes, and fiery eruptions, subterraneous Waters, and such like causes, the body of the Earth could be wrought from that form to this present form ? And the thing is impossible at first sight ; for such causes as these could not take place in such an Earth. As for subterraneous Waters, there could be none at that time, for they were all above ground ; and as for subterraneous Exhalations, whether Fiery or Aery, there was no place for them neither, for the Earth when it lay under the Water was a solid uniform mass, compact and close united in its parts, as we have shewn before upon several occasions ; no Mines or hollow Vaults for the Vapours to be lodg'd in, no Store-houses of Fire, nothing that could make Earthquakes, nor any sort of ruines or eruptions: These are Engines that cannot play but in an Earth already broken, hollow, and cavernous. Therefore the Authors of this opinion do in effect beg the question ; they assign such causes of the present form of the Earth, as could not take place, nor have any activity until the Earth was in this form : These causes may contribute something to increase the rudeness and inequalities of the Earth in certain places, but they could not be the original causes of it: And that not only because of their disproportion to such effects, but also because of their incapacity, or non-existence at that time when these effects were to be wrought.

Thus much concerning the Philosophical opinions, or the natural Causes that have been assign'd for the irregular form of this present Earth. Let us now consider the Theological opinions, how Mountains were made at first, and the wonderful Chanel of the Sea : And these Authors say, God Almighty made them immediately when he made the World ; and so dispatch the business in a few words. This is a short account indeed, but we must take heed that we do not derogate from the perfection of God, by ascribing all things promiscuously to his immediate action. I have often suggested that the first order of

things is regular and simple, according as the Divine Nature is; and continues so till there is some degeneracy in the moral World; I have also noted upon several occasions, especially in the *Lat. Treat. Chap. 11.* the deformity and incommodioufness of the present Earth; and from these two considerations we may reasonably infer, that the present state of the Earth was not Original, but is a state of subjection to Vanity, wherein it must continue till the redemption and restitution of all things.

2 *Ep. Chap.*
3. 5, 6.

But besides this general consideration, there are many others, both Natural and Theological against this opinion, which the Authors of it, I believe, will find unanswerable. As first, *S. Peter's* distinction betwixt the present Earth and the Ante-diluvian; and that in opposition to certain profane persons, who seem to have been of the same opinion with these Authors, namely, that the Heavens and the Earth were the same now that they had been from the beginning, and that there had been no change in Nature, either of late, or in former Ages; These *S. Peter* confutes and upbraids them with wilful ignorance of the change that was brought upon Nature at the Deluge, or that the Ante-diluvian Heavens and Earth were of a different form and constitution from the present, whereby that World was obnoxious to a Deluge of Water, as the present is to a Deluge of Fire. Let these Authors put themselves in the place of those Objectors, and see what answer they can make to the Apostle, whom I leave to dispute the case with them. I hope they will not treat this Epistle of *S. Peter's* so rudely as *Didymus Alexandrinus* did, an ancient Christian, and one of *S. Jerom's* Masters, he was of the same opinion with these Theological Authors, and so fierce in it, that seeing *S. Peter's* doctrine here to be contrary, he said this Epistle of *S. Peter's* was corrupted, and was not to be receiv'd into the Canon. And all this because it taught that the Heavens and the Earth had chang'd their form, and would do so again at the Conflagration; so as the same World would be Triform in success of time. We acknowledge his Exposition of *S. Peter's*
words

words to be very true, but what he makes an argument of the corruption of this Epistle, is rather, in my mind, a peculiar argument of its Divine Inspiration. In the second place, these writers dash upon the old rock, the impossibility of explaining the Deluge; if there were Mountains from the beginning, and the Earth then in the same form as it is now. Thirdly, they make the state of *Paradise* as unintelligible as that of the Deluge; For those properties that are assign'd to *Paradise* by the Ancients, are inconsistent with the present form of the Earth: As will appear in the Second Book. Lastly, they must answer, and give an account of all those marks which we have observ'd in Nature (both in this Chapter, and the Ninth, Tenth, and Eleventh,) of fractions, ruines, and dissolutions that have been on the Earth, and which we have shewn to be inexplicable, unless we admit that the Earth was once in another form.

These arguments being premis'd, let us now bring their opinion close to the Test, and see in what manner these Mountains must have been made according to them, and how the Chanel of the Sea, and all other Cavities of the Earth. Let us to this purpose consider the Earth again in that transient incompleat form which it had when the Abyffe encompass'd the whole body of it; we both agree that the Earth was once in this state, and they say that it came immediately out of this state into its present form, there being made by a supernatural Power a great Chanel or Ditch in one part of it, which drew off the Waters from the rest, and the Earth which was squeez'd and forc'd out of this Ditch made the Mountains. So there is the Chanel of the Sea made, and the Mountains of the Earth; how the subterraneous Cavities were made according to these Authors, I do not well know. This I confess seems to me a very gross thought, and a way of working very un-God-like; but however let's have patience to examine it.

And in the first place, if the Mountains were taken out of the Chanel of the Sea, then they are equal to it, and would fill it up if they were thrown in again. But these proportions upon examination will

not agree ; for though the Mountains of the Earth be very great, yet they do not equal by much the great Ocean. The Ocean extends to half the surface of the Earth ; and if you suppose the greatest depth of the Ocean to answer the height of the greatest Mountains, and the middle depth to the middle sort of Mountains, the Mountains ought to cover all the dry Land to make them answer to all the capacity of the Ocean ; whereas we suppos'd them upon a reasonable computation to cover but the tenth part of the dry Land ; and consequently, neither they, nor the Sea-chanel could have been produc'd in this manner, because of their great disproportion to one another. And the same thing appears, if we compare the Mountains with the Abyss, which cover'd the Earth before this Chanel was made ; for this Chanel being made great enough to contain all the Abyss, the Mountains taken out of it must also be equal to all the Abyss, but the aggregate of the Mountains will not answer this by many degrees ; for suppose the Abyss was but half as deep as the deep Ocean, to make this Calculus answer, all the dry Land ought to be cover'd with Mountains, and with Mountains as high as the Ocean is deep, or doubly high to the depth of the Abyss, because they are but upon one half of the Globe. And this is the first argument against the reciprocal production of Mountains and the Sea, their incongruency or disproportion.

Secondly, we are to consider that a great many Mountains of the Earth are far distant from any Seas, as the great in-land Mountains of *Asia* and of *Africk*, and the *Sarmatick* Mountains, and others in *Europe*, how were these great bodies flung thorough the Air from their respective Seas, whence they were taken, to those places where they stand ? What appearance is there in common reason, or credibility, that these huge masses of Earth and Stone that stand in the middle of Continents, were dug out of any Seas ? We think it strange, and very deservedly, that a little Chapel should be transported from *Palestine* to *Italy* over Land and Sea, much more the transportation of Mount *Atlas* or *Taurus* thorough the Air, or of a
range

range of Mountains two or three thousand miles long, would surely upon all accounts appear incongruous and incredible: Besides, neither the hollow form of Mountains, nor the stony matter whereof they commonly consist, agrees with that supposition, that they were prest or taken out of the Chanel of the Sea.

Lastly, We are to consider that the Mountains are not barely laid upon the Earth, as a Tomb-stone upon a Grave, nor stand as Statues do upon a Pedestal, as this opinion seems to suppose; but they are one continu'd substance with the body of the Earth, and their roots reach into the Abyss; As the Rocks by the Sea-side go as deep as the bottom of the Sea in one continu'd mass: And 'tis a ridiculous thing to imagine the Earth first a plain surface, then all the Mountains set upon it, as Hay-cocks in a Field, standing upon their flat bottoms. There is no such common surface in Nature, nor consequently any such super-additions, 'tis all one frame or mass, only broken and disjoynted in the parts of it. To conclude, 'tis not only the Mountains that make the inequalities of the Earth, or their regularity of its surface, every Country, every Province, every Field hath an unequal and different situation, higher or lower, inclin'd more or less, and sometimes one way, sometimes another, you can scarce take a miles compass in any place where the surface of the ground continues uniform; and can you imagine that there were Moulds or Stones brought from the Sea-chanel to make all those inequalities? Or that Earthquakes have been in every Country, and in every Field? The inner Veins and Lares of the Earth are also broken as well as the surface. These must proceed from universal causes, and all those that have been alledg'd, whether from Philosophy or Theology, are but particular or Topical. I am fully satisfied, in contemplation of these things, and so I think every unprejudic'd person may be, that to such an irregular variety of situation and construction, as we see every where in the parts of the Earth, nothing could answer but some universal concussion or dislocation, in the nature of a general ruine.

We have now finish'd this first part of our Theory, and all that concerns the Deluge or dissolution of the Earth; and we have not only establish'd our own *Hypothesis* by positive arguments, but also produc'd and examin'd all suppositions that have been offer'd by others, whether Philosophical or Theological, for the Explication of the same things; so as nothing seems now to remain further upon this subject. For a conclusion of all, we will consider, if you please, the rest of the Earths, or of the Planets within our Heavens, that appertain to the same common Sun; to see, so far as we can go by rational conjectures, if they be not of the same Fabrick, and have undergone the like fate and forms with our Earth. It is now acknowledg'd by the generality of Learned Men, that the Planets are Opake bodies, and particularly our next neighbour the Moon is known to be a Terraqueous Globe, consisting of Mountains and Valleys, as our Earth does; and we have no reason to believe but that she came into that form by a dissolution, or from like causes as our Earth did. *Mercury* is so near the Sun, that we cannot well discern his face, whether spotted or no, nor make a judgment of it. But as for *Venus* and *Mars*, if the spots that be observed in them be their Waters or their Sea, as they are in the Moon, 'tis likely They are also Terraqueous Globes, and in much what a like form with the Moon and the Earth, and, for ought we know, from like causes. Particularly as to *Venus*, 'tis a remarkable passage that *S. Austin* hath preserv'd out of *Varro*, he saith, That about the time of the great Deluge there was a wonderful alteration or Catastrophe happen'd to the Planet *Venus*, and that she chang'd her colour, form, figure, and magnitude. This is a great presumption that she suffer'd her dissolution about the same time that our Earth did. I do not know that any such thing is recorded concerning any of the other Planets, but the body of *Mars* looks very rugged, broken, and much disorder'd.

De civ. Dei
lib. 21. c. 8.

Saturn and *Jupiter* deserve a distinct consideration, as having something particular and different from the rest of the Planets. *Saturn* is remarkable for his

Hoop

Hoop or Ring, which seems to stand off from his body, and would strongly induce one to believe, that the exterior Earth of that Planet, at its dissolution, did not all fall in, but the Polar parts sinking into the Abyss, the middle or *Æquinoctial* parts still subsisted, and bore themselves up in the nature of an Arch about the Planet, or of a Bridge, as it were, built over the Sea of *Saturn*. *Jupiter* of all the Planets I take to be most intire, and in an Ante-diluvian state; His *Fasciæ* or *Belts*, as they call them, I should guess to be Waters, or the two frigid Zones, where his Waters fall and make two Canals in those parts; such as we shall show to have been in our Earth before it was broke. This Planet without all doubt is turn'd about its *Axis*, otherwise how should its Four Moons be carried about it? And this is also collected from the motion of that (permanent) spot that is upon its body; which spot I take to be either a Lake, or a Chasm and *Hiatus* into the Abyss of the Planet; that is part of the Abyss open or uncover'd, like the Aperture we made in the Seventh Figure. And this might either have been left so, by Providence, at first, for some reasons fitting that Earth, or it may have fallen in afterwards, as *Plato's Atlantis*, or as *Sodom* and *Gomorrha*, as some judgment upon part of that World. However that be, as to the Belts of *Jupiter*, which are the most remarkable *Phænomenon* of that Planet, I take them to be his Zones, and to lie parallel with one another, and I believe also with his *Æquator*: But we must first know how his Poles lie, and in what situation with the *Ecliptick*, and in what Aspect to us, before such things can be certainly determin'd. In the mean time, if we have guess aright, that *Jupiter* is in an Ante-diluvian state, I should rather expect to find the Figure of his Body, than of any other of the Planets, to be *Oval* or Oblong, such as our Earth was before its Deluge. To conclude, seeing all the Planets that are plac'd in this Heaven, and are the foster-children of this Sun, seem to have some affinity one with another, and have much what the same countenance, and the same general *Phænomena*; It seems probable that they rise much what

2 Book. c. 5.
Fig. 3.

Chap. 6.
pag. 67.

the same way, and after the like manner as our Earth, each one from its respective Chaos; And that they had the same Elementary Regions at first, and an exterior Orb form'd over their Abyfs: And lastly, that every one of them hath suffer'd, or is to suffer its Deluge, as our Earth hath done. These, I say, are probable conjectures according to the Analogy of Reason and Nature, so far as we can determine any thing concerning things very remote and inaccessible.

And these things being thus, and our Theory of the Deluge and the Dissolution which brought it, having such a general agreement both with our Heavens and our Earth, I think there is nothing but the uncouthness of the thing to some mens understandings, the custom of thinking otherwise, and the uneasiness of entering into a new sett of thoughts, that can be a bar or hindrance to its reception.

THE

THE
THEORY
OF THE
EARTH:

Containing an Account

OF THE

Original of the Earth,

AND OF ALL THE

GENERAL CHANGES

Which it hath already undergone,

OR

IS TO UNDERGO,

Throughout the whole Course of its Duration.

THE SECOND BOOK

Concerning the PRIMÆVAL EARTH,

AND

Concerning PARADISE.

L O N D O N,

Printed by *R. Norton*, for *Walter Kettilby*, at the Bishops-
Head in *S. Paul's Church-Yard*, 1684.

THE
T H E O R Y
OF THE
B A R T H
Containing an Account
OF THE
Principles of the Law
AND OF ALL THE
GENERAL CHANGES
Which it hath already undergone
OR
IS TO UNDERGO
Throughout the whole Course of its Duration

THE SECOND BOOK
Containing the PRINCIPLES OF
AND
Containing PARTICULARS

L O N D O N
Printed by R. Norton, for Walter Murray, at the Bishop's
Head in St. Paul's Church-yard, 1727

THE
THEORY
OF THE
EARTH.

BOOK II.

Concerning the Primæval Earth, and concerning *Paradise*.

CHAP. I.

*The Introduction and Contents of the Second Book,
The general state of the Primæval Earth, and of
Paradise.*



WE have already seen a World begin and perish; An Earth rais'd from the rudiments of a Chaos, and dissolv'd and destroy'd in an Universal Deluge. We have given also an imperfect description of that Primæval Earth, so far as was necessary to show the causes and manner of its dissolution. But we must not content our selves with this; Seeing that Earth was the first Theater upon which mortals appear'd and acted, and continued so for above Sixteen hundred Years; and that with Scenes, as both Reason and History tell us, very extraordinary and very different from these of our

present Earth, 'tis reasonable we should endeavour to make a more full discovery and description of it; Especially seeing *Paradise* was there; that seat of pleasure which our first Parents lost, and which all their posterity have much ado to find again.

In the First Book we so far describ'd This new-found World, as to show it very different in form and fabrick from the present Earth; there was no Sea there, no Mountains, nor Rocks, nor broken Caves, 'twas all one continued and regular mass, smooth, simple and compleat, as the first works of Nature use to be. But to know thus much only, doth rather excite our curiosity than satisfy it; what were the other properties of this World? how were the Heavens, how the Elements? what accommodation for humane life? why was it more proper to be the seat of *Paradise* than the present Earth? Unless we know these things, you will say, it will seem but an aery *Idea* to us; and 'tis certain that the more properties and particularities that we know concerning any thing, the more real it appears to be.

As it was our chief design therefore in the precedent Book to give an account of the Universal Deluge, by way of a just Theory; so we propose to ourselves chiefly in this Book, from the same Theory to give a just account of *Paradise*; and in performing of this we shall be led into a more full examination and display of that first Earth, and of its qualities. And if we be so happy, as by the conduct of the same principles and the same method, to give as fair an account, and as intelligible of the state of *Paradise* in that Original Earth, as we have done of the Deluge by the dissolution of it, and of the form of this Earth which succeeded, one must be very morose or melancholy to imagine that the grounds we go upon all this while are wholly false or fictitious. A foundation which will bear the weight of two Worlds without sinking, must surely stand upon a firm Rock. And I am apt to promise my self that this Theory of the Earth will find acceptance and credit, more or less, with all but those, that think it a sufficient answer to all arguments, to say *it is a Novelty*.

But

But to proceed in our disquisition concerning *Paradise*, we may note in the first place two opinions to be avoided, being both extreams; one that placeth *Paradise* in the extra-mundane Regions, or in the Air, or in the Moon; and the other that makes it so inconsiderable, as to be confin'd to a little spot of ground in *Mesopotamia*, or some other Country of *Asia*, the Earth being now as it was then. This offends as much in the defect as the other in the excess. For it is not any single Region of the Earth that can be *Paradisiacal*, unless all Nature conspire, and a certain Order of things proper and peculiar for that state. Nor is it of less importance to find out this peculiar Order of things, than to find out the particular seat of *Paradise*, but rather pre-requisite to it: We will endeavour therefore to discover and determine both, so far as a Theory can go, beginning with that which is more general.

'Tis certain there were some qualities and conditions of *Paradise* that were not meerly Topical, but common to all the rest of the Earth at that time; and these we must consider in the first place, examine what they were, and upon what they depended. History, both Sacred and Profane, must tell us what they were, and our Theory must show us upon what causes they depended. I had once, I confess, propos'd to my self another method, independent upon History or Effects; I thought to have continued the description of the Primitive or Ante-diluvian Earth from the contemplation of its causes only, and then left it to the judgment of others to determine, whether that was not the Earth where the Golden Age was past, and where *Paradise* stood. For I had observ'd three conditions or characters of it, which I thought were sufficient to answer all that we knew concerning that first state of things, *viz.* *The regularity of its surface; The situation or posture of its Body to the Sun; and The Figure of it:* From these three general causes I thought might be deduc'd all the chief differences of that Earth from the present, and particularly those that made it more capable of being *Paradisiacal*.

But upon second thoughts I judg'd it more useful and expedient to lay aside the Causes at present, and begin with the Effects, that we might have some sensible matter to work upon. Bare *Idea's* of things are lookt upon as Romantick till Effects be propos'd, whereof they are to give an account; that makes us value the Causes when necessity puts us upon enquiry after them; and the reasons of things are very acceptable when they ease the mind, anxious, and at a loss how to understand Nature without their help. We will therefore, without more ado, premise those things that have been taken notice of as extraordinary and peculiar to the first Ages of the World, and to *Paradise*, and which neither do, nor can, obtain in the present Earth; whereof the first is a *Perpetual Spring or Æquinox*; The second, the *Longevity of Animals*; and the third *Their production out of the Earth*, and the great fertility of the soil in all other things.

These difficulties guard the way to *Paradise* like the flaming Sword, and must be remov'd before we can enter; these are general Preliminaries which we must explain before we proceed to enquire after the particular place of *Paradise*. The Ancients have taken notice of all these in the first Ages of the World, or in their *Golden Age*, as they call it; and I do not doubt but what they ascrib'd to the Golden Age, was more remarkably true of *Paradise*; yet was not so peculiar to it, but that it did in a good measure extend to other parts of the Earth at that time. And 'tis manifest that their Golden Age was contemporary with our *Paradise*; for they make it begin immediately after the production and inhabitation of the Earth (which They, as well as *Moses*, raise from the Chaos) and to degenerate by degrees till the Deluge; when the World ended and begun again.

That this parallel may the better appear, we may observe, that as we say that the whole Earth was in some sence Paradisiacal in the first Ages of the World, and that there was besides one Region or Portion of it that was peculiarly so, and bore the denomination of *Paradise*; So the Ancients besides their Golden Age, which was common to all the Earth, noted some parts

parts of it that were more Golden, if I may so say, than the rest, and which did more particularly answer to *Paradise*; as their *Elysian* Fields, *Fortunate* Islands, *Gardens of Hesperides*, *Alcinous*, &c. these had a double portion of pleasantness, and besides the advantages which they had common with the rest of the Earth at that time, had something proper and singular, which gave them a distinct consideration and character from the rest.

Having made this observation, let us proceed, and see what Antiquity saith concerning that first and Paradisiacal state of things, upon those three Heads forementioned; First that there was a perpetual Spring, and constant serenity of the Air; This is often repeated by the Ancient Poets in their description of the Golden Age:

*Non alios primâ crescentis origine mundi
Illuxisse dies, aliumve habuisse tenorem,
Crediderim: Ver illud erat, Ver magnus agebat
Orbis, & hybernis parcebant flatibus Euri.*

Virgil:

*Such days the new-born Earth enjoy'd of old,
And the calm Heavens in this same tenour rowl'd:
All the great World had then one constant Spring,
No cold East-winds, such as our Winters bring.*

For I interpret this in the same sence with *Ovid's* Verses of the Golden Age:

*Ver erat Æternum: placidique tepentibus auris
Mulcebant Zephyri natos sine semine flores.*

*The Spring was constant, and soft Winds that blew
Rais'd, without Seed, Flow'rs always sweet and new.*

And then upon the expiration of the Golden Age, He says,

*Jupiter antiqui contraxit tempora Veris, &c.
When Jove begun to reign he chang'd the Year,
And for one Spring four Seasons made appear.*

The Ancients suppos'd, that in the reign of *Saturn*, who was an Ante-diluvian God, as I may so call him, Time flow'd with a more even motion, and there was no diversity of Seasons in the Year; but *Jupiter* they say first introduc'd that, when he came to manage affairs. This is exprest after their way, who seldom give any severe and Philosophical accounts of the changes of Nature. And as they suppos'd this perpetual Spring in the Golden Age, so they did also in their particular *Elysiums*; as I could show largely from their Authors, if it would not multiply Citations too much in this place.

*De Grat.
prim. hom.*

The Christian Authors have no less celebrated the perpetual Spring and Serenity of the Heavens in *Paradise*; such expressions or descriptions you will find in *Justin Martyr*, *S. Basil*, *Damascent*, *Isidore Hispalensis*, and others; insomuch that *Bellarmino*, I remember, reflecting upon those Characters of *Paradise*, which many of the Fathers have given in these respects, saith, Such things could not be, unless the Sun had then another course from what he hath now; or which is more easie, the Earth another situation. Which conjecture will hereafter appear to have been well-grounded. In the mean time let us see the Christian Poetry upon this subject, as we have seen the *Roman* upon the other. *Alcimus Avitus* hath thus describ'd *Paradise* in his Notes upon *Genesis*:

*Non hic alterni succedit temporis unquam
Bruma, nec æstivi redeunt post frigora Soles;
Hic Ver assiduum Cæli clementia servat.
Turbidus Auster abest, semperque sub aere sudo
Nubila diffugiunt, jugi cessura sereno.
Nec poscit Natura loci, quos non habet, imbres,
Sed contenta suo dotantur germina rore.
Perpetuò viret omne solum, terræque benignæ
Blanda nitet facies: Stant semper collibus herbæ,
Arboribusque comæ, &c.*

*No change of Seasons or excess was there,
No Winter chill'd, nor Summer scorch'd the Air,
But with a constant Spring Nature was fresh and fair.* }
Rough

Rough Winds or Rains that Region never knew,
 Water'd with Rivers and the morning Dew ;
 The Heav'ns still clear, the Fields still green and gay,
 No clouds above, nor on the Earth decay ;
 Trees kept their leaves and verdure all the Year,
 And Fruits were never out of Season there.

And as the Christian Authors, so likewise the Jewish have spoken of *Paradise* in the same manner ; they tell us also that the days there were always of the same length throughout the whole Year ; and that made them fancy *Paradise* to lie under the *Æquinoctial* ; as we shall see in its due place. 'Tis true we do not find these things mention'd expressly in the Sacred writings, but the effects that flow'd from them are recorded there, and we may reasonably suppose Providence to have foreseen, that when those Effects came to be scan'd and narrowly lookt into, they would lead us to a discovery of the Causes, and particularly of this great and general Cause, that perpetual *Æquinox* and unity of seasons in the Year till the Deluge. The Longevity of the Ante-diluvians cannot be explain'd upon any other supposition, as we shall have occasion to show hereafter ; and that you know is recorded carefully in Scripture : As also that there was no *Rainbow* before the Flood ; which goes upon the same ground, that there was no variety of Seasons, nor any Rain : And this by many is thought to be understood by *Moses* his words, *Gen. 2. 5, 6.* which he speaks of the first and Paradisiacal Earth. Lastly, seeing the Earth then brought forth the principles of life and all living Creatures (Man excepted) according to *Moses*, *Gen. 1. 24.* we must suppose that the state of the Heavens was such as favour'd these Conceptions and Births, which could not possibly be brought to perfection as the Seasons of the Year are at present. The first time that we have mention made in Scripture of Summer and Winter, and the differences of Seasons, is at the ending of the Deluge, *Gen. 8. 22.* Hence forward all the days of the Earth, Seed-time and Harvest, Heat and Cold, Summer and Winter, Day and Night shall not cease. 'Tis true these

words are so lax, that they may be understood either of a new course of Nature then instituted, or of an old one restor'd; but seeing it doth appear from other arguments and considerations, that there was at that time a new course of Nature constituted, it is more reasonable to interpret the words in that sense; which, as it is agreeable to truth, according to Reason and Antiquity; so it renders that remark of *Moses* of far greater importance, if it be understood as an indication of a new order then settled in Nature, which should continue thence forwards so long as the Earth endur'd. Nor do I at all wonder that such things should not be expressly and positively declar'd in Scripture, for natural mysteries in the Holy writings, as well as Prophetical, are many times on set purpose incompletely deliver'd, so as to awaken and excite our thoughts rather than fully resolve them: This being many times more suitable to the designs of Providence in the government of the World. But thus much for this first common or general Character of the Golden Age, and of *Paradise*, a *perpetual Serenity and perpetual Æquinox*.

The second Character is the Longevity of men; and, as is probable, of all other Animals in proportion. This, methinks, is as strange and surprising as the other; and I know no difference betwixt the Antediluvian World and the present, so apt to affect us, if we reflect upon it, as this wonderful disproportion in the Ages of Men; Our fore-fathers and their posterity: They liv'd seven, eight, nine hundred years and upwards, and 'tis a wonder now if a man live to one hundred. Our Oaks do not last so long as their Bodies did; Stone and Iron would scarce out-wear them. And this property of the first Ages, or their Inhabitants, how strange soever, is well attested, and beyond all exception, having the joyn't consent of Sacred and Profane History. The Scripture sets down the precise Age of a series of Antediluvian Patriarchs, and by that measures the time from the beginning of the World to the Deluge; so as all Sacred Chronology stands upon that bottom. Yet I know some have thought this so improbable
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and incongruous a thing, that to save the credit of *Moses* and the Sacred History, they interpret these years of *Lunar* years or months; and so the Ages of these Patriarchs are reduc'd to much what the same measure with the common life of man at this time. It may be observ'd in this as in many other instances, that for want of a Theory to make things credible and intelligible, men of wit and parts have often deprest the sence of Scripture; and that not out of any ill will to Scripture or Religion, but because they could not otherwise, upon the stock of their notions, give themselves a rational account of things recorded there. But I hope when we come to explain the causes of this longevity, we shall show that it is altogether as strange a thing that men should have such short lives as they have now, as that they had such long lives in the first Ages of the World. In the mean time there are a great many collateral reasons to assure us that *Lunar* years cannot be here understood by *Moses*, for all Antiquity gives the same account of those first Ages of the World, and of the first men, that they were extreamly long-liv'd. We meet with it generally in the description of the Golden Age; and not only so, but in their Topical *Paradises* also they always suppos'd a great vivacity or longævity in those that enjoy'd them. And *Josephus* Book 1. Chap. 4. speaking upon this subject, saith the Authors of all the learned Nations, *Greeks* or *Barbarians*, bear witness to *Moses's* doctrine in this particular. And in the *Mosai-cal* History it self, there are several circumstances and marks that discover plainly, that the years of the Patriarchs cannot be understood of *Lunar* years; as we shall have occasion to show in another place. Chap. 4. We proceed in the mean time to the third and last Character, The extraordinary fertility of the Soil, and the production of Animals out of the new-made Earth.

The first part of this Character is unquestionable; All Antiquity speaks of the plenty of the Golden Age, and of their *Paradises*, whether Christian or Heathen. The fruits of the Earth at first were spontaneous, and the ground without being torn and tormented satisfied the wants or desires of man. When Nature was fresh

fresh and full, all things flow'd from her more easily and more pure, like the first running of the Grape, or the Hony-comb; but now she must be prest and squeez'd, and her productions tast more of the Earth and of bitterness. The Ancient Poets have often pleas'd themselves in making descriptions of this happy state, and in admiring the riches and liberality of Nature at that time, but we need not transcribe their Poetry here, seeing this point is not, I think, contested by any. The second part of this Character concerning the spontaneous Origin of living Creatures out of that first Earth, is not so unquestionable; and as to Man, *Moses* plainly implies that there was a particular action or ministry of Providence in the formation of his Body, but as to other Animals He seems to suppose that the Earth brought them forth as it did Herbs and Plants. (*Gen. 1. 24.* compar'd with the *11. verse.*) And the truth is, there is no such great difference betwixt Vegetable and Animal Eggs, or betwixt the Seeds out of which Plants rise, and the Eggs out of which all Animals rise, but that we may conceive the one as well as the other in the first Earth: And as some warmth and influence from the Sun is requir'd for the Vegetation of Seeds, so that influence or impregnation which is necessary to make animal Eggs fruitful, was imputed by the Ancients to the *Æther*, or to an active and pure Element which had the same effect upon our great Mother the Earth, as the irradiation of the Male hath upon the Females Eggs.

*Tum Pater omnipotens fecundis imbribus Æther
Conjugis in gremium lætæ descendit.*

*In fruitful show'rs of Æther Jove did glide
Into the bosom of his joyful Bride.*

'Tis true, this opinion of the spontaneous Origin of Animals in the first Earth hath lain under some *Odi-um*, because it was commonly reckon'd to be *Epicurus's* opinion peculiarly; and he extended it not only to all brute Creatures, but to Mankind also, whom he

he suppos'd to grow out of the Earth in great numbers in several parts and Countries, like other Animals ; which is a notion very contrary to the Sacred writings ; for they assure us that all Mankind, though diffus'd now through the several parts and Regions of the Earth, rise at first from one Head or single Man and Woman ; which is a Conclusion of great importance, and that could not, I think, by the Light of Nature have ever been discover'd. And this makes the *Epicurean* opinion the more improbable, for why should two rise only, if they sprung from the Earth ? or how could they rise in their full growth and perfection, as *Adam* and *Eve* did ? But as for the opinion of Animals rising out of the Earth at first, that was not at all peculiar to *Epicurus* ; The *Stoicks* were of the same mind, and the *Pythagoreans* and the *Ægyptians*, and, I think, all that suppos'd the Earth to rise from a Chaos. Neither do I know any harm in that opinion, if duly limited and stated ; for what inconvenience is it, or what diminution of Providence, that there should be the principles of Life as well as the principles of Vegetation in the new Earth ? And unless you suppose all the first Animals, as well as the first man, to have been made at one stroke in their full growth and perfection, which we have neither reason nor authority sufficient to believe ; if they were made young, little and weak, as they come now into the World, there seems to be no way for their production more proper and decorous than that they should spring from their great Mother the Earth. Lastly, considering the innumerable little Creatures that are upon the Earth, Insects and Creeping things, and that these were not created out of nothing, but form'd out of the ground, I think that an office most proper for Nature, that can set so many hands to work at once ; and that hath hands fit for all those little operations or manufactures how small soever, that would less become the dignity of Superiour Agents.

Thus much for the Preliminaries or three general Characters of *Paradise*, which were common to it with the rest of the Primæval Earth ; and were the chief

chief ingredients of the Golden Age, so much celebrated by the Ancients. I know there were several other differences betwixt that Earth and this, but these are the original; and such as are not necessary to be premis'd for the general Explication of *Paradise*, we reserve for another place. We may in the mean time observe how preposterously they go to work that set themselves immediately to find out some pleasant place of the Earth to fix *Paradise* in, before they have consider'd or laid any grounds to explain the general conditions of it wheresoever it was. These must be first known and determin'd, and we must take our aim and directions from these, how to proceed further in our enquiries after it; otherwise we sail without a Compass, or seek a Port and know not which way it lies. And as we should think him a very unskilful Pilot that sought a place in the new World, or *America* that really was in the old; so they commit no less an error that seek *Paradise* in the present Earth, as now constituted, which could only belong to the former, and to the state of the first World: As will appear more plainly in the following Chapter.

C H A P. II.

The great Change of the World since the Flood, from what it was in the first Ages. The Earth under its present form could not be Paradisiacal, nor any part of it.

THE Scheme of this World passeth away, saith an holy Author; The mode and form both of the Natural and Civil World changeth continually more or less, but most remarkably at certain Periods, when all Nature puts on another face; as it will do at the Conflagration, and hath done already from the time of the Deluge. We may imagine how different a prospect

prospect the first World would make from what we see now in the present state of things, if we consider only those generals by which we have describ'd it in the foregoing Chapter, and what their influence would be upon mankind and the rest of Nature. For every new state of Nature doth introduce a new Civil Order, and a new face and Oeconomy of Humane affairs: And I am apt to think that some two Planets, that are under the same state or Period, do not so much differ from one another, as the same Planet doth from it self in different periods of its duration. We do not seem to inhabit the same World that our first fore-fathers did, nor scarce to be the same race of Men. Our life now is so short and vain, as if we came into the World only to see it and leave it; by that time we begin to understand our selves a little, and to know where we are, and how to act our part, we must leave the stage, and give place to others, as meer Novices as we were our selves at our first entrance. And this short life is imploy'd in a great measure to preserve our selves from necessity, or diseases, or injuries of the Air, or other inconveniences; to make one man easie, ten must work and do drudgery; The Body takes up so much time, we have little leisure for Contemplation, or to cultivate the mind. The Earth doth not yield us food, but with much labour and industry, and what was her free-will offering before, or an easie liberality, can scarce now be extorted from her. Neither are the Heavens more favourable, sometimes in one extream, sometimes in another; The Air often impure or infectious, and for a great part of the year Nature her self seems to be sick or dead. To this vanity the external Creation is made subject, as well as Mankind, and so must continue till the restitution of all things.

Can we imagine, in those happy Times and Places we are treating of, that things stood in this same posture? are these the fruits of the Golden Age and of *Paradise*, or consistent with their happiness? And the remedies of these evils must be so universal, you cannot give them to one place or Region of the Earth, but all must participate: For these are things that

flow from the course of the Heavens, or such general causes as extend at once to all Nature. If there was a perpetual Spring and perpetual Æquinox in *Paradise*, there was at the same time a perpetual Æquinox all the Earth over; unless you place *Paradise* in the middle of the Torrid Zone. So also the long Lives of the Ante-diluvians was an universal Effect, and must have had an universal Cause. 'Tis true, in some single parts or Regions of the present Earth the Inhabitants live generally longer than in others, but do not approach in any measure the Age of their Ante-diluvian fore-fathers; and that degree of longevity which they have above the rest, they owe to the calmness and tranquillity of their Heavens and Air; which is but an imperfect participation of that cause which was once Universal, and had its effect throughout the whole Earth. And as to the fertility of this Earth, though in some spots it be eminently more fruitful than in others, and more delicious, yet that of the first Earth was a fertility of another kind, being spontaneous, and extending to the production of Animals, which cannot be without a favourable concurrence from the Heavens also.

Thus much in general; We will now go over those three foremention'd Characters more distinctly, to show by their unsuitableness to the present state of Nature, that neither the whole Earth, as it is now, nor any part of it, could be *Paradisical*. The perpetual Spring, which belong'd to the Golden Age, and to *Paradise*, is an happiness this present Earth cannot pretend to, nor is capable of, unless we could transfer the Sun from the Ecliptick to the Æquator, or, which is as easie, perswade the Earth to change its posture to the Sun. If *Archimedes* had found a place to plant his Machines in for removing of the Earth, all that I should have desir'd of him, would have been only to have given it an heave at one end, and set it a little to rights again with the Sun, that we might have enjoy'd the comfort of a perpetual Spring, which we have lost by its dislocation ever since the Deluge. And there being nothing more indispensably necessary to a *Paradisical* state than this unity and equality

equality of Seasons, where that cannot be, 'tis in vain to seek for the rest of *Paradise*.

That spontaneous fruitfulness of the ground was a thing peculiar to the primigenial soil, which was so temper'd, as made it more luxuriant at that time than it could ever be afterwards; and as that rich temperament was spent, so by degrees it grew less fertile. The Origin or production of Animals out of the Earth depended not only upon this vital constitution of the soil at first, but also upon such a posture and Aspect of the Heavens, as favour'd, or at least permitted Nature to make her best works out of this prepar'd matter, and better than could be made in that manner after the Flood. *Noah*, we see, had orders given him to preserve the Races of living Creatures in his Ark, when the Old World was destroy'd, which is an argument to me, that Providence foresaw that the Earth would not be capable to produce them under its new form; and that not only for want of fitness in the soil, but because of the diversity of Seasons which were then to take place, whereby Nature would be disturb'd in her work, and the subject to be wrought upon would not continue long enough in the same due temper. But this part of the second Character concerning the Original of Animals, deserves to be further examin'd and explain'd.

The first principles of life must be tender and ductile, that they may yield to all the motions and gentle touches of Nature; otherwise it is not possible that they should be wrought with that curiosity, and drawn into all those little fine threds and textures that we see and admire in some parts of the Bodies of Animals. And as the matter must be so constituted at first, so it must be kept in a due temper till the work be finish'd, without any excess of heat or cold; and accordingly we see that Nature hath made provision in all sorts of Creatures, whether Oviparous or Viviparous, that the first rudiments of life should be preserv'd from all injuries of the Air, and kept in a moderate warmth. Eggs are close arm'd with a Shell, and must be cherish'd with an equal and gentle heat

to begin formation and continue it, otherwise the work miscarries: And in Viviparous Creatures the materials of life are safely lodg'd in the Females womb, and conserv'd in a fit temperature 'twixt heat and cold, while the Causes that Providence hath employ'd are busie at work, fashioning and placing and joyning the parts in that due order which so wonderful a Fa-brick requires.

Let us now compare these things with the birth of Animals in the new-made World, when they first rose out of the Earth, to see what provision could be made there for their safety and nourishment, while they were a making, and when newly made; And though we take all advantages we can, and suppose both the Heavens and the Earth favourable, a fit soil and a warm and constant temper of the Air, all will be little enough to make this way of production feasible or probable: But if we suppose there was then the same inconstancy of the Heavens that is now, the same vicissitude of seasons, and the same inequality of heat and cold, I do not think it at all possible that they could be so form'd, or being new-form'd, preserv'd and nourisht. 'Tis true, some little Creatures that are of short dispatch in their formation, and find nourishment enough wheresoever they are bred, might be produc'd and brought to perfection in this way, notwithstanding any inequality of Seasons; because they are made all at a heat, as I may so say, begun and ended within the compass of one Season; But the great question is concerning the more perfect kinds of Animals, that require a long stay in the womb, to make them capable to sustain and nourish themselves when they first come into the World. Such Animals being big and strong, must have a pretty hardness in their bones, and force and firmness in their Muscles and Joynts before they can bear their own weight, and exercise the common motions of their body: And accordingly we see Nature hath ordain'd for these a longer time of gestation, that their limbs and members might have time to acquire strength and solidity. Besides the young ones of these Animals have commonly the milk of the Dam to nourish them after

ter they are brought forth, which is a very proper nourishment, and like to that which they had before in the womb; and by this means their stomachs are prepar'd by degrees for courser food: Whereas our Terrigenous Animals must have been wean'd as soon as they were born, or as soon as they were separated from their Mother the Earth, and therefore must be allow'd a longer time of continuing there.

These things being consider'd, we cannot in reason but suppose that these Terrigenous Animals were as long or longer a perfecting than our Viviparous, and were not separated from the body of the Earth for ten, twelve, eighteen, or more months, according as their Nature was; and seeing in this space of time they must have suffer'd, upon the common *Hypothesis*; all vicissitudes and variety of seasons, and great excesses of heat and cold, which are things incompatible with the tender principles of life and the formation of living Creatures, as we have shown before; we may reasonably and safely conclude, that Nature had not, when the World began, the same course she hath now, or that the Earth was not then in its present posture and constitution: Seeing, I say, these first spontaneous Births, which both the holy Writ, Reason, and Antiquity seem to allow, could not be finish'd and brought to maturity, nor afterwards preserv'd and nourish'd, upon any other supposition.

Longevity is the last Character to be consider'd, and as inconsistent with the present state of the Earth as any other. There are many things in the story of the first Ages that seem strange, but nothing so prodigy-like as the long lives of those Men; that their houses of Clay should stand eight or nine hundred years and upwards, and those we build of the hardest Stone and Marble will not now last so long. This hath excited the curiosity of ingenious and learned men in all Ages to enquire after the possible Causes of that longevity; and if it had been always in conjunction with innocency of life and manners, and expir'd when that expir'd, we might have thought it some peculiar blessing or reward attending that; but 'twas common to good and bad, and lasted till the Deluge.

Deluge, whereas mankind was degenerate long before. Amongst natural Causes, some have imputed it to the sobriety and simplicity of their diet and manner of living in those days, that they eat no flesh, and had not all those provocations to gluttony which Wit and Vice have since invented. This might have some effect, but not possibly to that degree and measure that we speak of. There are many Monastical persons now that live abstemiously all their lives, and yet they think an hundred years a very great age amongst them. Others have imputed it to the excellency of their Fruits and some unknown vertue in their Herbs and Plants in those days; But they may as well say nothing, as say that which can neither be prov'd nor understood. It could not be either the quantity or quality of their food that was the cause of their long lives, for the Earth was curst long before the Deluge, and probably by that time was more barren and juiceless (for the generality) than ours is now; yet we do not see that their longævity decreas'd at all, from the beginning of the World to the Flood. *Methusalah* was *Noah's* Grandfather, but one intire remove from the Deluge, and he liv'd longer than any of his Fore-fathers. That food that will nourish the parts and keep us in health, is also capable to keep us in long life, if there be no impediments otherwise; for to continue health is to continue life; as that fewel that is fit to raise and nourish a flame, will preserve it as long as you please, if you add fresh fewel, and no external causes hinder: Neither do we observe that in those parts of the present Earth where people live longer than in others, that there is any thing extraordinary in their food, but that the difference is chiefly from the Air and the temperateness of the Heavens; And if the Ante-diluvians had not enjoy'd that advantage in a peculiar manner, and differently from what any parts of the Earth do now, they would never have seen seven, eight, or nine hundred years go over their heads, though they had been nourisht with *Nectar* and *Ambrosia*.

Others have thought that the long lives of those men of the old World proceeded from the strength
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of their *Stamina*, or first principles of their bodies ; which if they were now as strong in us, they think we should still live as long as they did. This could not be the sole and adequate cause of their longævity, as will appear both from History and Reason. *Shem*, who was born before the Flood, and had in his body all the vertue of the Ante-diluvian *Stamina* and constitution, fell three hundred years short of the age of his fore-fathers, because the greatest part of his life was past after the Flood. That their *Stamina* were stronger than ours are, I am very ready to believe, and that their bodies were greater ; and any race of strong men, living long in health, would have children of a proportionably strong constitution with themselves ; but then the question is, How was this interrupted ? We that are their posterity, why do not we inherit their long lives ? how was this constitution broken at the Deluge, and how did the *Stamina* fail so fast when that came ? why was there so great a *Crisis* then and turn of life, or why was that the period of their strength ?

We see this longævity sunk half in half immediately after the Flood, and after that it sunk by gentler degrees, but was still in motion and declension till it was fixt at length, before *David's* time, in that which hath been the common standard of man's age ever since : As when some excellent Fruit is transplanted into a worse Climate and Soil, it degenerates continually till it comes to such a degree of meanness as suits that Air and Soil, and then it stands. That the age of Man did not fall all on a sudden from the Ante-diluvian measure to the present, I impute it to the remaining *Stamina* of those first Ages, and the strength of that pristine constitution which could not wear off but by degrees. We see the Blacks do not quit their complexion immediately by removing into another Climate, but their posterity changeth by little and little, and after some generations they become altogether like the people of the Country where they are. Thus by the change of Nature that happened at the Flood, the unhappy influence of the Air and unequal Seasons weaken'd by degrees the innate strength of
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their bodies and the vigour of the parts, which would have been capable to have lasted several more hundreds of years, if the Heavens had continued their course as formerly, or the Earth its position. To conclude this particular, If any think that the Antediluvian longævity proceeded only from the *Stamina*, or the meer strength of their bodies, and would have been so under any constitution of the Heavens, let them resolve themselves these Questions; first, why these *Stamina*, or this strength of constitution fail'd? Secondly, why did it fail so much and so remarkably at the Deluge? Thirdly, why in such proportions as it hath done since the Deluge? And lastly, why it hath stood so long immoveable, and without any further diminution? Within the compass of five hundred years they sunk from nine hundred to ninety; and in the compass of more than three thousand years since they have not sunk ten years, or scarce any thing at all. Who considers the reasons of these things, and the true resolution of these questions, will be satisfi'd, that to understand the causes of that longævity something more must be consider'd than the make and strength of their bodies; which, though they had been made as strong as the *Behemoth* or *Leviathan*, could not have lasted so many Ages, if there had not been a particular concurrence of external causes, such as the present state of Nature doth not admit of.

By this short review of the three general Characters of *Paradise* and the Golden Age, we may conclude how little consistent they are with the present form and order of the Earth. Who can pretend to assign any place or Region in this Terraqueous Globe, Island or Continent, that is capable of these conditions, or that agrees either with the descriptions given by the ancient Heathens of their *Paradises*, or by the Christian Fathers of *Scripture-Paradise*. But where then, will you say, must we look for it, if not upon this Earth? This puts us more into despair of finding it than ever; 'tis not above nor below, in the Air or in the subterraneous Regions: no, doubtless 'twas upon the surface of the Earth, but of the Primitive Earth,

Earth, whose form and properties as they were different from this, so they were such as made it capable of being truly *Paradisiacal*, both according to the forementioned Characters, and all other qualities and priviledges reasonably ascrib'd to *Paradise*.

C H A P. III.

The Original differences of the Primitive Earth from the present or Post-diluvian. The three Characters of Paradise and the Golden Age found in the Primitive Earth. A particular Explication of each Character.

WE have hitherto only perplext the Argument and our selves, by showing how inexplicable the state of *Paradise* is according to the present order of things, and the present condition of the Earth. We must now therefore bring into view that Original and Ante-diluvian Earth where we pretend its seat was, and show it capable of all those priviledges which we have deny'd to the present; in vertue whereof, and of the order of Nature establisht there, that whole Earth might be truly *Paradisiacal*, as in the Golden Age; and some Region of it peculiarly so, according to the *Idea* of the Christian *Paradise*. And this, I think, is all the knowledge and satisfaction that we can expect, or that Providence hath allow'd us in this Argument.

The Primigenial Earth, which in the first Book (*Chap. 5.*) we rais'd from a Chaos, and set up in an habitable form, we must now survey again with more care, to observe its principal differences from the present Earth, and what influence they will have upon the question in hand. These differences, as we have said before, were chiefly three; The form of it, which was smooth, even, and regular. The posture and situation of it to the Sun, which was direct, and not,

as it is at present, inclin'd and oblique ; And the Figure of it, which was more apparently and regularly Oval than it is now. From these three differences flow'd a great many more, inferiour and subordinate ; and which had a considerable influence upon the moral World at that time, as well as the natural. But we will only observe here their more immediate effects, and that in reference to those general Characters or properties of the Golden Age and of *Paradise*, which we have instanc'd in, and whereof we are bound to give an account by our *Hypothesis*.

And in this respect the most fundamental of those three differences we mention'd, was, that of the right posture and situation of the Earth to the Sun ; for from this immediately follow'd a perpetual Æquinox all the Earth over, or, if you will, a perpetual Spring : And that was the great thing we found wanting in the present Earth to make it *Paradisical*, or capable of being so. Wherefore this being now found and establish'd in the Primitive Earth, the other two properties, of Longævity and of Spontaneous and Vital fertility, will be of more easie explication. In the mean time let us view a little the reasons and causes of that regular situation in the first Earth.

The truth is, one cannot so well require a reason of the regular situation the Earth had then, for that was most simple and natural ; as of the irregular situation it hath now ; standing oblique and inclin'd to the Sun or the Ecliptick : Whereby the course of the year is become unequal, and we are cast into a great diversity of Seasons. But however, stating the first aright with its circumstances, we shall have a better prospect upon the second, and see from what causes and in what manner it came to pass. Let us therefore suppose the Earth with the rest of its fellow-Planets to be carried about the Sun in the Ecliptick by the motion of the liquid Heavens ; and being at that time perfectly uniform and regular, having the same Center of its magnitude and gravity, it would by the equality of its libration necessarily have its Axis parallel to the Axis of the same Ecliptick, both its Poles being equally inclin'd to the Sun. And this posture

posture I call a *right situation*, as oppos'd to oblique or inclin'd. Now this is a thing that needs no proof besides its own evidence; for 'tis the immediate result and common effect of gravity or libration, that a Body freely left to it self in a fluid *medium*, should settle in such a posture as best answers to its gravitation; and this first Earth whereof we speak, being uniform and every way equally ballanc'd, there was no reason why it should incline at one end more than at the other towards the Sun. As if you should suppose a Ship to stand North and South under the *Æquator*, if it was equally built and equally ballasted, it would not incline to one Pole or other, but keep its Axis parallel to the Axis of the Earth; but if the ballast ley more at one end, it would dip towards that Pole, and rise proportionably higher towards the other. So those great Ships that sail about the Sun once a year or once in so many years, whilst they are uniformly built and equally pois'd, they keep steddy and even with the Axis of their Orbit; but if they lose that equality, and the Center of their gravity change, the heavier end will incline more towards the common Center of their motion, and the other end will recede from it: So particularly the Earth, which makes one in that aery Fleet, when it scap'd so narrowly from being shipwrackt in the great Deluge, was however so broken and disorder'd, that it lost its equal poise, and thereupon the Center of its gravity changing, one Pole became more inclin'd towards the Sun, and the other more remov'd from it, and so its right and parallel situation which it had before to the Axis of the Ecliptick was chang'd into an oblique; in which skew posture it hath stood ever since, and is likely so to do for some Ages to come.

This change and obliquity of the Earth's posture had a long train of consequences depending upon it; whereof that was the most immediate, that it chang'd the form of the year, and brought in that inequality of Seasons which hath since obtain'd: As, on the contrary, while the Earth was in its first and natural posture, in a more easie and regular disposition to the Sun, That had also another respective train of conse-

quences, whereof one of the first, and that which we are most concern'd in at present, was, that it made a perpetual *Æquinox* or *Spring* to all the *World*, all the parts of the year had one and the same tenour, face and temper; there was no *Winter* or *Summer*, *Seed-time* or *Harvest*, but a continual temperature of the *Air* and *Verdure* of the *Earth*. And this fully answers the first and fundamental character of the *Golden Age* and of *Paradise*; And what Antiquity, whether *Heathen* or *Christian*, hath spoken concerning that perpetual serenity and constant *Spring* that reign'd there, which in the one was accounted fabulous, and in the other hyperbolical, we see to have been really and Philosophically true. Nor is there any wonder in the thing, the wonder is rather on our side, that the *Earth* should stand and continue in that forc'd posture wherein it is now, spinning yearly about an *Axis* that doth not belong to the *Orbit* of its motion; this, I say, is more strange than that it once stood in a posture that was streight and regular; As we more justly admire the *Tower* at *Pisa*, that stands crook'd, than twenty other streight *Towers* that are much higher.

Having got this foundation to stand upon, the rest of our work will go on more easily; and the two other Characters which we mention'd, will not be of very difficult explication. The spontaneous fertility of the *Earth*, and its production of *Animals* at that time, we have in some measure explain'd before; supposing it to proceed partly from the richness of the *Primigenial* soil, and partly from this constant *Spring* and benignity of the *Heavens*, which we have now establish'd; These were always ready to excite *Nature*, and put her upon action, and never to interrupt her in any of her motions or attempts. We have show'd in the *Fifth Chapter* of the *First Book*, how this *Primigenial* soil was made, and of what ingredients; which were such as compose the richest and fattest soil, being a light *Earth* mixt with unctuous juices, and then afterwards refresh'd and diluted with the dews of *Heaven* all the year long, and cherish'd with a continual warmth from the *Sun*. What more hopeful

ful beginning of a World than this? You will grant, I believe, that whatsoever degree or whatsoever kind of fruitfulness could be expected from a Soil and a Sun, might be reasonably expected there. We see great Woods and Forests of Trees rise spontaneously, and that since the Flood (for who can imagine that the ancient Forests, whereof some were so vastly great, were planted by the hand of man?) why should we not then believe that Fruit-trees and Corn rose as spontaneously in that first Earth? That which makes Husbandry and Humane Arts so necessary now for the Fruits and productions of the Earth, is partly indeed the decay of the Soil, but chiefly the diversity of Seasons, whereby they perish, if care be not taken of them; but when there was neither Heat nor Cold, Winter nor Summer, every Season was a Seed-time to Nature, and every Season an Harvest.

This, it may be, you will allow as to the Fruits of the Earth, but that the same Earth should produce Animals also will not be thought so intelligible. Since it hath been discover'd, that the first materials of all Animals are Eggs, as Seeds are of Plants, it doth not seem so hard to conceive that these Eggs might be in the first Earth, as well as those Seeds; for there is a great analogy and similitude betwixt them; Especially if you compare these Seeds first with the Eggs of Insects or Fishes, and then with the Eggs of Viviparous Animals. And as for those juices which the Eggs of Viviparous Animals imbibe thorough their coats from the womb, they might as well imbibe them or something analogous to them from a conveniently temper'd Earth, as Plant-Eggs do; And these things being admitted, the progress is much what the same in Seeds as Eggs, and in one sort of Eggs as in another.

'Tis true, Animal-Eggs do not seem to be fruitful of themselves, without the influence of the Male; and this is not necessary in Plant-Eggs or Vegetable Seeds. But neither doth it seem necessary in all Animal-Eggs, if there be any Animals *sponte orta*, as they call them, or bred without copulation. And, as we observ'd before, according to the best knowledge that

we have of this Male influence, it is reasonable to believe, that it may be supplied by the Heavens or *Æther*. The Ancients, both the *Stoicks* and *Aristotle*, have suppos'd that there was something of an *Æthereal* Element in the Male-geniture, from whence the vertue of it chiefly proceeded; and if so, why may we not suppose, at that time, some general impression or irradiation of that purer Element to fructifie the new-made Earth. *Moses* saith there was an incubation of the Spirit of God upon the mass, and without all doubt that was either to form or fructifie it, and by the mediation of this active principle; but the Ancients speak more plainly with expresse mention of this *Æther*, and of the impregnation of the Earth by it, as betwixt Male and Female. As in the place before cited;

*Tum Pater omnipotens fœcundis imbribus Æther
Conjugis in gremium lætæ descendit; & omnes
Magnus alit magno commixtus corpore, fœtus.*

De Civ. D. Which notion, I remember *S. Austin* saith, *Virgil* did
lib. 4. c. 10. not take from the fictions of the Poets, but out of the Books of the Philosophers. Some of the gravest Authors amongst the *Romans* have reported that this vertue hath been convey'd into the wombs of some Animals by the Winds or the *Zephyri*; and as I easily believe that the first fresh Air was more impregnated with this *Æthereal* principle than ours is, so I see no reason but those balmy dews that fell every night in the Primitive Earth, might be the Vehicle of it as well as the Male-geniture is now; and from them the teeming Earth and those vital Seeds which it contain'd, were actuated, and receiv'd their first fruitfulness.

Now this Principle, howsoever convey'd to those rudiments of life which we call Eggs, is that which gives the first stroke towards Animation; And this seems to be by exciting a ferment in those little masses whereby the parts are loosen'd, and dispos'd for that formation which is to follow afterwards. And I see nothing that hinders but that we may reasonably suppose

suppose that these Animal productions might proceed thus far in the Primigenial Earth ; And as to their progress and the formation of the Body, by what Agents or principles soever that great work is carried on in the womb of the Female, it might by the same be carried on there. Neither would there be any danger of miscarrying by excess of Heat or Cold, for the Air was always of an equal temper and moderate warmth ; And all other impediments were remov'd, and all principles ready, whether active or passive ; so as we may justly conclude, that as *Eve* was the Mother of all living as to Mankind, so was the Earth the Great Mother of all living Creatures besides.

The third Character to be explain'd, and the most extraordinary in appearance, is that of LONGÆVITY. This sprung from the same root, in my opinion, with the other ; though the connexion, it may be, is not so visible. We show'd in the foregoing Chapter, that no advantage of Diet, or of strong Constitutions could have carried their lives, before the Flood, to that wonderful length, if they had been expos'd to the same changes of Air and of Seasons that our Bodies are : But taking a perpetual Æquinox, and fixing the Heavens, you fix the life of Man too ; which was not then in such a rapid flux as it is now, but seem'd to stand still, as the Sun did once, without declension. There is no question but every thing upon Earth, and especially the Animate World, would be much more permanent, if the general course of Nature was more steady and uniform ; A stability in the Heavens makes a stability in all things below ; and that change and contrariety of qualities that we have in these Regions is the fountain of corruption, and suffers nothing to be long in quiet : Either by intestine motions and fermentations excited within, or by outward impressions, Bodies are no sooner well constituted, but they are tending again to dissolution. The *Æther* in their little pores and chinks is unequally agitated, and differently mov'd at different times, and so is the Air in their greater, and the Vapours and Atmosphere round about them : All these shake and unsettle both the texture and continui-
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ty of Bodies. Whereas in a fixt state of Nature, where these principles have always the same constant and uniform motion, when they are once suited to the forms and compositions of Bodies, they give them no further disturbance; they enjoy a long and lasting peace without any commotions or violence within or without.

We find our selves, sensible changes in our Bodies upon the turn of the Year, and the change of Seasons; new fermentations in the Bloud and resolutions of the Humours; which if they do not amount to diseases, at least they disturb Nature, and have a bad effect not only upon the fluid parts, but also upon the more solid; upon the Springs and Fibres in the Organs of the Body; to weaken them and unfit them by degrees for their respective functions. For though the change is not sensible immediately in these parts, yet after many repeated impressions every year, by unequal heat and cold, driness and moisture, contracting and relaxing the Fibres, their tone at length is in a great measure destroy'd or brought to a manifest debility; and the great Springs failing, the lesser that depend upon them fail in proportion, and all the symptoms of decay and old age follow. We see by daily experience, that Bodies are kept better in the same *medium*, as we call it, than if they often change their *medium*, as sometimes in Air, sometimes in Water, moisten'd and dri'd, heated and cool'd; these different states weaken the contexture of the parts: But our Bodies, in the present state of Nature, are put into an hundred different *mediums* in the course of a Year; sometimes we are steep't in Water, or in a misty foggy Air for several days together, sometimes we are almost frozen with cold, then fainting with heat at another time of the Year; and the Winds are of a different nature, and the Air of a different weight and pressure, according to the Weather and the Seasons: These things would wear our Bodies, though they were built of Oak, and that in a very short time in comparison of what they would last, if they were always incompact with one and the same *medium*, under one and the same temper, as it was in the Primitive Earth. The

The Ancients seem to have been sensible of this, and of the true causes of those long periods of life; for wheresoever they assign'd a great longævity, as they did not only to their Golden Age, but also to their particular and topical *Paradises*, they also assign'd there a constant serenity and equality of the Heavens, and sometimes expressly a constant *Æquinox*; as might be made appear from their Authors. And some of our Christian Authors have gone farther, and connected these two together, as Cause and Effect; for they say that the Longævity of the Antediluvian Patriarchs proceeded from a favourable Aspect and influence of the Heavens at that time; which *Aspect* of the Heavens being rightly interpreted, is the same thing that we call the Position of the Heavens, or the right situation of the Sun and the Earth, from whence came a perpetual *Æquinox*. And if we consider the present Earth, I know no place where they live longer than in that little Island of the *Bermudas*, where, according to the proportion of time they hold out there after they are arriv'd from other parts, one may reasonably suppose, that the Natives would live two hundred Years. And there's nothing appears in that Island that should give long life above other places, but the extraordinary steddiness of the Weather, and of the temper of the Air throughout the whole Year, so as there is scarce any considerable difference of Seasons.

But because it would take up too much time to show in this place the full and just reasons why, and how, these long periods of life depend upon the stability of the Heavens, and how on the contrary, from their inconstancy and mutability these periods are shorten'd, as in the present order of Nature; we will set apart the next Chapter to treat upon that subject; yet by way of digression only, so as those that have a mind may pass to the following, where the thred of this discourse is continued. In the mean time, you see, we have prepar'd an Earth for *Paradise*, and given a fair and intelligible account of those three general Characters, which, according to the rules of method, must be determin'd before any further pro-

gress can be made in this Argument. For in the doctrine of *Paradise* there are two things to be consider'd, the state of it, and the place of it; And as it is first in order of Nature, so it is much more material, to find out the state of it, than the Region where it stood. We need not follow the windings of Rivers, and the interpretation of hard names, to discover this, we take more faithful Guides, THE unanimous reports of Antiquity, Sacred and Profane, supported by a regular Theory. Upon these grounds we go, and have thus far proceeded on our way; which we hope will grow more easie and pleasant, the nearer we come to our journeys end.

C H A P. IV.

A digression, concerning the Natural Causes of Longævity. That the Machine of an Animal consists of Springs, and which are the two principal. The Age of the Ante-diluvians to be computed by Solar not Lunar Years.

TO confirm our opinion concerning the reasons of Longævity in the first Inhabitants of the World, it will not be amiss to deduce more at large the Natural Causes of *long or short periods of life*. And when we speak of long or short periods of life, we do not mean those little differences of ten, twenty, or forty Years which we see amongst men now adays, according as they are of stronger or weaker constitutions, and govern themselves better or worse, but those grand and famous differences of several hundreds of Years, which we have examples of in the different Ages of the World, and particularly in those that liv'd before and since the Flood. Neither do we think it peculiar to this Earth to have such an inequality in the lives of men, but the other Planets, if they be inhabited, have the same property, and the same difference

difference in their different periods ; All Planets that are in their Ante-diluvian state, and in their first and regular situation to the Sun, have long-liv'd Inhabitants ; and those that are in an oblique situation, have short-liv'd ; unless there be some counter-causes that hinder this general rule of Nature from taking place.

We are now us'd to a short life, and to drop away after threescore or fourscore years, that when we compare our lives with those of the Ante-diluvians, we think the wonder lies wholly on their side, *why* they liv'd so long ; and so it doth, popularly speaking, but if we speak Philosophically, the wonder lies rather on our side, *why* we live so little, or so short a time : For seeing our Bodies are such Machines as have a faculty of nourishing themselves, that is, of repairing their lost or decay'd parts, so long as they have good nourishment to make use of, why should they not continue in good plight, and always the same ? as a flame does, so long as it is supplied with fuel ? And that we may the better see on whether side the wonder lies, and from what causes it proceeds, we will propose this Problem to be examin'd, *Why the frame or Machine of an humane Body, or of another Animal, having that construction of parts and those faculties which it hath, lasts so short a time ?* And though it fall into no disease, nor have any unnatural accident, within the space of eighty years, more or less, fatally and inevitably decays, dies and perisheth ?

That the state and difficulty of this question may the better appear, let us consider a man in the prime and vigour of his life, at the age of twenty or twenty four years, of an healthful constitution, and all his Vitals sound ; let him be nourisht with good food, use due exercise, and govern himself with moderation in all other things ; The Question is, why this Body should not continue in the same plight, and in the same strength for some Ages ? or at least why it should decay so soon, and so fast as we see it does ? We do not wonder at things that happen daily, though the causes of them be never so hard to find

out ; We contract a certain familiarity with common events, and fancy we know as much of them as can be known, though in reality we know nothing of them but matter of fact ; which the vulgar knows as well as the Wise or the Learned. We see daily instances of the shortness of mans life, how soon his race is run, and we do not wonder at it, because 'tis common, yet if we examine the composition of the Body, it will be very hard to find any good reasons why the frame of it should decay so soon.

I know 'tis easie to give general and superficial answers and accounts of these things, but they are such as being strietly examin'd give no satisfaction to an inquisitive mind : You would say, it may be, that the Interiour parts and Organs of the Body wear and decay by degrees, so as not performing so well their several offices and functions for the digestion and distribution of the food and its juices, all the other parts suffer by it, and that draws on insensibly a decay upon the whole frame of the Body. This is all true ; but why, and how comes this to pass ? from what causes ? where is the first failure, and what are the consequences of it ? The inward parts do not destroy themselves, and we suppose that there is no want of good food, nor any disease, and we take the Body in its full strength and vigour, why doth it not continue thus, as a Lamp does, if you supply it with Oil ? The causes being the same, why doth not the same effect still follow ? why should not the flame of life, as well as any other flame, if you give it fuel, continue in its force without languishing or decay ?

You will say, it may be, The case is not the same in a simple Body, such as a Lamp, or a Fire, and in an Organical Body ; which being variously compounded of multiplicity of parts, and all those parts put in connexion and dependance one upon another, if any one fail, it will disorder the whole frame ; and therefore it must needs be more difficult for such a body to continue long in the same state, than for a simple Body that hath no variety of parts or operations. I acknowledge such a Body is much more subject to diseases and accidents than a more simple, but barring
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all diseases and accidents, as we do, it might be of as long a duration as any other, if it was suppli'd with nourishment adequately to all its parts : As this Lamp we speak of, if it consisted of twenty branches, and each of these branches was to be fed with a different Oil, and these Oils should be all mixt together in some common Cistern, whence they were to be distributed into the several branches, either according to their different degrees of lightness, one rising higher than another ; or according to the capacity and figure of the little pipes they were to pass thorough ; such a compounded Lamp, made up of such artifices, would indeed be more subject to accidents, and to be out of order, by the obstruction of some of the little pipes, or some unfit qualities in the Oils, but all these casualties and disorders excepted, as they are in our case, if it was suppli'd with convenient liquors, it would burn as long as any other, though more plain and simple.

To instance yet, for more plainness, in another sort of Machine, suppose a Mill, where the Water may represent the nourishment and humours in our Body, and the frame of Wood and Stone, the solid parts ; If we could suppose this Mill to have a power of nourishing it self by the Water it receiv'd, and of repairing all the parts that were worn away, whether of the Wood-work or of the Stone, feed it but with a constant stream, and it would subsist and grind for ever. And 'tis the same thing for all other Artificial Machines of this nature, if they had a faculty of nourishing themselves, and repairing their parts. And seeing those natural Machines we are speaking of, the Body of Man, and of other Animals, have and enjoy this faculty, why should they not be able to preserve themselves beyond that short period of time which is now the measure of their life ?

Thus much we have said to show the difficulty propos'd, and inforce it ; We must now consider the true answer and resolution of it ; and to that purpose bring into view again those causes which we have assign'd, both of the long periods of life before the Flood, and of the short ones since. That there was a
perpetual

perpetual *Æquinox* and stability of the Heavens before the Flood, we have show'd both from History and reason; neither was there then any thing of Clouds, Rains, Winds, Storms or unequal weather, as will appear in the following Chapter; And to this steadiness of Nature and universal calmness of the external World, we have imputed those long periods of life which men enjoy'd at that time: As on the contrary, when that great change and revolution happen'd to Nature at the Deluge, and the Heavens and the Earth were cast in another mould, then was brought in, besides many other new Scenes, that shortness and vanity in the life of Man, and a general instability in all Sublunary things, but especially in the Animate World.

It is not necessary to show, more than we have done already, how that Primitive state of Nature contributed to long life; neither is it requir'd that it should actively contribute, but only be permissive, and suffer our Bodies to act their parts; for if they be not disturb'd, nor any harm done them by external Nature, they are built with art and strength enough to last many hundreds of years. And as we observ'd before concerning the posture of the Earth, that that which it had at first, being simple and regular, was not so much to be accounted for, as its present posture which is irregular; so likewise for the life of Man, the difficulty is not why they liv'd so long in the old World; that was their due and proper course; but why our Bodies being made after the same manner, should endure so short a time now. This is it therefore which we must now make our business to give an account of, namely, how that vicissitude of Seasons, inconstancy of the Air, and unequal course of nature which came in at the Deluge, do shorten *Life*; and indeed hasten the dissolution of all Bodies, Animate or Inanimate.

In our Bodies we may consider three several qualities or dispositions, according to each whereof they suffer decay; First, their continuity; Secondly, that disposition whereby they are capable of receiving nourishment, which we may call *Nutribility*; and
Thirdly,

Thirdly, the Tone or Tonick disposition of the Organs whereby they perform their several functions. In all these three respects they would decay in any state of Nature, but far sooner and faster in the present state than in the Primæval. As for their Continuity, we have noted before that all consistent Bodies must be less durable now than under that first order of the World, because of the unequal and contrary motions of the Elements, or of the Air and Æther that penetrate and pervade them; and 'tis part of that vanity which all things now are subject to, to be more perishable than in their first Constitution. If we should consider our Bodies only as breathing Statues, consisting of those parts they do, and of that tenderness, the Air which we breath, and where-with we are continually incompast, changing so often 'twixt moist and dry, hot and cold; a slow and eager motion, these different actions and restless changes would sooner weaken and destroy the union of the parts, than if they were always in a calm and quiet *medium*.

But it is not the gross and visible Continuity of the parts of our Body that first decays, there are finer Textures that are spoil'd insensibly, and draw on the decay of the rest; such are those other two we mention'd, That disposition and temper of the parts whereby they are fit to receive their full nourishment; and especially that construction and texture of the Organs that are preparatory to this Nutrition. The Nutribility of the Body depends upon a certain temperament in the parts, soft and yielding, which makes them open to the Bloud and Juices in their Circulation and passage thorough them, and mixing intimately, and universally, hold fast and retain many of their Particles; as muddy Earth doth of the Water that runs into it and mixeth with it: And when these Nutritious Particles retain'd are more than the Body spends, that Body is in its growth; as when they are fewer 'tis in its decay. And as we compar'd the flesh and tender parts when they are young and in a growing disposition, to a muddy soil, that opens to the Water, swells and incorporates with it; so when they become

become hard and dry, they are like a sandy Earth; that suffers the Water to glide thorough it, without incorporating or retaining many of its parts; and the sooner they come to this temper, the sooner follows their decay: For the same Causes that set limits to our Growth, set also limits to our Life; and he that can resolve that Question, *why* the time of our *Growth* is so short, will also be able to resolve the other in a good measure, *why* the time of our *Life* is so short. In both cases, that which stops our progress is external Nature; whose course, while it was even and steady, and the ambient Air mild and balmy, preserv'd the Body much longer in a fresh and fit temper to receive its full nourishment, and consequently gave larger bounds both to our Growth and Life.

But the third thing we mention'd is the most considerable, The decay of the Organick parts; and especially of the Organs preparatory to Nutrition. This is the point chiefly to be examin'd and explain'd, and therefore we will endeavour to state it fully and distinctly. There are several functions in the Body of an Animal, and several Organs for the conduct of them; and I am of opinion, that all the Organs of the Body are in the nature of Springs, and that their action is Tonical. The action of the Muscles is apparently so, and so is that of the Heart and the Stomach; and as for those parts that make secretions only, as the *Glandules* and *Parenchymata*, if they be any more than meerly passive, as Strainers, 'tis the Tone of the parts, when distended, that performs the separation: And accordingly in all other active Organs, the action proceeds from a Tone in the parts. And this seems to be easily prov'd, both as to our Bodies and all other Bodies, for no matter that is not fluid, hath any motion or action in it, but in vertue of some Tone; If matter be fluid, its parts are actually in motion, and consequently may impel or give motion to other Bodies; but if it be solid or consistent, the parts are not separate or separately mov'd from one another, and therefore cannot impel or give motion to any other, but in vertue of their Tone; they having no other motion themselves. Accordingly
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we see in Artificial Machines there are but two general sorts, those that move by some fluid or volatile matter, as Water, Wind, Air, or some active Spirit; And those which move by Springs, or by the Tonick disposition of some part that gives motion to the rest: For as for such Machines as act by weights, 'tis not the weight that is the active principle, but the Air or Æther that impels it. 'Tis true, the Body of an Animal is a kind of mixt Machine, and those Organs that are the Primary parts of it partake of both these principles; for there are Spirits and Liquors that do assist in the motions of the Muscles, of the Heart and of the Stomach; but we have no occasion to consider them at present, but only the Tone of the solid Organs.

This being observ'd in the first place, *Wherein* the force of our Organs consists, we might here immediately subjoin, how this force is weaken'd and destroy'd by the unequal course of Nature which now obtains, and consequently our Life shorten'd; for the whole state and Oeconomy of the Body depends upon the force and action of these Organs. But to understand the business more distinctly, it will be worth our time to examine, upon which of the Organs of the Body Life depends more immediately, and the prolongation of it; that so reducing our Inquiries into a narrower compass, we may manage them with more ease and more certainty.

In the Body of Man there are several Compages, or setts of parts, some whereof need not be consider'd in this question; There is that Systeme that serves for fence and local-motion, which is commonly call'd the ANIMAL Compages; and that which serves for generation, which is call'd the GENITAL. These have no influence upon long Life, being parts nourished, not nourishing, and that are fed from others as Rivers from their Fountain: Wherefore having laid these aside, there remain two Compages more, the NATURAL and VITAL, which consist of the Heart and Stomach, with their appendages. These are the Sources of Life, and all that is absolutely necessary to the constitution of a Living
 E c Creature;

Creature ; what parts we find more, few or many, of one sort or other, according to the several kinds of Creatures, is accidental to our purpose ; The form of an Animal, as we are to consider it here, lies in this little compass, and what is superadded is for some new purposes, besides that of meer Life, as for Sense, Motion, Generation, and such like. As in a Watch, besides the Movement, which is made to tell you the hour of the day, which constitutes a Watch, you may have a fancy to have an Alarum added, or a Minute-motion, or that it should tell you the day of the month ; and this sometimes will require a new Spring, sometimes only new Wheels ; however if you would examine the Nature of a Watch, and upon what its motion, or, if I may so say, its Life depends, you must lay aside those secondary Movements, and observe the main Spring, and the Wheels that immediately depend upon that, for all the rest is accidental. So for the Life of an Animal, which is a piece of Nature's Clockwork, if we would examine upon what the duration of it depends, we must lay aside those additional parts or Systems of parts, which are for other purposes, and consider only the first principles and fountains of Life, and the causes of their natural and necessary decay.

Having thus reduc'd our Inquiries to these two Organs, The Stomach and the Heart, as the two Master-Springs in the Mechanism of an Animal, upon which all the rest depend, let us now see what their action is, and how it will be more or less durable and constant, according to the different states of external Nature. We determin'd before, that the force and action of all Organs in the Body was Tonical, and of none more remarkably than of these two, the Heart and Stomach ; for though it be not clearly determin'd what the particular structure of these Organs, or of their Fibres is that makes them Tonical, yet 'tis manifest by their actions that they are so. In the Stomach, besides a peculiar ferment that opens and dissolves the parts of the Meat, and melts them into a fluor or pulp, the coats of it, or Fibres whereof they consist, have a motion proper to them, proceeding
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from their Tone, whereby they close the Stomach, and compress the Meat when it is receiv'd, and when turn'd into Chyle, press it forwards, and squeeze it into the Intestines; And the Intestines also partaking of the same motion, push and work it still forwards into those little Veins that convey it towards the Heart. The Heart hath the same general motions with the Stomach, of opening and shutting, and hath also a peculiar ferment which rarifies the Bloud that enters into it; and that bloud by the Spring of the Heart, and the particular Texture of its Fibres is thrown out again to make its Circulation through the Body. This is in short the action of both these Organs; and indeed the mystery of the Body of an Animal, and of its operations and Oeconomy, consists chiefly in Springs and Ferments; The one for the solid parts, the other in the fluid.

But to apply this Fabrick of the Organick parts to our purpose, we may observe and conclude, that whatsoever weakens the Tone or Spring of these two Organs, which are the Bases of all Vitality, weaken the principle of Life, and shorten the Natural duration of it; And if of two Orders or Courses of Nature, the one be favourable and easie to these Tonick principles in the Body, and the other uneasie and prejudicial, that course of Nature will be attended with long periods of Life, and this with short. And we have shewn, that in the Primitive Earth the course of Nature was even, stiddy and unchangeable, without either different qualities of the Air, or unequal Seasons of the Year, which must needs be more easie to these principles we speak of, and permit them to continue longer in their strength and vigour, than they can possibly do under all those changes of the Air, of the Atmosphere, and of the Heavens, which we now suffer yearly, monthly, and daily. And though Sacred History had not acquainted us with the Longævity of the Ante-diluvian Patriarchs, nor profane History with those of the Golden Age, I should have concluded, from the Theory alone, and the contemplation of that state of Nature, that the forms of all things were much more permanent in that World

than in ours, and that the lives of Men and all other Animals had longer periods.

I confess I am of opinion, that 'tis this that makes, not only these living Springs or Tonick Organs of the Body, but all Artificial Springs also, though made of the hardest Metal, decay so fast. The different pressure of the Atmosphere, sometimes heavier, sometimes lighter, more rare or more dense, moist or dry, and agitated with different degrees of motion, and in different manners; this must needs operate upon that nicer contexture of Bodies, which makes them Tonical or Elastick; altering the figure or minuteness of the pores, and the strength and order of the Fibres upon which that propriety depends. There is a subtle and Æthereal Element that traverseth the pores of all Bodies, and when 'tis straiten'd and pent up there, or stopt in its usual course and passage, its motion is more quick and eager, as a Current of Water, when 'tis obstructed or runs through a narrower Chanel; and that strife and those attempts which these little active Particles make to get free, and follow the same tracts they did before, do still press upon the parts of the Body that are chang'd, to redress and reduce them to their first and Natural posture, and in this consists the force of a Spring. Accordingly we may observe, that there is no Body that is Tonical or Elastick, if it be left to it self, and to that posture it would take naturally; for then all the parts are at ease, and the subtle matter moves freely and uninterruptedly within its pores; but if by distention, or by compression, or by flexion, or any other way the situation of the parts and pores be so alter'd, that the Air sometimes, but for the most part that subtler Element is uneasy and compressed too much, it causeth that renitency or tendency to restitution, which we call the Tone or Spring of a Body. Now as this disposition of Bodies doth far more easily perish than their Continuity, so I think there is nothing that contributes more to its perishing (whether in Natural or Artificial Springs) than the unequal action and different qualities of the Æther, Air, and Atmosphere.

It will be objected to us, it may be, that in the beginning of the Chapter we instanc'd in Artificial things, that would continue for ever, if they had but the power of nourishing themselves, as Lamps, Mills, and such like ; why then may not Natural Machines that have that power, last for ever ? The case is not the same as to the Bodies of Animals, and the things there instanc'd in, for those were springless Machines, that act only by some external cause, and not in virtue of any Tone or interiour temper of the parts, as our Bodies do ; and when that Tone or temper is destroy'd, no nourishment can repair it. There is something, I say, irreparable in the Tonical disposition of matter, which, when lost, cannot be restor'd by Nutrition ; Nutrition may answer to a bare consumption of parts, but where the parts are to be preserv'd in such a temperament, or in such a degree of humidity and driness, warmth, rarity or density, to make them capable of that nourishment, as well as of their other operations, as Organs ; (which is the case of our Bodies) there the Heavens, the Air, and external Causes will change the qualities of the matter in spite of all Nutrition ; and the qualities of the matter being chang'd (in a course of Nature, where the Cause cannot be taken away) that is a fault incorrigible, and irreparable by the nourishment that follows, being hinder'd of its effect by the indisposition or incapacity of the matter it self : And as they say, a fault in the first concoction cannot be corrected in the second ; so neither can a fault in the Prerequisites to all the concoctions be corrected by any of them.

I know the Ancients made the decay and term of Life to depend rather upon the humours of the Body, than the solid parts, and suppos'd an *Humidum radicale* and a *Calidum innatum*, as they call them, a Radical moisture and Congenit heat to be in every Body from its birth and first formation ; and as these decay'd, life decay'd. But who's wiser for this account, what doth this instruct us in ? We know there is heat and moisture in the Body, and you may call the one *Radical*, and the other *Innate* if you please ; this is but a
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fort of Cant, for we know no more of the real Physical Causes of that effect we enquir'd into, than we did before. What makes this heat and moisture fail, if the nourishment be good, and all the Organs in their due strength and temper? The first and original failure is not in the fluid, but in the solid parts, which if they continued the same, the humours would do so too. Besides, what befel this Radical moisture and heat at the Deluge, that it should decay so fast afterwards, and last so long before? There is a certain temper, no doubt, of the juices and humours of the Body, which is more fit than any other to conserve the parts from driness and decay; but the cause of that driness and decay, or other inhability in the solid parts, whence is that, if not from external Nature? 'Tis thither we must come at length in our search of the reasons of the Natural decay of our Bodies, we follow the fate and Laws of that, and I think by those Causes, and in that order that we have already describ'd and explain'd.

To conclude this Discourse, we may collect from it what judgment is to be made of those Projectors of Immortality, or undertakers to make Men live to the Age of *Methusalah*, if they will use their methods and medicines; There is but one method for this, To put the Sun into his old course, or the Earth into its first posture; there is no other secret to prolong life; Our Bodies will sympathize with the general course of Nature, nothing can guard us from it, no Elixir, no Specifick, no Philosophers-stone. But there are Enthusiasts in Philosophy, as well as in Religion, men that go by no principles, but their own conceit and fancy, and by a Light within, which shines very uncertainly, and for the most part leads them out of the way of truth. And so much for this disquisition, concerning the *Causes of Longevity*, or of the long and short periods of Life in the different periods of the World.

That the Age of the Ante-diluvian Patriarchs is to be computed by Solar or common Years, not by Lunar or Months.

Having made this discourse of the unequal periods of Life, only in reference to the Ante-diluvians and their fam'd Longævity, lest we should seem to have proceeded upon an ill-grounded and mistaken supposition, we are bound to take notice of, and confute that opinion which makes the Years of the Ante-diluvian Patriarchs to have been *Lunar*, not *Solar*, and so would bear us in hand, that they liv'd only so many Months as Scripture saith they liv'd Years. Seeing there is nothing could drive men to this bold interpretation, but the incredibility of the thing, as they fancied; They having no Notions or Theory whereby it could appear intelligible or possible to them; and seeing we have taken away that stumbling-stone, and show'd it not only possible but necessary, according to the constitution of that World, that the periods of Life should be far longer than in this; by removing the ground or occasion of their misinterpretation, we hope we have undeceiv'd them, and let them see that there is no need of that subterfuge, either to prevent an incongruity, or save the credit of the Sacred Historian.

But as this opinion is inconsistent with Nature truly understood, so is it also with common History; for besides what I have already mention'd in the first Chapter of this Book, *Josephus* tells us, that the Historians of all Nations, both *Greeks* and *Barbarians*, give the same account of the first Inhabitants of the Earth; *Manetho*, who writ the story of the *Ægyptians*, *Berosus*, who writ the *Chaldæan History*, and those Authors that have given us an account of the *Phœnician Antiquities*; besides *Molus* and *Hestæus*, and *Hieronimus* the *Ægyptian*; and amongst the *Greeks* *Hesiodus*, *Hecateus*, *Helanicus*, *Acusilaus*, *Ephorus* and *Nicolaus*. We have the Suffrages of all these, and their common consent, that in the first Ages of the World Men liv'd a thousand Years. Now we cannot well suppose, that all these Historians meant

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meant *Lunar* Years, or that they all conspir'd together to make and propagate a Fable.

Lastly, as Nature and Profane History do disown and confute this opinion, so much more doth Sacred History ; not indeed in profess terms, for *Moses* doth not say that he useth *Solar* Years, but by several marks and observations, or collateral Arguments, it may be clearly collected, that he doth not use *Lunar*. As first, because He distinguisheth *Months* and *Years* in the History of the Deluge, and of the life of *Noah*; for *Gen. 7. 11.* he saith in the six hundredth year of *Noah's* life, in the second month, &c. It cannot be imagin'd that in the same verse and sentence these two terms of *Year* and *Month* should be so confounded as to signifie the same thing ; and therefore *Noah's* Years were not the same with Months, nor consequently those of the other Patriarchs, for we have no reason to make any difference. Besides, what ground was there, or how was it proper or pertinent to reckon, as *Moses* does there, first, second, third Month, as so many going to a Year, if every one of them was a Year ? And seeing the Deluge begun in the six hundredth year of *Noah's* life, and in the second Month, and ended in the six hundredth and first Year (*Chap. 8. 13.*) the first or second Month, all that was betwixt these two terms, or all the duration of the Deluge, made but one year in *Noah's* life, or it may be not so much ; and we know *Moses* reckons a great many months in the duration of the Deluge ; so as this is a demonstration that *Noah's* years are not to be understood of *Lunar*. And to imagine that his years are to be understood one way, and those of his fellow-Patriarchs another, would be an inaccountable fiction. This Argument therefore extends to all the Ante-diluvians ; And *Noah's* life will take in the Post-diluvians too, for you see part of it runs amongst them, and ties together the two Worlds ; so that if we exclude *Lunar* years from his life, we exclude them from all, those of his Fathers, and those of his Children.

Secondly, If *Lunar* years were understood in the Ages of the Ante-diluvian Patriarchs, the interval betwixt the Creation and the Deluge would be too short,

short, and in many respects incongruous. There would be but 1656 months from the beginning of the World to the Flood; which converted into common years, make but 127 years and five months for that interval. This perverts all Chronology, and besides, makes the number of people so small and inconsiderable at the time of the Deluge, that destroying of the World was not so much as destroying of a Country Town would be now: For from one couple you cannot well imagine there could arise above five hundred persons in so short a time; but if there was a thousand, 'tis not so many as we have sometimes in a good Country Village. And were the Flood-gates of Heaven open'd, and the great Abyſſe broken up, to destroy such an handful of people? and the Waters rais'd fifteen Cubits above the highest Mountains throughout the face of the Earth, to drown a Parish or two? is not this more incredible than our Age of the Patriarchs? Besides, this short interval doth not leave room for Ten generations, which we find from *Adam* to the Flood, nor allows the Patriarchs age enough at the time when they are said to have got Children. One hundred twenty seven years for Ten generations is very strait; and of these you must take off forty six years for one Generation only, or for *Noah*, for he liv'd six hundred years before the Flood, and if they were *Lunar*, they would come however to forty six of our years; so that for the other nine Generations you would have but eighty one years, that is, nine years a-piece; at which Age they must all be suppos'd to have begun to get Children; which you cannot but think a very absurd supposition. Thus it would be, if you divide the whole time equally amongst the nine Generations, but if you consider some single instances, as they are set down by *Moses*, 'tis still worse; for *Mahaliel* and his Grandchild *Enoch* are said to have got Children at sixty five years of Age, which if you suppose months, they were but five years old at that time; now I appeal to any one, Whether it is more incredible that men should live to the age of nine hundred years, or that they should beget Children at the age of five years.

You will say, it may be, 'tis true these inconveniences follow, if our *Hebrew* Copies of the Old Testament be Authentick; but if the *Greek* Translation by the *Septuagint* be of better Authority, as some would have it to be, that gives a little relief in this case; for the *Septuagint* make the distance from the Creation to the Flood six hundred years more than the *Hebrew* Text does, and so give us a little more room for our Ten Generations: And not only so, but they have so conveniently dispos'd those additional years, as to salve the other inconvenience too, of the Patriarchs having Children so young: For what Patriarchs are found to have got Children sooner than the rest, and so soon, that upon a computation by *Lunar* years, they would be but meer Children themselves at that time, to these, more years are added and plac'd opportunely before the time of their getting Children; so as one can scarce forbear to think that it was done on purpose to cure that inconvenience, and to favour and protect the computation by *Lunar* years. The thing looks so like an artifice, and as done to serve a turn, that one cannot but have a less opinion of that Chronology for it.

But not to enter upon that dispute at present, methinks they have not wrought the cure effectually enough, for with these six hundred *Lunar* years added, the summ will be only one hundred seventy three common years and odd months; and from these deducting, as we did before, for *Noah*, forty six years, and for *Adam*, or the first Generation, about eighteen, (for he was two hundred and thirty years old, according to the *Septuagint*, when he begot *Seth*) there will remain but one hundred and nine years for eight Generations; which will be thirteen years a-piece and odd months; a low age to get Children in, and to hold for eight Generations together. Neither is the other inconvenience we mention'd, well cur'd by the *Septuagint* account, namely, the small number of people that would be in the World at the Deluge; for the *Septuagint* account, if understood of *Lunar* years, adds but forty six common years to the *Hebrew* account, and to the age of the World at the Deluge,

luge, in which time there could be but a very small accession to the number of Mankind. So as both these incongruities continue, though not in the same degree, and stand good in either account, if it be understood of *Lunar* years.

Thirdly, 'tis manifest from other Texts of Scripture, and from other considerations, that our first Fathers liv'd very long, and considerably longer than men have done since; whereas if their years be interpreted *Lunar*, there is not one of them that liv'd to the age that men do now; *Methusalah* himself did not reach threescore and fifteen years, upon that interpretation: Which doth depress them not only below those that liv'd next to the Flood, but below all following Generations to this day; and those first Ages of the World, which were always celebrated for strength and vivacity, are made as weak and feeble as the last dregs of Nature. We may observe, that after the Flood for some time, till the pristine *Crafsis* of the Body was broken by the new course of Nature, they liv'd five, four, three, two hundred years, and the Life of Men shorten'd by degrees; but before the Flood, when they liv'd longer, there was no such decrease or gradual declension in their lives. For *Noah*, who was the last, liv'd longer than *Adam*; and *Methusalah* who was last but two, liv'd the longest of all: So that it was not simply their distance from the beginning of the World that made men live a shorter time, but some change which happen'd in Nature after such a period of time; namely, at the Deluge, when the declension begun. Let's set down the Table of both states.

A Table of the Ages of the
Ante-diluvian Fathers.A Table of the Ages of
the Post-diluvian Fathers,
from Shem to Joseph.

	Years.		Years.
Adam	930	Shem	600
Seth	912	Arphaxad	438
Enos	905	Salah	433
Cainan	910	Eber	464
Mahaleel	895	Peleg	239
Jared	962	Reu	239
Enoch	365	Serug	230
Methusalah	969	Nahor	148
Lamech	777	Terah	205
Noah	950	Abraham	175
		Isaac	180
		Jacob	147
		Joseph	110

From these Tables we see that Mens Lives were much longer before the Flood, and next after it, than they are now ; which also is confirm'd undeniably by *Jacob's* complaint of the shortness of his life, in comparison of his Fore-fathers, when he had liv'd one hundred and thirty years, *Gen. 47. 9. The days of the years of my pilgrimage are an hundred and thirty years ; few and evil have the days of the years of my life been, and have not attained unto the days of the years of the life of my Fathers.* There was then, 'tis certain, long-liv'd men in the World before *Jacob's* time ; when were they, before the Flood or after ? We say both, according as the Tables show it : But if you count by *Lunar* years, there never were any, either before or after, and *Jacob's* complaint was unjust and false ; for he was the oldest Man in the World himself, or at least there was none of his Fore-fathers that liv'd so long as he.

The Patrons of this opinion must needs find themselves at a loss, how or where to break off the account of *Lunar* years in Sacred History, if they once admit it. If they say, that way of counting must only be extended to the Flood, then they make the
Post-

Post-diluvian Fathers longer liv'd than the Ante-diluvian ; did the Flood bring in Longevity ? how could that be the cause of such an effect ? Besides, if they allow the Post-diluvians to have liv'd six hundred (common) years, that being clearly beyond the standard of our lives, I should never stick at two or three hundred years more for the first Ages of the World. If they extend their *Lunar* account to the Post-diluvians, too, they will still be intangled in worse absurdities ; for they must make their lives miserably short, and their age of getting Children altogether incongruous and impossible. *Nahor*, for example, when he was but two years and three months old must have begot *Terah*, *Abraham's* Father : And all the rest betwixt him and *Shem* must have had Children before they were three years old : A pretty race of Pigmies. Then their lives were proportionably short, for this *Nahor* liv'd but eleven years and six months at this rate ; and his Grandchild *Abraham*, who is said to have died *in a good old age, and full of years*, (*Gen. 25. 8.*) was not fourteen years old. What a ridiculous account this gives of Scripture-Chronology and Genealogies ? But you'll say, it may be, these *Lunar* years are not to be carried so far as *Abraham* neither ; tell us then where you'll stop, and why you stop in such a place rather than another. If you once take in *Lunar* years, what ground is there in the Text, or in the History, that you should change your way of computing, at such a time, or in such a place ? All our Ancient Chronology is founded upon the Books of *Moses*, where the terms and periods of time are express'd by years, and often by Genealogies, and the Lives of Men ; now if these years are sometimes to be interpreted *Lunar*, and sometimes *Solar*, without any distinction made in the Text, what light or certain rule have we to go by ? let these Authors name to us the parts and places where, and only where, the *Lunar* years are to be understood, and I dare undertake to show, that their method is not only arbitrary, but absurd and incoherent.

To conclude this Discourse, we cannot but repeat what we have partly observ'd before, How necessary

it is to understand Nature, if we would rightly understand those things in holy Writ that relate to the Natural World. For without this knowledge, as we are apt to think some things consistent and credible that are really impossible in Nature; so on the other hand, we are apt to look upon other things as incredible and impossible that are really founded in Nature. And seeing every one is willing so to expound Scripture, as it may be to them good sense, and consistent with their Notions in other things, they are forc'd many times to go against the easie and natural importance of the words, and to invent other interpretations more compliant with their principles, and, as they think, with the nature of things. We have, I say, a great instance of this before us in the Scripture-History of the long lives of the Ante-diluvians, where without any ground or shadow of ground in the Narration, only to comply with a mistaken Philosophy, and their ignorance of the Primitive World, many men would beat down the Scripture account of years into months, and sink the lives of those first Fathers below the rate of the worst of Ages. Whereby that great Monument, which Providence hath left us of the first World, and of its difference from the Second, would not only be defac'd, but wholly demolisht. And all this sprung only from the seeming incredibility of the thing; for they cannot show in any part of Scripture, New or Old, that these *Lunar* years are made use of, or that any computation, literal or Prophetical, proceeds upon them: Nor that there is any thing in the Text or Context of that place, that argues or intimates any such account. We have endeavour'd, upon this occasion, effectually to prevent this misconstruction of Sacred History, for the future; both by showing the incongruities that follow upon it, and also that there is no necessity from Nature of any such shift or evasion, as that is: But rather on the contrary, that we have just and necessary reasons to conclude, That as the Forms of all things would be far more permanent and lasting in that Primitive state of the Heavens and the Earth; so particularly the Lives of Men, and of other Animals.

C H A P. V.

Concerning the Waters of the Primitive Earth: What the state of the Regions of the Air was then, and how all Waters proceeded from them; how the Rivers arose, what was their course, and how they ended. Several things in Sacred Writ that confirm this Hydrography of the first Earth; especially the Origin of the Rainbow.

HAVING thus far clear'd our way to *Paradise*, and given a rational account of its general properties; before we proceed to discourse of the place of it, there is one affair of moment, concerning this Primitive Earth, that must first be stated and explain'd; and that is, *How* it was water'd; from what causes and in what manner. How could Fountains rise, or Rivers flow in an Earth of that Form and Nature? We have shut up the Sea with thick walls on every side, and taken away all communication that could be 'twixt it and the external Earth; and we have remov'd all the Hills and the Mountains where the Springs use to rise, and whence the Rivers descend to water the face of the ground: And lastly, we have left no issue for these Rivers, no Ocean to receive them, nor any other place to disburden themselves into: So that our New-found World is like to be a dry and barren Wilderness, and so far from being *Paradisical*, that it would scarce be habitable.

I confess there was nothing in this whole Theory that gave so rude a stop to my thoughts, as this part of it, concerning the Rivers of the first Earth; how they rise, how they flow'd, and how they ended. It seem'd at first, that we had wip'd away at once the Notion and whole Doctrine of Rivers; we had turn'd the Earth so smooth, that there was not an Hill or
rising

rising for the head of a Spring, nor any fall or descent for the course of a River: Besides, I had suckt in the common opinion of Philosophers, That all Rivers rise from the Sea, and return to it again; and both those passages, I see, were stopt up in that Earth. This gave me occasion to reflect upon the modern, and more solid opinion, concerning the Origin of Fountains and Rivers, That they rise chiefly from Rains and melted Snows, and not from the Sea; and as soon as I had undeceiv'd my self in that particular, I see it was necessary to consider, and examine how the Rains fell in that first Earth, to understand what the state of their Waters and Rivers would be.

And I had no sooner appli'd my self to that Inquiry, but I easily discover'd, that the Order of Nature in the Regions of the Air, would be then very different from what it is now, and the Meteorology of that World was of another sort from that of the present. The Air was always calm and equal, there could be no violent Meteors there, nor any that proceeded from extremity of Cold; as Ice, Snow or Hail; nor Thunder neither; for the Clouds could not be of a quality or consistency fit for such an effect, either by falling one upon another, or by their disruption. And as for Winds, they could not be either impetuous or irregular in that Earth; seeing there were neither Mountains nor any other inequalities to obstruct the course of the Vapours; nor any unequal Seasons, or unequal action of the Sun, nor any contrary and struggling motions of the Air: Nature was then a stranger to all those disorders. But as for watery Meteors, or those that rise from watery Vapours more immediately, as Dews and Rains, there could not but be plenty of these, in some part or other of that Earth; for the action of the Sun in raising Vapours, was very strong and very constant, and the Earth was at first moist and soft, and according as it grew more dry, the Rays of the Sun would pierce more deep into it, and reach at length the great Abyss which lay underneath, and was an unexhausted storehouse of new Vapours. But, 'tis true, the same Heat which extracted these Vapours so copiously,

ously, would also hinder them from condensing into Clouds or Rain, in the warmer parts of the Earth; and there being no Mountains at that time, nor contrary Winds, nor any such causes to stop them or compress them, we must consider which way they would tend, and what their course would be, and whether they would any where meet with causes capable to change or condense them; for upon this, 'tis manifest, would depend the Meteors of that Air, and the Waters of that Earth.

And as the heat of the Sun was chiefly towards the middle parts of the Earth, so the copious Vapours rais'd there were most rarified and agitated; and being once in the open Air, their course would be that way, where they found least resistance to their motion; and that would certainly be towards the Poles, and the colder Regions of the Earth. For East and West they would meet with as warm an Air, and Vapours as much agitated as themselves, which therefore would not yield to their progress that way; but towards the North and the South, they would find a more easie passage, the Cold of those parts attracting them, as we call it, that is, making way to their motion and dilatation without much resistance, as Mountains and Cold places usually draw Vapours from the warmer. So as the regular and constant course of the Vapours of that Earth, which were rais'd chiefly about the *Æquinoctial* and middle parts of it, would be towards the extream parts of it, or towards the Poles.

And in consequence of this, when these Vapours were arriv'd in those cooler Climats, and cooler parts of the Air, they would be condens'd into Rain; for wanting there the cause of their agitation, namely the heat of the Sun, their motion would soon begin to languish, and they would fall closer to one another in the form of Water. For the difference betwixt Vapours and Water is only gradual, and consists in this; that Vapours are in a flying motion, separate and distant each from another; but the parts of Water are in a creeping motion, close to one another, like a swarm of Bees, when they are settled; as Vapours re-

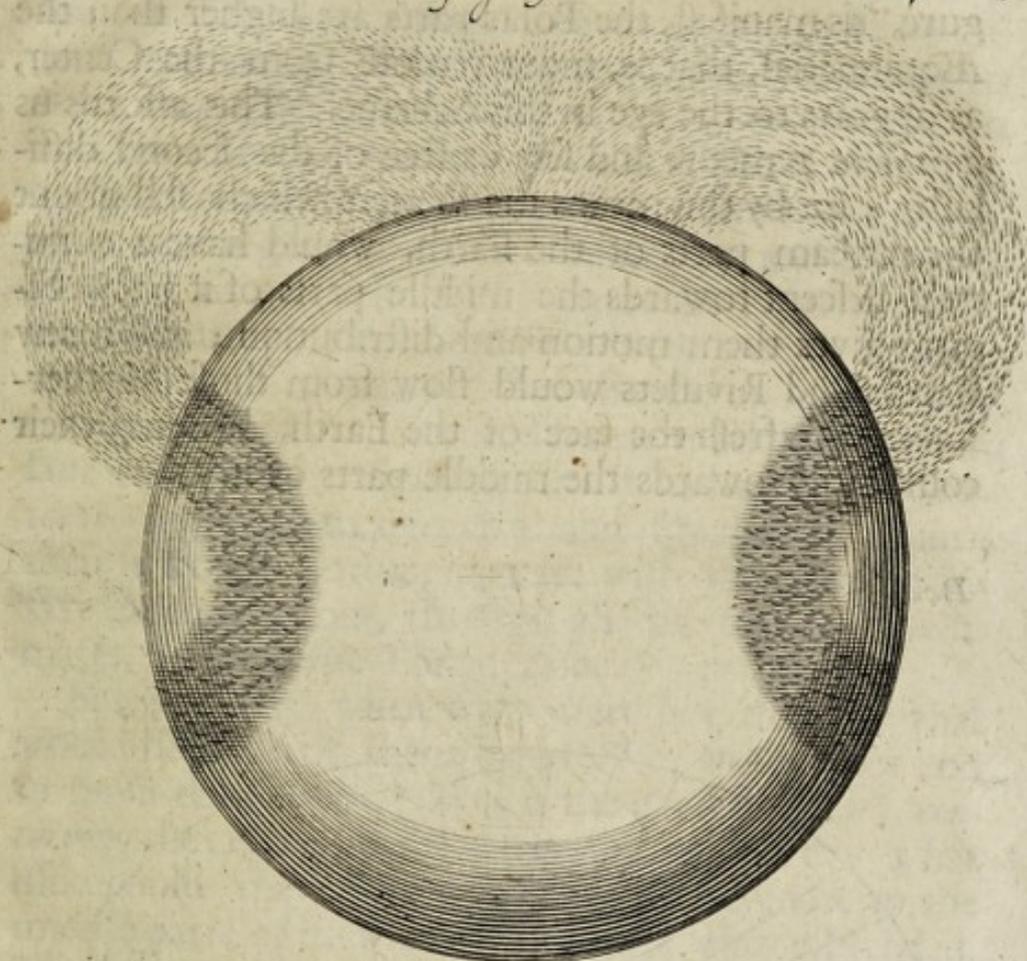
semble the same Bees in the Air before they settle together. Now there is nothing puts these Vapours upon the wing, or keeps them so, but a strong agitation by Heat; and when that fails, as it must do in all colder places and Regions, they necessarily return to Water again. Accordingly therefore we must suppose they would soon, after they reach these cold Regions, be condens'd, and fall down in a continual Rain or Dew upon those parts of the Earth. I say a *continual* Rain; for seeing the action of the Sun, which rais'd the Vapours, was (at that time) always the same, and the state of the Air always alike, nor any cross Winds, nor any thing else that could hinder the course of the Vapours towards the Poles, nor their condensation when arriv'd there; 'tis manifest there would be a constant Source or storehouse of Waters in those parts of the Air, and in those parts of the Earth.

And this, I think, was the establish'd order of Nature in that World, this was the state of the Ante-diluvian Heavens and Earth; all their Waters came from above, and that with a constant supply and circulation; for when the croud of Vapours, rais'd about the middle parts of the Earth, found vent and issue this way towards the Poles, the passage being once open'd, and the Chanel made, the Current would be still continued without intermission; and as they were dissolv'd and spent there, they would suck in more and more of those which followed, and came in fresh streams from the hotter Climates. *Aristotle*, I remember, in his *Meteors* speaking of the course of the Vapours, saith, there is a River in the Air, constantly flowing betwixt the Heavens and the Earth, made by the ascending and descending Vapours; This was more remarkably true in the Primitive Earth, where the state of Nature was more constant and regular; there was indeed an uninterrupted flood of Vapours rising in one Region of the Earth, and flowing to another, and there continually distilling in Dews and Rain, which made this Aereal River. As may be easily apprehended from this Scheme of the Earth and Air.

Thus

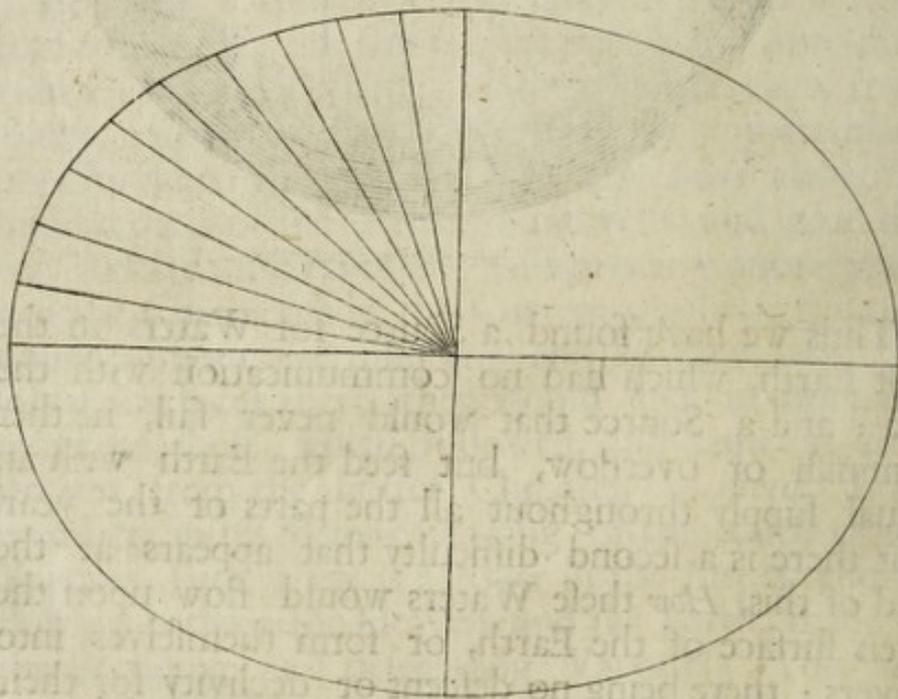
Book. 2^dfig. 1st

p. 227



Thus we have found a Source for Waters in the first Earth, which had no communication with the Sea ; and a Source that would never fail, neither diminish or overflow, but feed the Earth with an equal supply throughout all the parts of the year. But there is a second difficulty that appears at the end of this, *How* these Waters would flow upon the even surface of the Earth, or form themselves into Rivers ; there being no descent or declivity for their course. There were no hills, nor Mountains, nor high Lands in the first Earth, and if these Rains fell in the Frigid Zones, or towards the Poles, there they would stand, in Lakes and Pools, having no descent one way more than another ; and so the rest of the Earth would be no better for them. This, I confess, appear'd as great a difficulty as the former, and would be unanswerable, for ought I know, if that first

Earth had been exactly Spherical ; but we noted before, that it was Oval or Oblong ; and in such a Figure, 'tis manifest, the Polar parts are higher than the *Æquinoctial*, that is, more remote from the Center, as appears to the eye in this Scheme. This affords us a present remedy, and sets us free of the second difficulty ; for by this means the Waters which fell about the extream parts of the Earth, would have a continual descent towards the middle parts of it ; this Figure gives them motion and distribution ; and many Rivers and Rivulets would flow from those Mother-Lakes to refresh the face of the Earth, bending their course still towards the middle parts of it.

*Booke 2^d**fig. 2^d**p. 228*

'Tis true, these derivations of the Waters at first would be very irregular and diffuse, till the Channels were a little worn and hollowed ; and though that Earth was smooth and uniform, yet 'tis impossible, upon

upon an inclining surface, but that Waters should find a way of creeping downwards, as we see upon a smooth Table, or a flagg'd Pavement, if there be the least inclination, Water will flow from the higher to the lower parts of it, either directly, or winding to and fro : So the smoothness of that Earth would be no hinderance to the course of the Rivers, provided there was a general declivity in the site and libration of it, as 'tis plain there was from the Poles towards the *Æquator*. The Current indeed would be easie and gentle all along, and if it chanc'd in some places to rest or be stopt, it would spread it self into a pleasant Lake, till by fresh supplies it had rais'd its Waters so high, as to overflow and break loose again ; then it would pursue its way, with many other Rivers its companions, through all the temperate Climates, as far as the *Torrid Zone*.

But you'l say, when they were got thither, what would become of them then ? *How* would they end or finish their course ? This is the third difficulty, *concerning* the ending of the Rivers in that Earth ; what issue could they have when they were come to the middle parts of it, whither, it seems, they all tended. There was no Sea to lose themselves in, as our Rivers do ; nor any Subterraneous passages to throw themselves into ; how would they die, what would be their fate at last ? I answer, The greater Rivers, when they were come towards those parts of the Earth, would be divided into many branches, or a multitude of Rivulets ; and those would be partly exhal'd by the heat of the Sun, and partly drunk up by the dry and sandy Earth. But how and in what manner this came to pass, requires a little further Explication.

We must therefore observe in the first place, that those Rivers as they drew nearer to the *Æquinoctial* parts, would find a less declivity or descent of ground than in the beginning or former part of their course ; that is evident from the Oval Figure of the Earth, for near the middle parts of an Oval, the Semidiame- ters, as I may call them, are very little shorter one than another ; and for this reason the Rivers, when they were advanc'd towards the middle parts of the Earth,

Earth, would begin to flow more slowly, and by that weakness of their Current, suffer themselves easily to be divided and distracted into several lesser streams and Rivulets; or else, having no force to wear a Channel, would lie shallow upon the ground like a plash of Water; and in both cases their Waters would be much more expos'd to the action of the Sun, than if they had kept together in a deeper Chanel, as they were before.

Secondly, we must observe, that seeing these Waters could not reach to the middle of the Torrid Zone, for want of descent; that part of the Earth having the Sun always perpendicular over it, and being refresh'd by no Rivers, would become extreamly dry and parch'd, and be converted at length into a kind of sandy Desert; so as all the Waters that were carried thus far, and were not exhal'd and consum'd by the Sun, would be suckt up, as in a Sponge, by these Sands of the Torrid Zone. This was the common Grave wherein the Rivers of the first Earth were buried; and this is nothing but what happens still in several parts of the present Earth, especially in *Africk*, where many Rivers never flow into the Sea, but expire after the same manner as these did, drunk up by the Sun and the Sands. And one arm of *Euphrates* dies, as I remember, amongst the Sands of *Arabia*, after the manner of the Rivers of the first Earth.

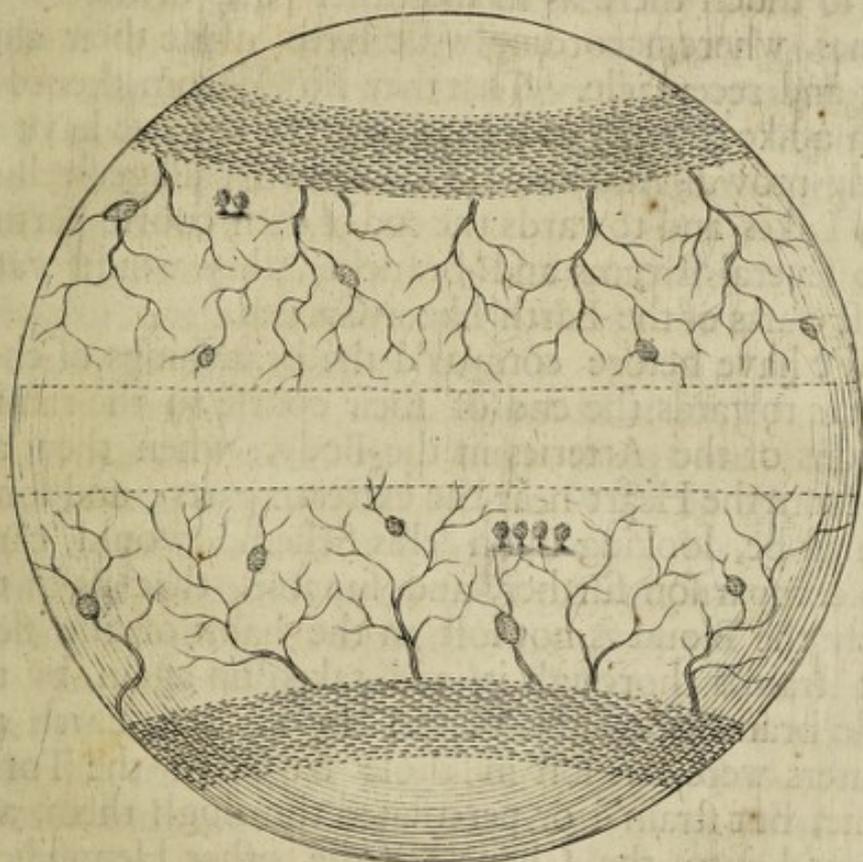
Thus we have conquer'd the greatest difficulty, in my apprehension, in this whole Theory, To find out the state of the Rivers in the Primitive and Ante-diluvian Earth, their Origin, course, and period. We have been forc'd to win our ground by Inches, and have divided the difficulty into parts, that we might encounter them single with more ease. The Rivers of that Earth, you see, were in most respects different, and in some contrary to ours; and if you could turn our Rivers backwards, to run from the Sea towards their Fountain-heads, they would more resemble the course of those Ante-diluvian Rivers; for they were greatest at their first setting out, and the Current afterwards, when it was more weak, and the Chanel more shallow, was divided into many branches, and
little

little Rivers ; like the Arteries in our Body, that carry the Bloud, they are greatest at first, and the further they go from the Heart, their Source, the less they grow and divide into a multitude of little branches, which lose themselves insensibly in the habit of the flesh, as these little Floods did in the Sands of the Earth.

Book. 2^d

fig. 3.

p. 231



Because it pleaseth more, and makes a greater impression upon us, to see things represented to the Eye, than to read their description in words, we have ventur'd to give a model of the Primæval Earth, with its Zones or greater Climates, and the general order and tracts of its Rivers : Not that we believe things to have been in the very same form as here exhibited, but this may serve as a general *Idea* of that Earth, which may be wrought into more exactness, according as we are able to enlarge or correct our thoughts here-

hereafter. And as the Zones here represented resemble the *Belts* or *Fasciæ* of *Jupiter*, so we suppose them to proceed from like causes, that Planet being, according to our judgment, in an Ante-diluvian state, as the Earth we here represent. As for the Polar parts in that our Earth, I can say very little of them, they would make a Scene by themselves, and a very particular one; The Sun would be perpetually in their Horizon, which makes me think the Rains would not fall so much there as in the other parts of the Frigid Zones, where accordingly we have made their chief seat and receptacle. That they flow'd from thence in such a like manner as is here represented, we have already prov'd; And sometimes in their passage swelling into Lakes, and towards the end of their course parting into several streams and branches, they would water those parts of the Earth like a Garden.

We have before compar'd the branchings of these Rivers towards the end of their course to the ramifications of the Arteries in the Body, when they are far from the Heart near the extream parts; and some, it may be, looking upon this Scheme, would carry the comparison further, and suppose, that as in the Body the Bloud is not lost in the habit of the flesh, but strain'd thorough it, and taken up again by the little branches of the Veins; so in that Earth the Waters were not lost in those Sands of the Torrid Zone, but strain'd or percolated thorough them, and receiv'd into the Channels of the other Hemisphere. This indeed would in some measure answer the Notion which several of the Ancient Fathers make use of, that the Rivers of *Paradise* were trajected out of the other Hemisphere into this, by Subterraneous passages. But, I confess, I could never see it possible, how such a trajection could be made, nor how they could have any motion, being arriv'd in another Hemisphere; and therefore I am apt to believe, that doctrine amongst the Ancients arose from an intanglement in their principles; They suppos'd generally, that *Paradise* was in the other Hemisphere, as we shall have occasion to show hereafter; and yet they believ'd that *Tigris*, *Euphrates*, *Nile*, and *Ganges* were the Rivers

Rivers of *Paradise*, or came out of it ; and these two opinions they could not reconcile, or make out, but by supposing that these four Rivers had their Fountain-heads in the other Hemisphere, and by some wonderful trajection broke out again here. This was the expedient they found out to make their opinions consistent one with another ; but this is a method to me altogether unconceivable, and for my part I do not love to be led out of my depth, leaning only upon Antiquity. How there could be any such communication, either above ground, or under ground, betwixt the two Hemispheres, does not appear, and therefore we must still suppose the Torrid Zone to have been the Barrier betwixt them, which nothing could pass either way.

We have now examin'd and determin'd the state of the Air, and of the Waters in the Primitive Earth, by the light and consequences of reason ; and we must not wonder to find them different from the present order of Nature ; what things are said of them, or relating to them in holy Writ, do testify or imply as much ; and it will be worth our time to make some reflection upon those passages for our further confirmation. *Moses* tells us, that the *Rainbow* was set in the Clouds after the Deluge ; those Heavens then that never had a Rainbow before, were certainly of a constitution very different from ours. And *S. Peter* doth formally and expressly tell us, that the *Old Heavens*, or the Ante-diluvian Heavens had a different constitution from ours, and particularly, that they were compos'd or constituted of Water ; which Philosophy of the Apostle's may be easily understood, if we attend to two things, first, that the Heavens he speaks of, were not the Starry Heavens, but the Aerial Heavens, or the Regions of our Air, where the Meteors are ; Secondly, that there were no Meteors in those Regions, or in those Heavens, till the Deluge, but watery Meteors, and therefore, he says, they consisted of Water. And this shows the foundation upon which that description is made, how coherently the Apostle argues, and how justly he distinguisheth the first Heavens from the present Heavens, or rather

opposeth them one to another ; because as those were constituted of Water and watery Meteors only, so the present Heavens, he saith, have treasures of Fire, fiery Exhalations and Meteors, and a disposition to become the Executioners of the Divine wrath and decrees in the final Conflagration of the Earth.

This minds me also of the *Celestial Waters*, or the Waters above the Firmament, which Scripture sometimes mentions, and which, methinks, cannot be explain'd so fitly and emphatically upon any supposition as this of ours. Those who place them above the Starry Heavens, seem neither to understand Astronomy nor Philosophy ; and, on the other hand, if nothing be understood by them, but the Clouds and the middle Region of the Air, as it is at present, methinks that was no such eminent and remarkable thing, as to deserve a particular commemoration by *Moses* in his six days work ; but if we understand them, not as they are now, but as they were then, the only Source of Waters, or the only Source of Waters upon that Earth, (for they had not one drop of Water but what was Celestial,) this gives it a new force and Emphasis : Besides, the whole middle Region having no other sort of Meteors but them, that made it still the greater singularity, and more worthy commemoration. As for the Rivers of *Paradise*, there is nothing said concerning their Source, or their issue, that is either contrary to this, or that is not agreeable to the general account we have given of the Waters and Rivers of the first Earth. They are not said to rise from any Mountain, but from a great River, or a kind of Lake in *Eden*, according to the custom of the Rivers of that Earth : And as for their end and issue, *Moses* doth not say, that they disburthen'd themselves into this or that Sea, as they usually do in the description of great Rivers, but rather implies, that they spent themselves in compassing and watering certain Countries, which falls in again very easily with our *Hypothesis*.

But to return to the Rainbow, which we mention'd before, and is not to be past over so slightly. This we say, is a Creature of the modern World, and was not seen nor known before the Flood. *Moses*
(*Gen.*

(*Gen. 9. 12, 13.*) plainly intimates as much, or rather directly affirms it; for he says, The Bow was set in the Clouds after the Deluge, as a confirmation of the promise or Covenant which God made with *Noah*, that he would drown the World no more with Water. And how could it be a sign of this, or given as a pledge and confirmation of such a promise, if it was in the Clouds before, and with no relation to this promise? and stood there, it may be, when the World was going to be drown'd. This would have been but cold comfort to *Noah*, to have had such a pledge of the Divine veracity. You'll say, it may be, that it was not a sign or pledge that signified naturally, but voluntarily only, and by Divine institution; I am of opinion, I confess, that it signifi'd naturally, and by connexion with the effect, importing thus much, that the state of Nature was chang'd from what it was before, and so chang'd, that the Earth was no more in a condition to perish by Water. But however, let us grant that it signified only by institution; to make it significant in this sence, it must be something new, otherwise it could not signifie any thing new, or be the confirmation of a new promise. If God Almighty had said to *Noah*, I make a promise to you, and to all living Creatures, that the World shall never be destroy'd by Water again, and for confirmation of this, Behold, *I set the Sun in the Firmament*: Would this have been any strengthening of *Noah's* faith, or any satisfaction to his mind? Why, says *Noah*, the Sun was in the Firmament when the Deluge came, and was a spectator of that sad Tragedy; why may it not be so again? what sign or assurance is this against a second Deluge? When God gives a sign in the Heavens, or on the Earth, of any Prophecy or promise to be fulfill'd, it must be by something new, or by some change wrought in Nature; whereby God doth testify to us, that he is able and willing to stand to his promise. God says to the Prophet, *Ask a sign of the Lord; Ask it either in the depth, or in the height* Isa. 7. *above*: And when the Prophet would ask no sign, God gives one unaskt, *Behold, a Virgin shall conceive and bear a Son*. So when *Zachary* was promis'd a Son, he

Luke 1. asketh for a sign, *Whereby shall I know this? for I am old, and my Wife well stricken in years;* and the sign given him was, that he became dumb, and continued so till the promise was fulfill'd. So in other instances of signs given in external Nature, as the sign given to King *Hezekiah* for his recovery, and to *Gideon* for his victory; to confirm the promise made to *Hezekiah*, the shadow went back ten degrees in *Abaz Dial*: And for *Gideon*, *his Fleece was wet, and all the ground about it dry*; and then to change the trial, *it was dry, and all the ground about it wet.* These were all signs very proper, significant, and satisfactory, having something surprising and extraordinary, yet these were signs by institution only; and to be such they must have something new and strange, as a mark of the hand of God, otherwise they can have no force or significancy. If every thing be as it was before, and the face of Nature, in all its parts, the very same, it cannot signify any thing new, nor any new intention in the Author of Nature; and consequently, cannot be a sign or pledge, a token or assurance of the accomplishment of any new Covenant or promise made by him.

Judg. 7.

This, methinks, is plain to common Sense, and to every mans Reason; but because it is a thing of importance, to prove that there was no Rainbow before the Flood, and will confirm a considerable part of this Theory, by discovering what the state of the Air was in the Old World, give me leave to argue it a little further, and to remove some prejudices that may keep others from assenting to clear Reason. I know 'tis usually said, that signs, like words, signify any thing by institution, or may be appli'd to any thing by the will of the Imposer; as hanging out a white Flag is calling for mercy, a Bush at the door, a sign of Wine to be sold, and such like. But these are instances nothing to our purpose, these are signs of something present, and that signify only by use and repeated experience; we are speaking of signs of another nature, given in confirmation of a promise, or threatening, or prophecy, and given with design to cure our unbelief, or to excite and beget in us Faith in God, in the Prophet, or in the Promiser; such signs,

signs, I say, when they are wrought in external Nature, must be some new Appearance, and must thereby induce us to believe the effect, or more to believe it, than if there had been no sign, but only the affirmation of the Promiser; for otherwise the pretended sign is a meer Cypher and superfluity. But a thing that obtain'd before, and in the same manner (even when that came to pass which we are now promis'd, shall not come to pass again) signifies no more, than if there had been no sign at all, it can neither signify another course in Nature, nor another purpose in God; and therefore is perfectly insignificant. Some instance in the Sacraments, Jewish or Christian, and make them signs in such a sence as the Rainbow is: But those are rather Symbolical representations or commemorations; and some of them, marks of distinction and consecration of our selves to God in such a Religion; They were also new, and very particular when first instituted; but all such instances fall short, and do not reach the case before us; we are speaking of signs confirmatory of a promise, when there is something affirm'd *de futuro*, and to give us a further argument of the certainty of it, and of the power and veracity of the Promiser, a sign is given: This we say, must indispensably be something new, otherwise it cannot have the nature, vertue, and influence of a sign.

We have seen how incongruous it would be to admit that the Rainbow appear'd before the Deluge, and how dead a sign that would make it, how forc'd, fruitless and ineffectual, as to the promise it was to confirm; Let us now on the other hand suppose, that it first appear'd to the Inhabitants of the Earth after the Deluge, How proper, and how apposite a sign would this be for Providence to pitch upon, to confirm the promise made to *Noah* and his posterity, That the World should be no more destroy'd by Water. It had a secret connexion with the effect it self, and was so far a natural sign; but however appearing first after the Deluge, and in a watery Cloud, there was, methinks, a great easiness, and propriety of application for such a purpose. And if we suppose,
that

that while God Almighty was declaring his promise to *Noah*, and the sign of it, there appear'd at the same time in the Clouds a fair Rainbow, that marvellous and beautiful Meteor, which *Noah* had never seen before; it could not but make a most lively impression upon him, quickning his Faith, and giving him comfort and assurance, that God would be faithful to his promise.

2 *Epist.*
c. 3. 5.

Nor ought we to wonder, that Interpreters have commonly gone the other way, and suppos'd that the Rainbow was before the Flood; This, I say, was no wonder in them, for they had no Theory that could answer to any other interpretation: And in the interpretation of the Texts of Scripture that concern natural things, they commonly bring them down to their own Philosophy and Notions: As we have a great instance in that discourse of *S. Peter's*, concerning the Deluge, and the Ante-diluvian Heavens, and Earth, which for want of a Theory, they have been scarce able to make sence of; for they have forc'dly appli'd to the present Earth, or the present form of the Earth, what plainly respected another. A like instance we have in the *Mosaical* Abyffe, or *Tehom-Rabba*, by whose disruption the Deluge was made; this they knew not well what to make of, and so have generally interpreted it of the Sea, or of our Subterraneous Waters; without any propriety, either as to the word, or as to the sence. A third instance is this of the Rainbow, where their Philosophy hath misguided them again; for to give them their due, they do not alledge nor pretend to alledge any thing from the Text, that should make them interpret thus, or think the Rainbow was before the Flood; but they pretend to go by certain reasons, as that the Clouds were before the Flood, therefore the Rainbow; and if the Rainbow was not before the Flood, then all things were not made within the six days Creation: To whom these reasons are convictive, they must be led into the same belief with them, but not by any thing in the Text, nor in the true Theory, at least if Ours be so; for by that you see that the Vapours were never condens'd into drops, nor into Rain in
the

the temperate and inhabited Climates of that Earth, and consequently there could never be the production or appearance of this Bow in the Clouds. Thus much concerning the Rainbow.

To recollect our selves, and conclude this Chapter, and the whole disquisition concerning the Waters of the Primitive Earth; we seem to have so well satisfied the difficulties propos'd in the beginning of the Chapter; that they have rather given us an advantage; a better discovery, and such a new prospect of that Earth, as makes it not only habitable, but more fit to be *Paradisical*. The pleasantness of the site of *Paradise* is made to consist chiefly in two things, its Waters, and its Trees, (*Gen. 2. and Chap. 13. 10. Ezek. 31. 8.*) and considering the richness of that first soil in the Primitive Earth, it could not but abound in Trees, as it did in Rivers and Rivulets; and be wooded like a Grove, as it was water'd like a Garden, in the temperate Climates of it; so as it would not be, methinks, so difficult to find one *Paradise* there, as not to find more than one.

C H A P. VI.

A Recollection and Review of what hath been said concerning the Primitive Earth; with a more full Survey of the State of the first World, Natural and Civil, and the comparison of it with the present World.

WE have now, in a good measure, finish'd our description of the first and Ante-diluvian Earth; And as Travellers, when they see strange Countries, make it part of their pleasure and improvement, to compare them with their own, to observe the differences, and wherein they excel, or come short of one another: So it will not be unpleasant, nor unuseful, it may be, having made a discovery,
not

not of a new Country, but of a new World, and travell'd it over in our thoughts and fancy, now to fit down and compare it with our own: And 'twill be no hard task, from the general differences which we have taken notice of already, to observe what lesser would arise, and what the whole face of Nature would be.

'Tis also one fruit of travelling, that by seeing variety of places and people, of humours, fashions, and forms of living, it frees us, by degrees, from that pedantry and littleness of Spirit, whereby we are apt to censure every thing for absurd and ridiculous, that is not according to our own way, and the mode of our own Country; But if instead of crossing the Seas, we could waft our selves over to our neighbouring Planets, we should meet with such varieties there, both in Nature and Mankind, as would very much enlarge our thoughts and Souls, and help to cure those diseases of little minds, that make them troublesome to others, as well as uneasy to themselves.

But seeing our heavy Bodies are not made for such Voyages, the best and greatest thing we can do in this kind, is to make a Survey and reflection upon the Ante-diluvian Earth, which in some sense was another World from this, and it may be, as different as some two Planets are from one another. We have declar'd already the general grounds upon which we must proceed, and must now trace the consequences of them, and drive them down into particulars, which will show us in most things, wherein that Earth, or that World differ'd from the present. The Form of that Earth, and its situation to the Sun, were two of its most fundamental differences from ours; As to the form of it, 'twas all one smooth Continent, one continued surface of earth, without any Sea, any Mountains, or Rocks; any Holes, Dens or Caverns: And the situation of it to the Sun was such as made a perpetual *Æquinox*. These two joyn'd together, lay the foundation of a new Astronomy, Meteorology, Hydrography and Geography; such as were proper and peculiar to that World. The Earth by this means having its Axis parallel to the Axis of the Ecliptick,

tick, the Heavens would appear in another posture: And their diurnal motion, which is imputed to the *Primum Mobile*, and suppos'd to be upon the Poles of the *Æquator*, would then be upon the same Poles with the second and Periodical motions of the Orbs and Planets, namely, upon the Poles of the *Ecliptick*; by which means the *Phænomena* of the Heavens would be more simple and regular, and much of that intangledness and perplexity, which we find now in Astronomy, would be taken away. Whether the Sun and the Moon would suffer any Eclipses then, cannot well be determin'd, unless one knew what the course of the Moon was at that time, or whether she was then come into our neighbourhood: Her presence seems to have been less needful when there were no long Winter-nights, nor the great Pool of the Sea to move or govern.

As for the Regions of the Air and the Meteors, we have in the preceding Chapter set down what the state of them would be, and in how much a better order, and more peaceable that Kingdom was, till the Earth was broken and displac'd, and the course of Nature chang'd: Nothing violent, nothing frightful, nothing troublesome or incommodious to Mankind came from above, but the countenance of the Heavens was always smooth and serene. I have often thought it a very desirable piece of power, if a man could but command a fair day, when he had occasion for it, for himself, or for his friends; 'tis more than the greatest Prince or Potentate upon Earth can do; yet they never wanted one in that World, nor ever see a foul one. Besides, they had constant breezes from the motion of the Earth, and the course of the Vapours, which cool'd the open Plains, and made the weather temperate, as well as fair. But we have spoken enough in other places upon this subject of the Air and the Heavens, Let us now descend to the Earth.

The Earth was divided into two Hemispheres, separated by the Torrid Zone, which at that time was uninhabitable, and utterly unpassable; so as the two Hemispheres made two distinct Worlds, which had

no manner of commerce or communication one with another. The Southern Hemisphere the Ancients call'd *Antichthon, the Opposite Earth*, or the *Other World*. And this name and notion remain'd long after the reason of it had ceas'd. Just as the Torrid Zone was generally accounted uninhabitable by the Ancients, even in their time, because it really had been so once, and the Tradition remain'd uncorrected, when the causes were taken away; namely, when the Earth had chang'd its posture to the Sun after the Déluge.

This may be lookt upon as the first division of that Primæval Earth, into two Hemispheres, naturally sever'd and disunited: But it was also divided into five Zones, two Frigid, two Temperate, and the Torrid betwixt them. And this distinction of the Globe into five Zones, I think, did properly belong to that Original Earth, and Primitive Geography, and improperly, and by translation only to the present. For all the Zones of our Earth are habitable, and their distinctions are in a manner but imaginary, not fixt by Nature; whereas in that Earth where the Rivers fail'd, and the Regions became uninhabitable, by reason of driness and heat, there begun the Torrid Zone; and where the Regions became uninhabitable, by reason of cold and moisture, there begun the Frigid Zone; and these being determin'd, they became bounds on either side to the Temperate. But all this was alter'd when the posture of the Earth was chang'd; and chang'd for that very purpose, as some of the Ancients have said, *That the uninhabitable parts of the Earth might become habitable*. Yet though there was so much of the first Earth uninhabitable, there remain'd as much to be inhabited as we have now; for the Sea, since the breaking up of the Abyſſe, hath taken away half of the Earth from us, a great part whereof was to them good Land. Besides, we are not to suppose, that the Torrid Zone was of that extent we make it now, twenty three degrees and more on either side of the Æquator; these bounds are set only by the Tropicks, and the Tropicks by the obliquity of the course of the Sun, or of the posture of the Earth, which was not in that World. Where the Rivers stopt, there
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the Torrid Zone would begin, but the Sun was directly perpendicular to no part of it, but the middle.

How the Rivers flow'd in the first Earth we have before explain'd sufficiently, and what parts the Rivers did not reach were turn'd into Sands and Deserts by the heat of the Sun; for I cannot easily imagine, that the Sandy Deserts of the Earth were made so at first, immediately and from the beginning of the World; from what causes should that be, and to what purpose? But in those Tracts of the Earth that were not refresh'd with Rivers and moisture, which cement the parts, the ground would moulder and crumble into little pieces, and then those pieces by the heat of the Sun were bak'd into Stone. And this would come to pass chiefly in the hot and scorch'd Regions of the Earth, though it might happen sometimes where there was not that extremity of heat, if by any chance a place wanted Rivers and Water to keep the Earth in due temper; but those Sands would not be so early or ancient as the other. As for greater loose Stones, and rough Pebbles, there were none in that Earth; *Deucalion* and *Pyrrha*, when the Deluge was over, found new-made Stones to cast behind their backs; the bones of their mother Earth, which then were broken in pieces, in that great ruine.

As for Plants and Trees, we cannot imagine but that they must needs abound in the Primitive Earth, seeing it was so well water'd, and had a soil so fruitful; A new unlabour'd soil, replenish'd with the Seeds of all Vegetables; and a warm Sun that would call upon Nature early for her First-fruits, to be offerr'd up at the beginning of her course. Nature had a wild luxuriance at first, which humane industry by degrees gave form and order to; The Waters flow'd with a constant and gentle Current, and were easily led which way the Inhabitants had a mind, for their use, or for their pleasure; and shady Trees, which grow best in moist and warm Countries, grac'd the Banks of their Rivers or Canals. But that which was the beauty and crown of all, was their perpetual Spring, the Fields always green, the Flowers always fresh, and the Trees always cover'd with Leaves and Fruit: But we have

occasionally spoken of these things in several places, and may do again hereafter, and therefore need not enlarge upon them here.

As for Subterraneous things, Metals and Minerals, I believe they had none in the first Earth; and the happier they; no Gold, nor Silver, nor courser Metals. The use of these is either imaginary, or in such works, as, by the constitution of their World, they had little occasion for. And Minerals are either for Medicine, which they had no need of further than Herbs; or for Materials to certain Arts, which were not then in use, or were suppli'd by other ways. These Subterraneous things, Metals and metallick Minerals, are Factitious, not Original bodies, coeval with the Earth; but are made in process of time, after long preparations and concoctions, by the action of the Sun within the bowels of the Earth. And if the *Stamina* or principles of them rise from the lower Regions that lie under the Abyſſe, as I am apt to think they do, it doth not seem probable, that they could be drawn through such a mass of Waters, or that the heat of the Sun could on a sudden penetrate so deep, and be able to loosen them, and raise them into the exterior Earth. And as the first Age of the World was call'd *Golden*, though it knew not what Gold was; so the following Ages had their names from several Metals, which lay then asleep in the dark and deep womb of Nature, and see not the Sun till many Years and Ages afterwards.

Having run through the several Regions of Nature, from top to bottom, from the Heavens to the lower parts of the Earth, and made some observations upon their order in the Ante-diluvian World; Let us now look upon Man and other living Creatures, that make the Superiour and Animate part of Nature. We have observ'd, and sufficiently spoken to that difference betwixt the men of the old World, and those of the present in point of Longævity, and given the reasons of it; but we must not imagine, that this long life was peculiar to Man, all other Animals had their share of it, and were in their proportion longer-liv'd than they are now. Nay, not only Animals, but also
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Vegetables, and the forms of all living things were far more permanent; The Trees of the Field and of the Forest, in all probability, out-last'd the lives of Men; and I do not know but the first Groves of Pines and Cedars that grew out of the Earth, or that were planted in the Garden of God, might be standing when the Deluge came, and see, from first to last, the entire course and period of a World. Ezek. 31.8.

We might add here, with S. *Austin*, another observation, both concerning Men and other living Creatures in the first World, that They were greater, as well as longer-liv'd, than they are at present. This seems to be a very reasonable conjecture, for the state of every thing that hath life, is divided into the time of its growth, its consistency, and its decay; and when the whole duration is longer, every one of these parts, though not always in like proportions, will be longer. We must suppose then, that the growth both in Men and other Animals last'd longer in that World than it doth now, and consequently carried their Bodies both to a greater height and bulk. And in like manner, their Trees would be both taller, and every way bigger than ours; neither were they in any danger there to be blown down by Winds and Storms, or struck with Thunder, though they had been as high as the *Aegyptian* Pyramids; and whatsoever their height was, if they had Roots and Trunks proportionable, and were streight and well pois'd, they would stand firm, and with a greater majesty. *The Fowls of Heaven making their Nests in their Boughs, and under their shadow the Beasts of the Field bringing forth their Young.* When things are fairly possible in their causes, and possible in several degrees, higher or lower, 'tis weakness of Spirit in us, to think there is nothing in Nature, but in that one way, or in that one degree that we are us'd to. That Allegorical description of the glory of *Affyria* in *Ezekiel* (*Chap. 31.*) by allusion to Trees, and particularly to the Trees of *Paradise*, was chiefly for the greatness and stateliness of them; and there is all fairness of reason to believe, that in that first Earth, both the Birds of the Air, and the Beasts of the Field, and the Trees, and their

their Fruit, were all in their several kinds more large and goodly than Nature produces any now.

So much in short concerning the Natural World; Inanimate or Animate; We should now take a prospect of the Moral World of that time, or of the Civil and Artificial World; what the order and Oeconomy of these was, what the manner of living, and how the Scenes of humane life were different from ours at present. The Ancients, especially the Poets, in their description of the Golden Age, exhibit to us an Order of things, and a Form of life very remote from any thing we see in our days; but they are not to be trusted in all particulars, many times they exaggerate matters on purpose, that they may seem more strange, or more great, and by that means move and please us more. A *Moral* or *Philosophick History* of the World well writ, would certainly be a very useful work, to observe and relate how the Scenes of Humane life have chang'd in several Ages, the Modes and Forms of living, in what simplicity Men begun at first, and by what degrees they came out of that way, by luxury, ambition, improvement, or changes in Nature; then what new forms and modifications were superadded by the invention of Arts, what by Religion, what by Superstition. This would be a view of things more instructive, and more satisfactory, than to know what Kings Reign'd in such an Age, and what Battles were fought; which common History teacheth, and teacheth little more. Such affairs are but the little under-plots in the Tragicomedy of the World; the main design is of another nature, and of far greater extent and consequence. But to return to the subject;

As the Animate World depends upon the Inanimate, so the Civil World depends upon them both, and takes its measures from them: Nature is the foundation still, and the affairs of Mankind are a superstructure that will be always proportion'd to it. Therefore we must look back upon the model or picture of their natural World, which we have drawn before, to make our conjectures or judgment of the Civil and Artificial that were to accompany it. We observ'd

observ'd from their perpetual Æquinox, and the smoothness of the Earth, that the Air would be always calm, and the Heavens fair, no cold or violent Winds, Rains, or Storms, no extremity of weather in any kind, and therefore they would need little protection from the injuries of the Air in that state; whereas now one great part of the affairs of life, is to preserve our selves from those inconveniences, by building and cloathing. How many Hands, and how many Trades are employ'd about these two things, which then were in a manner needless, or at least in such plainness and simplicity, that every man might be his own workman. Tents and Bowers would keep them from all incommodities of the Air and weather, better than Stone-walls, and strong Roofs defend us now; and men are apt to take the easiest ways of living, till necessity or vice put them upon others that are more laborious, and more artificial. We also observ'd and prov'd, that they had no Sea in the Primitive and Ante-diluvian World, which makes a vast difference 'twixt us and them; This takes up half of our Globe, and a good part of Mankind is busied with Sea-affairs and Navigation. They had little need of Merchandizing then, Nature suppli'd them at home with all necessaries, which were few, and they were not so greedy of superfluities as we are. We may add to these what concern'd their Food and Diet; Antiquity doth generally suppose that men were not Carnivorous in those Ages of the World, or did not feed upon Flesh, but only upon Fruit and Herbs. And this seems to be plainly confirm'd by Scripture; for after the Deluge God Almighty gives *Noah* and his posterity a Licence to eat Flesh, (*Gen. 9. 2, 3.*) *Every moving thing that liveth shall be meat for you.* Whereas before in the new-made Earth God had prescrib'd them Herbs and Fruit for their Diet, *Gen. 1. 29.* *Behold, I have given you every Herb bearing Seed, which is upon the face of all the Earth; and every Tree, in the which is the Fruit of a Tree yielding Seed, to you it shall be for meat.* And of this Natural Diet they would be provided to their hands, without further preparation, as the Birds and the Beasts are.

Upon these general grounds we may infer and conclude, that the Civil World then, as well as the Natural, had a very different face and aspect from what it hath now; for of these Heads, Food and Cloathing, Building and Traffick, with that train of Arts, Trades and Manufactures that attend them, the Civil order of things is in a great measure constituted and compounded: These make the business of life, the several occupations of Men, the noise and hurry of the World; These fill our Cities, and our Fairs, and our Havens and Ports; Yet all these fine things are but the effects of indigency and necessitousness, and were for the most part needless and unknown in that first state of Nature. The Ancients have told us the same things in effect, but telling us them without their grounds, which they themselves did not know, they lookt like Poetical stories, and pleasant fictions, and with most men past for no better. We have shewn them in another light, with their Reasons and Causes, deduc'd from the state of the natural World, which is the Basis upon which they stand; and this doth not only give them a just and full credibility, but also lays a foundation for after-thoughts, and further deductions, when they meet with minds dispos'd to pursue Speculations of this Nature.

As for Laws, Government, natural Religion, Military and Judicial affairs, with all their Equipage, which make an higher order of things in the Civil and Moral World, to calculate these upon the grounds given, would be more difficult, and more uncertain; neither do they at all belong to the present Theory. But from what we have already observ'd, we may be able to make a better judgment of those Traditional accounts which the Ancients have left us concerning these things, in the early Ages of the World, and the Primitive state of Nature. No doubt in these, as in all other particulars, there was a great easiness and simplicity in comparison of what is now, we are in a more pompous forc'd and artificial method, which partly the change of Nature, and partly the Vices and Vanities of men have introduc'd and establisht. But these things, with many more,
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ought to be the subject of a *Philosophick History* of the World, which we mention'd before.

This is a short and general Scheme of the Primæval World, compar'd with the Modern; yet these things did not equally run through all the Parts and Ages of it, there was a declension and degeneracy, both Natural and Moral, by degrees, and especially towards the latter end; but the principal form of Nature remaining till the Deluge and the dissolution of that Heavens and Earth, till then also this Civil frame of things would stand in a great measure. And though such a state of Nature, and of Mankind, when 'tis propos'd crudely, and without its grounds, appear fabulous or imaginary, yet 'tis really in it self a state, not only possible, but more easie and natural, than what the World is in at present. And if one of the old Ante-diluvian Patriarchs should rise from the dead, he would be more surpris'd to see our World in that posture it is, than we can be by the story and description of his. As an *Indian* hath more reason to wonder at the *European* modes, than we have to wonder at their plain manner of living. 'Tis we that have left the tract of Nature, that are wrought and screw'd up into artifices, that have disguis'd our selves; and 'tis in our World that the Scenes are chang'd, and become more strange and Fantastical.

I will conclude this Discourse with an easie remark, and without any particular Application of it. 'Tis a strange power that custom hath upon weak and little Spirits; whose Thoughts reach no further than their Senses; and what they have seen and been us'd to, they make the standard and measure of Nature, of Reason, and of all *Decorum*. Neither are there any sort of men more positive and tenacious of their petty opinions, than they are; nor more censorious, even to bitterness and malice. And 'tis generally so, that those that have the least evidence for the truth of their beloved opinions, are most peevish and impatient in the defence of them. This sort of men are the last that will be made wise men, if ever they be; for they have the worst of diseases that accompany ignorance, and do not so much as know themselves to be sick.

C H A P. VII.

The place of Paradise cannot be determin'd from the Theory only, nor from Scripture only; what the sense of Antiquity was concerning it, both as to the Jews and Heathens, and especially as to the Christian Fathers; That they generally plac'd it out of this Continent, in the Southern Hemisphere.

WE have now prepar'd our work for the last finishing strokes; describ'd the first Earth, and compar'd it with the Present; and not only the two Earths, but in a good measure the whole State and Oeconomy of those two Worlds. It remains only to determine the place of *Paradise* in that Primæval Earth; I say, in that Primæval Earth, for we have driven the point so far already, that the seat of it could not be in the present Earth, whose Form, Site, and Air are so dispos'd, as could not consist with the first and most indispensable properties of *Paradise*: And accordingly, we see with what ill success our modern Authors have rang'd over the Earth, to find a fit spot of ground to plant *Paradise* in; some would set it on the top of an high Mountain, that it might have good Air and fair weather, as being above the Clouds, and the middle Region; but then they were at a loss for Water, which made a great part of the pleasure and beauty of that place; Others therefore would seat it in a Plain, or in a River-Island, that they might have Water enough, but then it would be subject to the injuries of the Air, and foul weather at the seasons of the Year, from which, both Reason and all Authority have exempted *Paradise*. 'Tis like seeking a perfect beauty in a mortal Body, there are so many things requir'd to it, as to Complexion, Features,

tures, Proportions and Air, that they never meet altogether in one person ; neither can all the properties of a Terrestrial *Paradise* ever meet together in one place, though never so well chosen, in this present Earth.

But in the Primæval Earth, which we have describ'd, 'tis easie to find a Seat that had all those beauties and conveniences ; we have every where, through the temperate Climates, a clear and constant Air, a fruitful Soil, pleasant Waters, and all the general characters of *Paradise*, so that the trouble will be rather in that competition, what part or Region to pitch upon in particular. But to come as near it as we can, we must remember in the first place, how that Earth was divided into two Hemispheres, distant and separated from one another, not by an imaginary line, but by a real boundary that could not be pass ; so as the first inquiry will be, in whether of these Hemispheres was the Seat of *Paradise*. To answer this only according to our Theory, I confess, I see no natural reason or occasion to place it in one Hemisphere more than in another, I see no ground of difference or pre-eminence, that one had above the other ; and I am apt to think, that depended rather upon the will of God, and the Series of Providence that was to follow in this Earth, than upon any natural incapacity in one of these two Regions more than in the other, for planting in it the Garden of God. Neither doth Scripture determine, with any certainty, either Hemisphere for the place of it ; for when 'tis said to be in *Eden*, or to be the Garden of *Eden*, 'tis no more than the Garden of *pleasure* or *delight*, as the word signifies : And even the *Septuagint*, who render this word *Eden*, as a proper name twice, (*Gen. 2. ver. 8, & 10.*) do in the same story render it twice as a common name, signifying *τρυφή*, *pleasure*, (*Chap. 2. 15. and Chap. 3. 24.*) and so they do accordingly render it in *Ezekiel* (*Chap. 31. 9, 16, 18.*) where this Garden of *Eden* is spoken of again. Some have thought that the word *Mekiddim* (*Gen. 2. 8.*) was to be render'd *in the East*, or *Eastward*, as we read it, and therefore determin'd the site of *Paradise* ; but 'tis only the *Septuagint* Translate it so, all the other *Greek Versions*, and *S. Jerom*, the

Vulgate, the *Chaldee* Paraphrase, and the *Syriack* render it *from the beginning*, or *in the beginning*, or to that effect. And we that do not believe the *Septuagint* to have been infallible, or inspir'd, have no reason to prefer their single authority above all the rest. Some also think the place of *Paradise* may be determin'd by the four Rivers that are named as belonging to it, and the Countries they ran thorough; but the names of those Rivers are to me uncertain, and two of them altogether unintelligible. Where are there four Rivers in our Continent that come from one Head, as these are said to have done, either at the entrance or issue of the Garden. 'Tis true, if you admit our *Hypothesis*, concerning the fraction and disruption of the Earth at the Deluge, then we cannot expect to find Rivers now as they were before, the general Source is chang'd, and their Channels are all broke up; but if you do not admit such a dissolution of the Earth, but suppose the Deluge to have been only like a standing Pool, after it had once cover'd the surface of the Earth, I do not see why it should make any great havock or confusion in it; and they that go that way, are therefore the more oblig'd to show us still the Rivers of *Paradise*. Several of the Ancients, as we shall show hereafter, suppos'd these four Rivers to have their Heads in the other Hemisphere, and if so, the Seat of *Paradise* might be there too. But let them first agree amongst themselves, concerning these Rivers, and the Countries they run thorough, and we will undertake to show, that there cannot be any such in this Continent.

Seeing then neither the Theory doth determine, nor Scripture, where the place of *Paradise* was, nor in whether Hemisphere, we must appeal to Antiquity, or the opinions of the Ancients; for I know no other Guide, but one of these three, Scripture, Reason, and ancient Tradition; and where the two former are silent, it seems very reasonable to consult the third. And that our Inquiries may be comprehensive enough, we will consider what the *Jews*, what the *Heathens*, and what the *Christian* Fathers have said or determin'd concerning the Seat of *Paradise*. The *Jews* and *He-*
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brew Doctors place it in neither Hemisphere, but betwixt both, under the Æquinoctial, as you may see plainly in *Abravanel*, *Manasses Ben-Israel*, *Maimonides*, *Eben Ezra*, and others. But the reason why they carried it no further than the Line, is because they suppos'd it certain, as *Eben Ezra* tells us, that the days and nights were always equal in *Paradise*, and they did not know how that could be, unless it stood under the Æquinoctial. But we have shown another method, wherein that perpetual Æquinox came to pass, and how it was common to all the parts and Climates of that Earth, which if they had been aware of, and that the Torrid Zone at that time was utterly uninhabitable, having remov'd their *Paradise* thus far from home, they would probably have remov'd it a little further, into the temperate Climates of the other Hemisphere.

The ancient Heathens, Poets and Philosophers, had the notion of *Paradise*, or rather of several *Paradises* in the Earth; and 'tis remarkable, that they plac'd them generally, if not all of them, without or beyond this Continent; in the Ocean, or beyond it, or in another Orb or Hemisphere. The Garden of the *Hesperides*, the *Fortunate Islands*, the *Elysian Fields*, *Ogygia*, and *Toprabane*, as it is describ'd by *Diodorus Siculus*, with others such like; which as they were all characteriz'd like so many *Paradises*, so they were all seated out of our Continent by their Geography and descriptions of them.

Thus far Antiquity seems to incline to the other Hemisphere, or to some place beyond the bounds of our Continent for the Seat of *Paradise*; But that which we are most to depend upon in this affair, is Christian Antiquity, the Judgment and Tradition of the Fathers upon this Argument. And we may safely say in the first place, negatively, that none of the Christian Fathers, *Latin* or *Greek*, ever plac'd *Paradise* in *Mesopotamia*; that is a conceit and invention of some modern Authors, which hath been much encouraged of late, because it gave men ease and rest as to further inquiries, in an Argument they could not well manage. Secondly, we may affirm, that none
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of the Christian Fathers have plac'd *Paradise* in any determinate Region of our Continent, *Asia*, *Africk* or *Europe*. I have read of one or two Authors, I think, that fancied *Paradise* to have been at *Jerusalem*, but 'twas a meer fancy, that no body regarded or pursu'd. The controversie amongst the Fathers concerning *Paradise*, was quite another thing from what it is now of late: They disputed and controverted, whether *Paradise* was Corporeal, or Intellectual only, and Allegorical; This was the grand point amongst them. Then of those that thought it Corporeal, some plac'd it high in the Air, some inaccessible by Desarts or Mountains, and many beyond the Ocean, or in another World; And in these chiefly consisted the differences and diversity of opinions amongst them; nor do we find that they nam'd any particular place or Country in the known parts of the Earth for the Seat of *Paradise*, or that one contested for one spot of ground, and another for another, which is the vain temerity of modern Authors; as if they could tell to an Acre of Land where *Paradise* stood, or could set their foot upon the Center of the Garden. These have corrupted and misrepresented the notion of our *Paradise*, just as some modern Poets have the notion of the *Elysian Fields*, which *Homer* and the Ancients plac'd remote on the extremities of the Earth, and these would make a little green Meadow in *Campania Felix* to be the fam'd *Elysium*.

Thus much concerning the Fathers, negatively; but to discover as far as we can, what their positive Assertions were in this Argument, we may observe, that though their opinions be differently express'd, they generally concenter in this, that the *Southern Hemisphere* was the Seat of *Paradise*. This, I say, seems manifestly to be the sence of Christian Antiquity and Tradition, so far as there is any thing definitive in the remains we have upon that subject. Some of the Fathers did not believe *Paradise* to be Corporeal and Local, and those are to be laid aside in the first place; Others that thought it Local, did not determine any thing (as most of them indeed did not) concerning the particular place of it; But the rest that did,
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though they have exprest themselves in various ways, and under various forms, yet, upon a due interpretation, they all meet in one common and general conclusion, That *Paradise* was seated beyond the *Æquinoctial*, or in the other Hemisphere.

And to understand this aright, we must reflect, in the first place, upon the form of the Primæval Earth, and of the two Hemispheres of which it consisted, altogether incommunicable one with another, by reason of the *Torrid Zone* betwixt them; so as those two Hemispheres were then as two distinct Worlds, or distinct Earths, that had no commerce with one another. And this Notion or Tradition we find amongst Heathen Authors, as well as Christian, this Opposite Earth being call'd by them *Antichthon*, and its Inhabitants *Antichthones*: For those words comprehend both the *Antipodes* and *Antæci*, or all beyond the Line, as is manifest from their best Authors, as *Achilles Tattius*, and *Cæsar Germanicus* upon *Aratus*, *Probus Grammaticus*, *Censorinus*, *Pomponius Mela*, and *Pliny*. And these were call'd another World, and lookt upon as another stock and race of Mankind, as appears from *Cicero* and *Macrobius*; But as the latter part was their mistake, (for all Mankind rose from one Head) Somm. Script so the former is acknowledg'd by Christian Authors, as well as others; and particularly *S. Clement*, in his Epistle to the *Corinthians*, mentions a *World*, or *Worlds beyond the Ocean*, subject to *Divine Providence*, and the great Lord of Nature, as well as ours. This passage of *S. Clement* is also cited by *S. Jerom*, in his Commentary upon *Ephes. 2. 2.* and by *Origen Periarchon*, where Lib. 2. c. 31 the Inhabitants of that other World are call'd *Antichthones*.

I make this remark in the first place, that we may understand the true sence and importance of those phrases and expressions amongst the Ancients, when they say *Paradise* was in *another World*. Which are not to be so understood, as if they thought *Paradise* was in the Moon, or in *Jupiter*, or hung like a Cloud in the Air, they were not so extravagant; but that *Paradise* was in another Hemisphere, which was call'd *Antichthon*, another *Earth*, or another *World* from Ours; and

and justly reputed so, because of an impossibility of commerce or intercourse betwixt their respective Inhabitants. And this remark being premis'd, we will now distribute the Christian Authors and Fathers that have deliver'd their opinion concerning the place of *Paradise*, into three or four ranks or orders; and though they express themselves differently, you will see, when duly examin'd and expounded, they all conspire and concur in the forementioned conclusion, *That the Seat of Paradise was in the other Hemisphere.*

In the first rank then we will place and reckon those that have set *Paradise* in another *World*, or in another *Earth*; seeing, according to the foregoing Explication, that is the same thing, as to affirm it seated beyond the *Torrid Zone* in the other Hemisphere. In this number are *Ephrem Syrus*, *Moses Bar Cepha*, *Tatianus*, and of later date *Jacobus de Valentia*. To these are to be added again such Authors as say, that *Adam*, when he was turn'd out of *Paradise*, was brought into *our Earth*, or into our Region of the Earth; for this is tantamount with the former; And this seems to be the sence of *S. Jerom* in several places against *Jovinian*, as also of *Constantine*, in his Oration in *Eusebius*, and is positively asserted by *Sulpitius Severus*. And lastly, those Authors that represent *Paradise* as remote from our *World*, and inaccessible, so *S. Austin*, *Procopius Gazeus*, *Beda*, *Strabus Fuldensis*, *Historia Scholastica*, and others, these, I say, pursue the same notion of Antiquity; for what is remote from our *World* (that is, from our Continent, as we before explain'd it) is to be understood to be that *Antichton*, or Anti-hemisphere which the Ancients oppos'd to ours.

Origen.

Another sett of Authors, that interpret the *Flaming Sword* that guarded *Paradise* to be the *Torrid Zone*, do plainly intimate, that *Paradise* in their opinion lay beyond the *Torrid Zone*, or in the Anti-hemisphere; And thus *Tertullian* interprets the *Flaming Sword*, and in such words as fully confirm our sence: *Paradise*, He says, *by the Torrid Zone, as by a wall of Fire, was sever'd from the communication and knowledge of our World.* It lay

lay then on the other side of this Zone. And S. Cyprian, or the ancient Author that passeth under his name, in his Comment upon *Genesis*, expresseth himself to the same effect; so also S. Austin and *Isidore Hispalensis* are thought to interpret it: And *Aquinas*, who makes *Paradise* inaccessible, gives this reason for it, *Propter vehementiam æstus in locis intermediis ex propinquitate Solis, & hoc significatur per Flammeum Gladium*: Because of that vehement heat in the parts betwixt us and that, arising from the nearness of the Sun, and this is signified by the Flaming Sword. And this interpretation of the *Flaming Sword* receives a remarkable force and Emphasis from our Theory and description of the Primæval Earth, for there the Torrid Zone was as a wall of Fire indeed, or a Region of flame which none could pass or subsist in, no more than in a Furnace.

There is another form of expression amongst the Ancients concerning *Paradise*, which, if deciphered, is of the same force and signification with this we have already instanc'd in; They say sometimes, *Paradise* was beyond the Ocean, or that the Rivers of *Paradise* came from beyond the Ocean. This is of the same import with the former Head, and points still at the other Hemisphere; for, as we noted before, some of them fixt their *Antichthon* and *Antichthones* beyond the Ocean; that is, since there was an Ocean, Since the form of the Earth was chang'd, and the Torrid Zone become habitable, and consequently could not be a boundary or separation betwixt the two Worlds. Wherefore, as some run still upon the old division by the Torrid Zone, others took the new division by the Ocean. Which Ocean they suppos'd to lie from East to West betwixt the Tropicks; as may be seen in ancient Authors, *Geminus*, *Herodotus*, *Cicero de Republicâ*, and *Clemens Romanus*, whom we cited before. S. Austin also speaks upon the same sup-

De Civ. Dei
lib. 16. c. 9.

the Ocean under them, that they may be cool'd and nourisht by its moisture. They thought the Sea, like a Girdle, went round the Earth, and the temperate Zones on either side were the habitable Regions, whereof this was call'd the *Oicouméne*, and the other *Antichthon*.

This being observ'd, 'tis not material, whether their Notion was true or false, it shows us what their meaning was, and what part of the Earth they design'd, when they spoke of any thing beyond the Ocean; namely, that they meant beyond the Line, in the other Hemisphere, or in the *Antichthon*; and accordingly, when they say *Paradise*, or the Fountains of its Rivers were beyond the Ocean, they say the same thing in other terms with the rest of those Authors we have cited. In *Moses Bar Cepha* above mention'd, we find a Chapter upon this subject, *Quomodo trajece- rint Mortales inde ex Paradisi terrâ in hanc Terram? How Mankind pass out of that Earth or Continent where Paradise was, into that where we are?* Namely, how they pass the Ocean *that lay betwixt them*, as the answer there given explains it. And so *Ephrem Syrus* is cited often in that Treatise, placing *Paradise* beyond the Ocean. The *Essenes* also, who were the most Philosophick Sect of the *Jews*, plac'd *Paradise*, according to *Josephus*, beyond the Ocean. And that passage in *Eusebius*, in the Oration of *Constantine*, being corrected and restor'd to the true reading, represents *Paradise* in like manner as in another Continent, from whence *Adam* was brought, after his transgression, into this. And lastly, there are some Authors, whose testimony and authority may deserve to be consider'd, not for their own Antiquity, but because they are profess'dly transcribers of Antiquity and Traditions, such as *Strabius*, *Comestor*, and the like, who are known to give this account or report of *Paradise* from the Ancients, that it was *interposito Oceano ab Orbe nostro vel à Zonâ nostrâ habitabili secretus*, Separated from our Orb or Hemisphere by the interposition of the Ocean.

It is also observable, that many of the Ancients that took *Tigris*, *Euphrates*, *Nile* and *Ganges* for the Rivers of *Paradise*, said that those Heads or Fountains
of

of them which we have in our Continent, are but their *Capita secunda*, their second Sources, and that their first Sources were in another Orb where *Paradise* was; and thus *Hugo de Sancto Victore* says, *Sanctos communiter sensisse*, that the Holy men of old were generally of that opinion. To this sence also *Moses Bar Cepha* often expresth himself; as also *Epiphanius*, *Procopius Gazeus*, and *Severianus in Catenâ*. Which notion amongst the Ancients, concerning the trajecti- on or passage of the Paradisiacal Rivers under-ground, or under-Sea from one Continent into another, is to me, I confess, unintelligible, either in the first or second Earth; but however it discovers their sence and opinion of the Seat of *Paradise*, that it was not to be sought for in *Asia* or in *Africk*, where those Rivers rise to us, but in some remoter parts of the World, where they suppos'd their first Sources to be.

This is a short account of what the Christian Fathers have left us, concerning the Seat of *Paradise*; and the truth is, 'tis but a short and broken account; yet 'tis no wonder it should be so, if we consider, as we noted before, that several of them did not believe *Paradise* to be Local and Corporeal; Others that did believe it so, yet did not offer to determine the place of it, but left that matter wholly untoucht and undecided; And the rest that did speak to that point, did it commonly both in general terms, and in expressions that were disguis'd, and needed interpretation; but all these differences and obscurities of expression, you see, when duly stated and expounded, signifie one and the same thing, and terminate all in this common Conclusion, *That Paradise* was without our Continent, according to the general opinion and Tradition of Antiquity. And I do not doubt but the Tradition would have been both more express and more universal, if the Ancients had understood Geography better; for those of the Ancients that did not admit or believe, that there were *Antipodes* or *Antichthones*, as *Lactantius*, *S. Austin*, and some others, these could not joyn in the common opinion about the place of *Paradise*, because they thought there was no Land, nor any thing habitable *ἔξω τῶν οἰκουμένης*, or besides this Con-

continent. And yet *S. Austin* was so cautious, that as he was bounded on the one hand by his false *Idea* of the Earth, that he could not joyn with Antiquity as to the place of *Paradise*; so on the other hand he had that respect for it, that he would not say any thing to the contrary; therefore being to give his opinion, he says only, *Terrestrem esse Paradisum, & locum ejus ab hominum cognitione esse remotissimum: That it is somewhere upon the Earth, but the place of it very remote from the knowledge of Men.*

*Cont. Marc.
lib. 2. c. 2.
c. 5.*

And as their ignorance of the Globe of the Earth was one reason, why the doctrine of *Paradise* was so broken and obscure, so another reason why it is much more so at present is, because the chief ancient Books writ upon that subject, are lost; *Ephrem Syrus*, who liv'd in the Fourth Century, writ a Commentary in *Genesis sive de Ortu rerum*, concerning the Origin of the Earth; and by those remains that are cited from it, we have reason to believe, that it contain'd many things remarkable concerning the first Earth, and concerning *Paradise*. *Tertullian* also writ a Book *de Paradiso*, which is wholly lost; and we see to what effect it would have been, by his making the Torrid Zone to be the *Flaming Sword*, and the partition betwixt this Earth and *Paradise*; which two Earths he more than once distinguisheth as very different from one another. The most ancient Author that I know upon this subject, at least of those that writ of it literally, is *Moses Bar Cepha*, a *Syrian* Bishop, who liv'd about seven hundred years since, and his Book is translated into *Latin*, by that Learned and Judicious man, *Andreas Masius*. *Bar Cepha* writes upon the same Views of *Paradise* that we have here presented, that it was beyond the Ocean, in another tract of Land, or another Continent from that which we inhabit: As appears from the very Titles of his Eighth, Tenth, and Fourteenth Chapters. But we must allow him for his mistaken Notions about the form of the Earth; for he seems to have fancied the Earth plain, (not only as oppos'd to rough and Mountainous, for so it was plain; but as oppos'd to Spherical) and the Ocean to have divided it in two parts, an Interiour, and an Exte-

Exteriour, and in that Exteriour part was *Paradise*. Such allowances must often be made for Geographical mistakes, in examining and understanding the writings of the Ancients. The rest of the *Syrian* Fathers, as well as *Ephrem* and *Bar Cepha*, incline all to the same doctrine of *Paradise*, and seem to have retain'd more of the ancient Notions concerning it, than the *Greek* and *Latin* Fathers have; and yet there is in all some fragments of this doctrine, and but fragments in the best.

We might add in the last place, that as the most ancient Treatises concerning *Paradise* are lost, so also the ancient *Glosses* and *Catenæ* upon Scripture, where we might have found the Traditions and Opinions of the Ancients upon this subject, are many of them either lost or unpublisht; And upon this consideration we did not think it improper to cite some Authors of small Antiquity, but such as have transcrib'd several things out of ancient Manuscript-glosses into their Commentaries: They living however before Printing was invented, or Learning well restor'd, and before the Reformation. I add that also *before the Reformation*, for since that time the Protestant Authors having lessen'd the authority of Traditions, the Pontifical Doctors content themselves to insist only upon such as they thought were useful or necessary, lest by multiplying others that were but matter of curiosity, they should bring the first into question, and render the whole doctrine of Traditions more dubious and exceptionable; And upon this account there are some Authors that writ an Age or two before the Reformation, that have with more freedom told us the Tenets and Traditions of the Ancients in these Speculations, that are but collateral to Religion, than any have done since. And I must confess, I am apt to think that what remains concerning the doctrine of *Paradise*, and the Primæval Earth, is in a good measure Traditional; for one may observe, that those that treat upon these subjects, quote the true Opinions, and tell you some of the Ancients held so and so, as That *Paradise* was in another Earth, or higher than this Earth, That there were no Mountains

tains before the Flood, nor any Rain, and such like : yet they do not name those ancient Authors that held these Opinions ; which makes me apt to believe, either that they were convey'd by a Traditional communication from one to another, or that there were other Books extant upon those subjects, or other Glosses than what are now known.

Finally, to conclude this Discourse concerning the Seat of *Paradise*, we must mind you again upon what Basis it stands. We declar'd freely, that we could not by our Theory alone determine the particular place of it, only by that we are assur'd that it was in the Primæval Earth, and not in the present ; but in what Region, or in whether Hemisphere of that Earth it was seated, we cannot define from Speculation only. 'Tis true, if we hold fast to that Scripture-conclusion, That all Mankind rise from one Head, and from one and the same Stock and Lineage, (which doth not seem to be according to the sentiments of the Heathens) we must suppose they were born in one Hemisphere, and after some time translated into the other, or a Colony of them : But this still doth not determine, in whether of the two they began, and were first seated before their translation ; and I am apt to think that depended rather, as we noted before, upon the Divine pleasure, and the train of affairs that was to succeed, than upon Natural causes and differences. Some of the Ancients, I know, made both the Soil and the Stars more noble in the Southern Hemisphere, than in ours, but I do not see any proof or warrant for it ; wherefore laying aside all natural Topicks, we are willing in this particular to refer our selves wholly to the report and majority of Votes amongst the Ancients, whether Christians or others, who seem generally to incline to the South or South-East Land ; from whence therefore, according to Antiquity, we may expect the best tidings concerning *Paradise*, or the remains of it.

C H A P. VIII.

The uses of this Theory for the illustration of Antiquity; The ancient Chaos explain'd; The inhabitability of the Torrid Zone; The change of the Poles of the World; The doctrine of the Mundane Egg; How America was first peopled; How Paradise within the Circle of the Moon.

WE have now dispatch'd the Theory of the Primæval Earth, and reviv'd a forgotten World; 'Tis pity the first and fairest works of Nature should be lost out of the memory of Man, and that we should so much dote upon the Ruines, as never to think upon the Original Structure. As the modern Artists from some broken pieces of an ancient Statue, make out all the other parts and proportions; so from the broken and scatter'd limbs of the first World we have shown you how to raise the whole Fabrick again; and renew the prospect of those pleasant Scenes that first see the light, and first entertain'd Man, when he came to act upon this new-erected Stage.

We have drawn this Theory chiefly to give an account of the Universal Deluge, and of *Paradise*; but as when one lights a Candle to look for one or two things which they want, the light will not confine it self to those two objects, but shows all the other in the room; so, methinks, we have unexpectedly cast a light upon all Antiquity, in seeking after these two things, or in retrieving the Notion and Doctrine of the Primæval Earth, upon which they depended. For in ancient Learning there are many Discourses, and many Conclusions deliver'd to us, that are so obscure and confus'd, and so remote from the present state of things,

things, that one cannot well distinguish, whether they are fictions or realities ; and there is no way to distinguish with certainty, but by a clear Theory upon the same subjects ; which showing us the truth directly, and independently upon them, shows us also by reflection, how far they are true or false, and in what sense they are to be interpreted and understood. And the present Theory being of great extent, we shall find it serviceable in many things, for the illustration of such dubious and obscure doctrines in Antiquity.

To begin with their Ancient CHAOS, what a dark story have they made of it, both their Philosophers and Poets ; and how fabulous in appearance ? 'Tis deliver'd as confus'dly as the Mass it self could be, and hath not been reduc'd to order, nor indeed made intelligible by any. They tell us of *moral* principles in the Chaos instead of *natural*, of *strife*, and *discord*, and *division* on the one hand, and *Love*, *Friendship*, and *Venus* on the other ; and after a long contest Love got the better of Discord, and united the disagreeing principles : This is one part of their story. Then they make the forming of the World out of the Chaos a kind of *Genealogie* or *Pedigree* ; *Chaos* was the common Parent of all, and from Chaos sprung, first, *Night*, and *Tartarus*, or *Oceanus* ; *Night* was a teeming Mother, and of her were born *Æther* and the *Earth* ; The Earth conceiv'd by the influences of *Æther*, and brought forth Man and all Animals.

This seems to be a Poetical fiction rather than Philosophy ; yet when 'tis set in a true light, and compar'd with our Theory of the Chaos, 'twill appear a pretty regular account, how the World was form'd at first, or how the Chaos divided it self successively into several Regions, rising one after another, and propagated one from another, as Children and posterity from a common Parent. We show'd in the first Book, *Chap. 5.* how the Chaos, from an uniform mass, wrought it self into several Regions or Elements ; the grossest part sinking to the Center, upon this lay the mass of Water, and over the Water was a Region of dark, impure, caliginous Air ; This impure caliginous Air is that which the Ancients call *Night*, and the mass
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of Water *Oceanus* or *Tartarus*, for those two terms with them are often of the like force, *Tartarus* being *Oceanus* inclos'd and lock'd up: Thus we have the first off-spring of the Chaos, or its first-born twins, *Nox* and *Oceanus*. Now this turbid Air purifying itself by degrees, as the more subtle parts flew upwards, and compos'd the *Æther*; so the earthy parts that were mixt with it dropt down upon the surface of the Water, or the liquid mass; and that mass on the other hand sending up its lighter and more oily parts towards its surface, these two incorporate there, and by their mixture and union compose a Body of Earth quite round the mass of Waters: And this was the first habitable Earth, which as it was, you see, the Daughter of *Nox* and *Oceanus*, so it was the Mother of all other things, and all living Creatures, which at the beginning of the World sprung out of its fruitful womb.

This doctrine of the Chaos, for the greater pomp of the business, the Ancients call'd their *Theogonia*, or the Genealogy of the Gods; for they gave their Gods, at least their Terrestrial Gods, an original and beginning; and all the Elements and greater portions of Nature they made Gods and Goddeses, or their Deities presided over them in such a manner, that the names were us'd promiscuously for one another. We also mention'd before some *moral* principles, which they plac'd in the Chaos, *Eris* and *Eros*; Strife, discord, and disaffection which prevail'd at first, and afterward *Love*, kindness and union got the upper hand, and in spite of those factious and dividing principles gather'd together the separated Elements, and united them into an habitable World. This is all easily understood, if we do but look upon the Schemes of the rising World, as we have set them down in that Fifth Chapter; for in the first commotion of the Chaos, after an intestine struggle of all the parts, the Elements separated from one another into so many distinct bodies or masses, and in this state and posture things continued a good while, which the Ancients, after their Poetick or Moral way, call'd the Reign of *Eris* or Contention, of hatred, fight and disaffection;

and if things had always continued in that System, we should never have had an habitable World. But Love and good Nature conquer'd at length, *Venus* rise out of the Sea, and receiv'd into her bosom, and intangled in her imbraces the falling *Æther*. viz. The parts of lighter earth, which were mixt with the Air in that first separation, and gave it the name of *Night*, fell down upon the oily parts of the Sea-mass, which lay floating upon the surface of it, and by that union and conjunction, a new Body, and a new World was produc'd, which was the first habitable Earth. This is the interpretation of their mystical Philosophy of the Chaos, and the resolution of it into plain natural History : Which you may see more fully discuss'd in the *Latin Treatise*.

Lib. 2. c. 7.

We have already explain'd, in several places, the Golden Age of the Ancients, and laid down such grounds as will enable us to discern what is real, and what Poetical, in the reports and characters that Antiquity hath given of those first Ages of the World. And if there be any thing amongst the Ancients that refers to another Earth, as *Plato's Atlantis*, which he says, was absorpt by an Earthquake, and an inundation, as the Primæval Earth was ; or his *Æthereal Earth* mention'd in his *Phædo*, which he opposeth to this broken hollow Earth ; makes it to have long-liv'd inhabitants, and to be without Rains and Storms, as that first Earth was also ; or the pendulous *Gardens of Alcinous*, or such like, to which nothing answers in present Nature, by reflecting upon the state of the first Earth, we find an easie explication of them. We have also explain'd what the *Antichthon* and *Antichthones* of the Ancients were, and what the true ground of that distinction was. But nothing seems more remarkable than the *inhabitability of the Torrid Zone*, if we consider what a general fame and belief it had amongst the Ancients, and yet in the present form of the Earth we find no such thing, nor any foundation for it. I cannot believe that this was so universally receiv'd upon a slight presumption only, because it lay under the course of the Sun, if the Sun had then the same latitude from the *Æquator* in his course and motion

tion that he hath now, and made the same variety of seasons ; whereby even the hottest parts of the Earth have a Winter, or something equivalent to it. But if we apply this to the Primæval Earth, whose posture was direct to the Sun, standing always fixt in its Equinoctial, we shall easily believe that the Torrid Zone was then uninhabitable by extremity of heat, there being no difference of seasons, nor any change of weather, the Sun hanging always over head at the same distance, and in the same direction. Besides this, the descent of the Rivers in that first Earth was such, that they could never reach the Equinoctial parts, as we have shown before ; by which means, and the want of Rain, that Region must necessarily be turn'd into a dry Desert. Now this being really the state of the first Earth, the same and general belief that the Torrid Zone was uninhabitable had this true Original, and continued still with posterity after the Deluge, though the causes then were taken away ; for they being ignorant of the change that was made in Nature at that time, kept up still the same Tradition and opinion currant, till observation and experience taught later Ages to correct it. As the true miracles that were in the Christian Church at first, occasion'd a same and belief of their continuance long after they had really ceas'd.

This gives an easie account, and, I think, the true cause of that opinion amongst the Ancients generally receiv'd, that the Torrid Zone was uninhabitable. I say generally receiv'd ; for not only the Poets, both *Greek* and *Latin*, but their Philosophers, Astronomers and Geographers had the same notion, and deliver'd the same doctrine ; as *Aristotle*, *Cleomedes*, *Achilles Tattius*, *Ptolomy*, *Cicero*, *Strabo*, *Mela*, *Pliny*, *Macrobius*, &c. And to speak truth, the whole doctrine of the Zones is calculated more properly for the first Earth, than for the present ; for the divisions and bounds of them now are but arbitrary, being habitable all over, and having no visible distinction ; whereas they were then determin'd by Nature, and the Globe of the Earth was really divided into so many Regions of a very different aspect and quality ; which would have ap-

pear'd at a distance, if they had been lookt upon from the Clouds, or from the Moon, as *Jupiter's* Belts, or as so many Girdles or Swathing-bands about the body of the Earth: And so the word imports, and so the Ancients us'd to call them *Cinguli* and *Fasciæ*. But in the present form of the Earth, if it was seen at a distance, no such distinction would appear in the parts of it, nor scarce any other but that of Land and Water, and of Mountains and Valleys, which are nothing to the purpose of Zones. And to add this note further, When the Earth lay in this regular form, divided into Regions or Walks, if I may so call them, as this gave occasion of its distinction by Zones; so if we might consider all that Earth as a *Paradise*, and *Paradise* as a Garden, (for it is always call'd so in Scripture, and in *Jewish* Authors) as this Torrid Zone, bare of Grass and Trees, made a kind of Gravel-walk in the middle; so there was a green Walk on either hand of it, made by the temperate Zones; and beyond those lay a Canal, which water'd the Garden from either side.

See Fig. 3.
c. 5.

But to return to Antiquity; We may add under this Head another observation or doctrine amongst the Ancients, strange enough in appearance, which yet receives an easie explication from the preceding Theory; They say, *The Poles* of the World did once change their situation, and were at first in another posture from what they are in now, till that inclination happen'd; This the ancient Philosophers often make mention of, as *Anaxagoras*, *Empedocles*, *Diogenes*, *Leucippus*, *Democritus*; as may be seen in *Laertius*, and in *Plutarch*; and the Stars, they say, at first were carried about the Earth in a more uniform manner. This is no more than what we have observ'd and told you in other words, namely, that the Earth chang'd its posture at the Deluge, and thereby made these seeming changes in the Heavens; its Poles before pointed to the Poles of the Ecliptick, which now point to the Poles of the *Æquator*, and its Axis is become parallel with that Axis; and this is the mystery and interpretation of what they say in other terms; this makes the different aspect of the Heavens, and of its Poles:
And

See the Lat.
Treat. lib. 2.
c. 10.

And I am apt to think, that those changes in the course of the Stars, which the Ancients sometimes speak of, and especially the *Aegyptians*, if they did not proceed from defects in their Calendar, had no other Physical account than this.

And as they say the Poles of the World were in another situation at first, so at first they say, there was no variety of seasons in the Year, as in their Golden Age. Which is very coherent with all the rest, and still runs along with the Theory. And you may observe, that all these things we have instanc'd in hitherto, are but links of the same chain, in connexion and dependance upon one another. When the Primæval Earth was made out of the Chaos, its form and posture was such as of course brought on all those Scenes which Antiquity hath kept the remembrance of, though now in another state of Nature they seem very strange; especially being disguis'd, as some of them are, by their manner of representing them. That the Poles of the World stood once in another posture; That the Year had no diversity of Seasons; That the Torrid Zone was uninhabitable; That the two Hemispheres had no possibility of intercourse, and such like: These all hang upon the same string; or lean upon one another as Stones in the same Building; whereof we have, by this Theory, laid the very foundation bare, that you may see what they all stand upon, and in what order.

There is still one remarkable Notion or Doctrine amongst the Ancients, which we have not spoken to, 'tis partly Symbolical, and the propriety of the Symbol, or of the Application of it, hath been little understood; 'Tis their doctrine of the *Mundane Egg*, or their comparing the World to an Egg, and especially in the original composition of it. This seems to be a mean comparison, the World and an Egg, what proportion, or what resemblance betwixt these two things? And yet I do not know any Symbolical doctrine or conclusion that hath been so universally entertain'd by the *Myſtæ*, or Wise and Learned of all Nations; as hath been noted before in the Fifth Chapter of the First Book, and at large in the *Latin Treatise*.

tise. 'Tis certain, that by the *World* in this similitude, they do not mean the Great Universe, for that hath neither Figure, nor any determinate form of composition, and it would be a great vanity and rashness in any one to compare this to an Egg; The works of God are immense, as his nature is infinite, and we cannot make any image or resemblance of either of them; but this comparison is to be understood of the *Sublunary World*, or of the *Earth*; And for a general key to Antiquity upon this Argument, we may lay this down as a Maxim or Canon, *That what the Ancients have said concerning the form and figure of the World, or concerning the Original of it from a Chaos, or about its periods and dissolution, are never to be understood of the Great Universe, but of our Earth, or of this Sublunary and Terrestrial World.* And this observation being made, do but reflect upon our Theory of the Earth, the manner of its composition at first, and the figure of it, being compleated, and you will need no other interpreter to understand this mystery. We have show'd

Book 1. c. 5.

there, that the Figure of it, when finish'd, was Oval, and the inward form of it was a frame of four Regions incompassing one another, where that of Fire lay in the middle like the Yolk, and a shell of earth inclos'd them all. This gives a solution so easie and natural, and shows such an aptness and elegancy in the representation, that one cannot doubt upon a view, and compare of circumstances, but that we have truly found out the Riddle of the Mundane Egg.

To these illustrations of Antiquity in things Natural and Geographical, give me leave to add, and to resolve from the same Theory, one Historical difficulty; and 'twill seem, 'tis likely, of no less moment than any we have hitherto insisted upon, and I am sure hath exercis'd the Pens of many Learned men with small or no success. 'Tis to give an account of the Original of the people of *America*, how that Continent was first peopled and inhabited, or any other Continent distinct from ours, wherein we suppose *Adam* to have liv'd, and to have propagated his posterity. 'Tis certain, that all Mankind came from one Head, or from one common Parent; *Certain*, I say, according

according to the History of *Moses*, confirm'd by Apostolical authority; and 'tis also admitted on all hands, Acts 17.26. that *Adam* after his expulsion out of *Paradise*, where-soever he was before, liv'd in this Continent, which being encompass'd with great Seas, and separate from *America* on either side, how could the children of *Adam* pass the wide Ocean, to hunt out remote habitations in *America*? How easie is the answer to this great Question, which hath employ'd the time of so many Learned men to resolve? Or rather how suddenly doth it vanish at the sight of truth, as a phantom at the approach of light? The ground sinks under it that it seem'd to stand upon; *Adam's* Earth was not broken into Continents and Islands, as ours is, nor the parts of it separated by Seas and Mountains; 'twas one continued and smooth surface, and gave free and easie passage from the rising to the setting Sun: So according as his progeny increast, and new swarms were ready to go abroad, they might spread themselves on either hand, East and West, without any interruption or impediment, neither Sea, Mountain, nor Desert would stand in their way. 'Tis true, the passage was not so free North and South, they could not go out of one Hemisphere into another, but Providence seems to have made provision for that, in transplanting *Adam* into this Hemisphere, after he had laid the foundation of a World in the Other.

We see then the great difficulty concerning the peopling the several Continents and Islands of the Earth, and particularly of *America*, easily remov'd by this *Hypothesis*; The propagation of Mankind, and of all sorts of Animals into the several quarters of the World, may readily be understood, if you admit the true form of the first Earth: But without that 'tis an endless controversie, as those commonly are that proceed upon a false supposition. I will not examine here the several projects and methods that have been propos'd, some by one Author, and some by another, for getting people into *America*; They confute one another, methinks, very well; and to show, as we have done, that the ground they go upon is imaginary, is a compendious way of confuting them all together.

However

However, those that will not admit our *Hypothesis*, concerning the continuity and uniformity of the first Earth, stand oblig'd still to give us an account of the propagation of Mankind from one Head, and how the posterity of *Adam* got into *America*.

'Twill be said, possibly, that this doth not intirely remove the difficulty, because it returns again after the Flood; and then we suppose the Earth broken into Continents and Islands, in the same manner that it is now; How then did the posterity of *Noah* get into *America*, to people it after the Flood? I do not know that ever they got into *America*, till *Columbus* went thither in the last Age, who, for any thing I know, was the first of *Noah's* progeny that ever set foot in that Continent. Scripture tells us, that all Mankind rise from one Head, namely, from *Adam*, and his fault was imputed to all posterity, but no where that *Noah* was the common Head of Mankind that hath been since his time, nor does any doctrine of faith, that I know of, depend upon that supposition. When the great frame of the Earth broke at the Deluge, Providence fore-see into how many Continents it would be divided after the ceasing of the Flood, and accordingly, as we may reasonably suppose, made provision to save a remnant in every Continent, that the race of Mankind might not be quite extinct in any of them. What provision he made in our Continent we know from Sacred History, but as that takes notice of no other Continent but ours, so neither could it take notice of any method that was us'd there for saving of a remnant of men; but 'twere great presumption, methinks, to imagine that Providence had a care of none but us, or could not find out ways of preservation in other places, as well as in that where our habitations were to be. *Asia*, *Africk* and *Europe* were repeopled by the Sons of *Noah*, *Shem*, *Ham*, and *Japhet*, but we read nothing of their going over into *America*, or sending any Colonies thither; and that World which is near as big as ours, must have stood long without people, or any thing of Humane race in it after the Flood, if it stood so till this was full, or till men navigated the Ocean,
and

and by chance discovered it: It seems more reasonable to suppose, that there was a stock providentially reserv'd there, as well as here, out of which they sprung again; but we do not pretend in an Argument of this nature to define or determine any thing positively. To conclude, as this is but a secondary difficulty, and of no great force, so neither is it any thing peculiar to us, or to our *Hypothesis*, but alike common to both; and if they can propose any reasonable way, whereby the sons of *Noah* might be transplanted into *America*, with all my heart; but all the ways that I have met with hitherto, have seem'd to me meer fictions, or meer presumptions.

Thus much for the illustration of Antiquity in some points of Humane literature, by our Theory of the Primæval Earth; There is also in *Christian Antiquity* a Tradition or Doctrine, that appears as obscure and as much a Paradox as any of these, and better deserves an illustration, because it relates more closely and expressly to our present subject: 'Tis that Notion or Opinion amongst the Ancients concerning *Paradise*, that it was seated as high as the Sphere of the Moon, or *within the Lunar Circle*. This looks very strange, and indeed extravagantly at first sight, but the wonder will cease, if we understand this not of *Paradise* taken apart from the rest of the Earth, but of the whole Primæval Earth, wherein the Seat of *Paradise* was; That was really seated much higher than the present Earth, and may be reasonably supposed to have been as much elevated as the tops of our Mountains are now. And that phrase of reaching to the *Sphere of the Moon*, signifies no more than those other expressions of *reaching to Heaven*, or *reaching above the Clouds*, which are phrases commonly us'd to express the height of Buildings, or of Mountains, and such like things: So the Builders of *Babel* said, they would make a Tower should reach to Heaven; *Olympus* and *Parnassus* are said by the Poets to reach to Heaven, or to rise above the Clouds; And *Pliny* and *Solinus* use this very expression of the *Lunar Circle*, when they describe the height of Mount *Atlas*, *Eductus in viciniam Solin. c. 17. Lunaris Circuli*. The Ancients, I believe, aim'd particularly

cularly by this phrase, to express an height above the middle Region, or above our Atmosphere, that *Paradise* might be serene; and where our Atmosphere ended, they reckon'd the Sphere of the Moon begun, and therefore said it reach'd to the Sphere of the Moon. Many of the Christian Fathers express their opinion concerning the high situation of *Paradise* in plain and formal terms, as *S. Basil, Damascen, Moses Bar Cepha, &c.* but this phrase of reaching to the *Lunar Circle* is repeated by several of them, and said to be of great Antiquity. *Aquinas, Albertus*, and others, ascribe it to *Bede*, but many to *S. Austin*; and therefore *Ambrosius Catharinus* is angry with their great Schoolman, that he should derive it from *Bede*, seeing *S. Austin* writing to *Orosius*, deliver'd this doctrine, which surely, says He, *S. Austin neither feign'd nor dream'd only, but had receiv'd it from Antiquity*: And from so great Antiquity, that it was no less than Apostolical, if we credit *Albertus Magnus*, and the ancient Books he appeals to, for He says this Tradition was deriv'd as high as from *S. Thomas* the Apostle. His words are these, after he had deliver'd his own opinion, *Hoc tamen dico, &c. But this I say, without prejudice to the better opinion, for I have found it in some most ancient Books, that Thomas the Apostle was the Author of that opinion, which is usually attributed to Bede and Strabus, namely, that Paradise was so high as to reach to the Lunar Circle.* But thus much concerning this Opinion, and concerning Antiquity.

Com. in Gen.
c. 2.

Sum. Theol.
par. 2. tract.
13. q. 79.

To conclude all, we see this Theory which was drawn only by a thred of Reason, and the Laws of Nature, abstractly from all Antiquity, notwithstanding casts a light upon many passages there, which were otherwise accounted fictions, or unintelligible truths; and though we do not alledge these as proofs of the Theory, for it carries its own light and proof with it, yet whether we will or no, they do mutually confirm, as well as illustrate one another; And 'tis a pleasure also, when one hath wrought out truth by meer dint of thinking, and examination of causes, and propos'd it plainly and openly, to meet with it again amongst the Ancients, disguis'd, and in an old fashion'd dress,
scarce

scarce to be known or discover'd, but by those that before-hand knew it very well. And it would be a further pleasure and satisfaction, to have render'd those Doctrines and Notions, for the future, intelligible and useful to others, as well as delightful to our selves.

C H A P. IX.

A general objection against this Theory, viz. That if there had been such a Primitive Earth, as we pretend, the fame of it would have sounded throughout all Antiquity. The Eastern and Western Learning consider'd, the most considerable Records of both are lost; what footsteps remain relating to this Subject. The Jewish and Christian Learning consider'd; how far lost as to this Argument, and what Notes or Traditions remain. Lastly, how far the Sacred Writings bear witness to it. The Providential conduct of Knowledge in the World. A recapitulation and state of the Theory.

HAVING gone through the two first Parts, and the two first Books of this Theory, that concern the Primitive World, the Universal Deluge, and the state of *Paradise*, We have leizure now to reflect a little, and consider what may probably be objected against a Theory of this nature. I do not mean single objections against single parts, for those may be many, and such as I cannot fore-see; but what may be said against the body and substance of the Theory, and the credibility of it, appearing new and surprising, and yet of great extent and importance. This, I fancy, will induce many to say, surely this cannot

be a reality ; for if there had been such a Primitive Earth, and such a Primitive World as is here represented, and so remarkably different from the present, it could not have been so utterly forgotten, or lain hid for so many Ages ; all Antiquity would have rung of it ; the memory of it would have been kept fresh by Books or Traditions. Can we imagine, that it should lie buried for some thousands of years in deep silence and oblivion ; and now only when the second World is drawing to an end, we begin to discover that there was a first, and that of another make and order from this.

To satisfy this objection, or surmise rather, it will be convenient to take a good large scope and compass in our Discourse ; We must not suppose, that this Primitive World hath been wholly lost out of the memory of man, or out of History, for we have some History and Chronology of it preserv'd by *Moses*, and likewise in the Monuments of the Ancients, more or less ; for they all suppos'd a World before the Deluge. But 'tis the Philosophy of this Primitive World that hath been lost in a great measure, what the state of Nature was then, and wherein it differ'd from the present or Post-diluvian order of things. This, I confess, hath been little taken notice of ; it hath been generally thought or presum'd, that the World before the Flood was of the same form and constitution with the present World : This we do not deny, but rather think it design'd and Providential, that there should not remain a clear and full knowledge of that first state of things ; and we may easily suppose how it might decay and perish, if we consider how little of the remote Antiquities of the World have ever been brought down to our knowledge.

The *Greeks* and *Romans* divided the Ages of the World into three periods or intervals, whereof they call'd the first the *Obscure* Period, the second the *Fabulous*, and the third *Historical*. The dark and obscure Period was from the beginning of the World to the Deluge ; what pass'd then, either in Nature or amongst Men, they have no Records, no account, by their own confession ; all that space of time was cover'd

ver'd with darkness and oblivion ; so that we ought rather to wonder at those remains they have, and those broken notions of the Golden Age, and the conditions of it, how they were sav'd out of the common shipwrack, than to expect from them the Philosophy of that World, and all its differences from the present. And as for the other Nations that pretend to greater Antiquities, to more ancient History and Chronology, from what is left of their Monuments many will allow only this difference, that their fabulous Age begun more high, or that they had more ancient Fables.

But besides that our expectations cannot be great from the learning of the *Gentiles*, we have not the means or opportunity to inform our selves well what Notions they did leave us concerning the Primitive World ; for their Books and Monuments are generally lost or lie hid unknown to us. The Learning of the World may be divided into the Eastern learning and the Western ; and I look upon the Eastern as far more considerable for Philosophical Antiquities, and Philosophical Conclusions ; I say *Conclusions*, for I do not believe either of them had any considerable Theory, or Contexture of Principles and Conclusions together : But 'tis certain, that in the East, from what Source soever it came, Humane or Divine, they had some extraordinary Doctrines and Notions disperst amongst them. Now as by the Western learning we understand that of the *Greeks* and *Romans* ; so by the Eastern, that which was amongst the *Ægyptians*, *Phœnicians*, *Chaldæans*, *Assyrians*, and *Persians* ; and of the Learning of these Nations, how little have we now left ? except some fragments and Citations in *Greek* Authors, what do we know of them ? But if we had, not only those Books intire, whereof we have now the gleanings and reversions only, but all that have perisht besides, especially in that famous Library at *Alexandria* ; if these, I say, were all restor'd to the World again, we might promise our selves the satisfaction of seeing more of the Antiquities, and Natural History of the first World, than we have now left, or can reasonably expect. That Library we speak of,

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at *Alexandria*, was a Collection, besides *Greek* Books, of *Ægyptian*, *Chaldean*, and all the Eastern Learning; and *Cedrenus* makes it to consist of an hundred thousand Volumes: But *Josephus* saith, when the Translation of the Bible by the *Septuagint* was to be added to it, *Demetrius Phalereus* (who was keeper or Governour of it) told the King then, that he had already two hundred thousand Volumes, and that he hop'd to make them up five hundred thousand; And he was better than his word, or his Successors for him, for *Ammianus Marcellinus*, and other Authors report them to have increas'd to seven hundred thousand. This Library was unfortunately burnt in the sacking of *Alexandria* by *Cæsar*, and considering that all these were ancient Books, and generally of the Eastern wisdom, 'twas an inestimable and irreparable loss to the Commonwealth of Learning.

As for the Western Learning, we may remember what the *Ægyptian* Priest says to *Solon* in *Plato's Timæus*, *You Greeks are always Children*, and know nothing of Antiquity; And if the *Greeks* were so, much more the *Romans*, who came after them in time, and for so great a people, and so much civiliz'd, never any had less Philosophy, and less of the Sciences amongst them than the *Romans* had; They studied only the Art of Speaking, of Governing, and of Fighting, and left the rest to the *Greeks* and Eastern Nations as unprofitable. Yet we have reason to believe, that the best Philosophical Antiquities that the *Romans* had, perisht with the Books of *Varro*, of *Numa Pompilius*, and of the ancient *Sibyls*. *Varro* writ, as *S. Austin* tells us, a multitude of Volumes, and of various sorts, and I had rather retrieve his works, than the works of any other *Roman* Author; not his Etymologies and Criticisms, where we see nothing admirable, but his *Theologia Physica*, and his *Antiquitates*; which in all probability would have given us more light into remote times, and the Natural History of the past World, than all the Latin Authors besides have done. He has left the foremention'd distinction of three Periods of time; He had the doctrine of the *Mundane Egg*, as we see in *Probus Grammaticus*; and he gave us that observa-

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tion of the Star *Venus*, concerning the great change she suffer'd about the time of our Deluge.

Numa Pompilius was doubtless a contemplative man, and 'tis thought that he understood the true System of the World, and represented the Sun by his *Vestal Fire*; though, methinks, *Vesta* does not so properly refer to the Sun, as to the Earth, which hath a Sacred fire too, that is not to be extinguish'd. He order'd his Books to be buried with him, which were found in a Stone-Chest by him four hundred years after his death; They were in all twenty four, whereof twelve contain'd Sacred Rites and Ceremonies, and the other twelve the Philosophy and Wisdom of the *Greeks*; The *Romans* gave them to the *Prætor Petilius* to peruse; and to make his report to the Senate, whether they were fit to be publish'd or no: The *Prætor* made a wise politick report, that the Contents of them might be of dangerous consequence to the establish'd Laws and Religion; and thereupon they were condemn'd to be burnt, and posterity was depriv'd of that ancient treasure whatsoever it was. What the nine Books of the *Sibyl* contain'd, that were offer'd to King *Tarquin*, we little know; She valued them high, and the higher still the more they seem'd to slight or neglect them; which is a piece of very natural indignation or contempt, when one is satisfi'd of the worth of what they offer. 'Tis likely they respect'd besides the fate of *Rome*, the fate and several periods of the World, both past and to come, and the most mystical passages of them. And in these Authors and Monuments are lost the greatest hopes of Natural and Philosophick Antiquities, that we could have had from the *Romans*.

And as to the *Greeks*, their best and Sacred Learning was not originally their own; they enrich themselves with the Spoils of the East, and the best remains we have of that Eastern Learning, is what we pick out of the *Greeks*; whose works, I believe, if they were intirely extant, we should not need to go any further for witnesses to confirm all the principal parts of this Theory. With what regret does one read in *Laertius*, *Suidas*, and others, the promising titles of
Books

Books writ by the *Greek* Philosophers, hundreds or thousands, whereof there is not one now extant; and those that are extant are generally but fragments: Those Authors also that have writ their Lives, or collected their Opinions, have done it confus'dly and injudiciously. I should hope for as much light and instruction, as to the Original of the World, from *Orpheus* alone, if his works had been preserv'd, as from all that is extant now of the other *Greek* Philosophers. We may see from what remains of him, that he understood in a good measure, how the Earth rise from a Chaos, what was its external Figure, and what the form of its inward structure; The opinion of the *Oval* Figure of the Earth is ascrib'd to *Orpheus* and his Disciples; and the doctrine of the *Mundane Egg* is so peculiarly his, that 'tis call'd by *Proclus*, The *Orphick Egg*; not that he was the first Author of that doctrine, but the first that brought it into *Greece*.

Thus much concerning the Heathen Learning, Eastern and Western, and the small remains of it in things Philosophical; 'tis no wonder then if the account we have left us from them of the Primitive Earth, and the Antiquities of the natural World be very imperfect. And yet we have trac'd (in the precedent Chapter, and more largely in our Latin Treatise) the footsteps of several parts of this Theory amongst the writings and Traditions of the Ancients, and even of those parts that seem the most strange and singular, and that are the Basis upon which the rest stand. We have shown there, that their account of the Chaos, though it seem'd to many but a Poetical Rhapsody, contain'd the true mystery of the formation of the Primitive Earth. We have also shown upon the same occasion, that both the external Figure and internal form of that Earth was compriz'd and signified in their ancient doctrine of the *Mundane Egg*, which hath been propagated through all the Learned Nations. And lastly, as to the situation of that Earth, and the change of its posture since, that the memory of that has been kept up, we have brought several testimonies and indications from the *Greek* Philosophers. And these were the three great and fundamental

Tell. Theor.
lib. 2. c. 7.

Ibid. cap.
10.

Ibid.

fundamental properties of the Primitive Earth, upon which all the other depend, and all its differences from the present Order of Nature. You see then, though Providence hath suffer'd the Heathen Learning and their Monuments in a great part to perish, yet we are not left wholly without witnesses amongst them in a speculation of this great importance.

You will say, it may be, though this account, as to the Books and Learning of the Heathen, may be lookt upon as reasonable, yet we might expect however, from the *Jewish* and *Christian* Authors, a more full and satisfactory account of that Primitive Earth, and of the Old World. First, as to the *Jews*, 'tis well known that they have no ancient Learning, unless by way of Tradition, amongst them. There is not a Book extant in their Language, excepting the Canon of the Old Testament, that hath not been writ since our Saviour's time. They are very bad Masters of Antiquity, and they may in some measure be excus'd, because of their several captivities, dispersions, and desolations. In the *Babylonish* captivity their Temple was ranack'd, and they did not preserve, as is thought, so much as the Autograph or original Manuscript of the Law, nor the Books of those of their Prophets that were then extant, and kept in the Temple; And at their return from the Captivity after seventy years, they seem to have had forgot their Native Language so much, that the Law was to be interpreted to them in *Chaldee*, after it was read in *Hebrew*; for so I understand that interpretation in *Nehemiah*. 'Twas a great Providence, methinks, that c. 8. 7, 8. they should any way preserve their Law, and other Books of Scripture in the Captivity for so long a time; for 'tis likely they had not the liberty of using them in any publick worship, seeing they return'd so ignorant of their own Language, and as 'tis thought, of their Alphabet and Character too. And if their Sacred Books were hardly preserv'd, we may easily believe all others perisht in that publick desolation.

Yet there was another destruction of that Nation, and their Temple, greater than this, by the *Romans*; and if there were any remains of Learning preserv'd

in the former ruine, or any recruits made since that time, this second desolation would sweep them all away. And accordingly we see they have nothing left in their Tongue, besides the Bible, so ancient as the destruction of *Jerusalem*. These, and other publick calamities of the *Jewish* Nation, may reasonably be thought to have wasted their Records of ancient Learning, *if they had any*; for, to speak truth, the *Jews* are a people of little curiosity, as to Sciences and Philosophical enquiries: They were very tenacious of their own Customs, and careful of those Traditions that did respect them, but were not remarkable, that I know of, or thought great Proficients in any other sort of Learning. There has been a great fame, 'tis true, of the *Jewish Cabala*, and of great mysteries contain'd in it; and, I believe, there was once a Traditional doctrine amongst some of them, that had extraordinary Notions and Conclusions: But where is this now to be found? The *Essenes* were the likeliest Sect amongst them to retain such doctrines, but 'tis probable they are now so mixt with things fabulous and fantastical, that what one should alledge from thence would be of little or no authority. One Head in this *Cabala* was the doctrine of the *Sephiroth*, and though the explication of them be uncertain, the Inferiour *Sephiroth* in the Corporeal World cannot so well be appli'd to any thing, as to those several Orbs and Regions, infolding one another, whereof the Primigenial Earth was compos'd. Yet such conjectures, I know, are of no validity, but in consort with better Arguments. I have often thought also, that their first and second Temple represented the first and second Earth or World; and that of *Ezekiel's*, which is the third, is still to be erected, the most beautiful of all, when this second Temple of the World shall be burnt down. If the Prophecies of *Enoch* had been preserv'd, and taken into the Canon by *Ezra*, after their return from *Babylon*, when the Collection of their Sacred Books is suppos'd to have been made, we might probably have had a considerable account there, both of times past and to come, of Antiquities and Futurities; for those Prophecies are generally suppos'd to have

have contain'd both the first and second fate of this Earth, and all the Periods of it. But as this Book is lost to us, so I look upon all others that pretend to be Ante-Mosaical or Patriarchal, as Spurious and Fabulous.

Thus much concerning the *Jews*. As for *Christian* Authors, their knowledge must be from some of these fore-mention'd, *Jews* or *Heathens*; or else by Apostolical Tradition: For the *Christian* Fathers were not very speculative, so as to raise a Theory from their own thoughts and contemplations, concerning the Origin of the Earth. We have instanc'd, in the last Chapter, in a *Christian* Tradition, concerning *Paradise*, and the high situation of it, which is fully consonant to the site of the Primitive Earth, where *Paradise* stood, and doth seem plainly to refer to it, being unintelligible upon any other supposition. And 'twas, I believe, this elevation of *Paradise*, and the pensile structure of that *Paradisiacal* Earth, that gave occasion to *Celsus*, as we see by *Origen's* answer, to say, that the *Christian Paradise* was taken from the pensile Gardens of *Alcinous*: But we may see now what was the ground of such expressions or Traditions amongst the Ancients, which Providence left to keep mens minds awake; not fully to instruct them, but to confirm them in the truth, when it should come to be made known in other methods. We have noted also above, that the ancient Books and Authors amongst the *Christians*, that were most likely to inform us in this Argument, have perisht, and are lost out of the World, such as *Ephrem Syrus de ortu rerum*, and *Tertullian de Paradiso*; and that piece which is extant, of *Moses Bar Cepha's* upon this subject, receives more light from our *Hypothesis*, than from any other I know; for correcting some mistakes about the Figure of the Earth, which the Ancients were often guilty of, the obscurity or confusion of that Discourse in other things, may be easily rectified, if compar'd with this Theory.

Of this nature also is that Tradition that is common both to *Jews* and *Christians*, and which we have often mention'd before, that there was a perpetual se-

Lat. Treat.
lib. 2. c. 10.

renity, and perpetual Equinox in *Paradise*; which cannot be upon this Earth, not so much as under the Equinoctial; for they have a sort of Winter and Summer there, a course of Rains at certain times of the Year, and great inequalities of the Air, as to heat and cold, moisture and drought. They had also Traditions amongst them, *That there was no Rain from the beginning of the World till the Deluge*, and that *there were no Mountains till the Flood*, and such like; These, you see, point directly at such an Earth as we have describ'd. And I call these *Traditions*, because we cannot find the Original Authors of them; The ancient *ordinary Gloss* (upon *Genesis*) which some make Eight hundred years old, mentions both these Opinions; so does *Historia Scholastica*, *Alcuinus*, *Rabanus Maurus*, *Lyranus*, and such Collectors of Antiquity. *Bede* also relates that of the *plainness* or smoothness of the *Antediluvian* Earth. Yet these are reported Traditionally, as it were, naming no Authors or Books from whence they were taken; Nor can it be imagin'd that they feign'd them themselves; to what end or purpose? it serv'd no interest; or upon what ground? seeing they had no Theory that could lead them to such Notions as these, or that could be strengthen'd and confirm'd by them. Those opinions also of the Fathers, which we recited in the seventh Chapter, placing *Paradise* beyond the Torrid Zone, and making it thereby inaccessible, suit very well to the form, qualities, and bipartition of the Primæval Earth, and seem to be grounded upon them.

Thus much may serve for a short Survey of the ancient Learning, to give us a reasonable account, why the memory and knowledge of the Primitive Earth should be so much lost out of the World; and what we retain of it still; which would be far more, I do not doubt, if all Manuscripts were brought to light, that are yet extant in publick or private Libraries. The truth is, one cannot judge with certainty, neither what things have been recorded and preserv'd in the monuments of Learning, nor what are still; not what have been, because so many of those Monuments are lost: The *Alexandrian* Library, which

we spoke of before, seems to have been the greatest Collection that ever was made before Christianity; and the *Constantinopolitan* (begun by *Constantine*, and destroy'd in the Fifth Century, when it was rais'd to the number, as is said, of one hundred twenty thousand Volumes) the most valuable that was ever since, and both these have been permitted by Providence to perish in the merciless Flames. Besides those devastations of Books and Libraries that have been made in Christendom, by the *Northern* barbarous Nations overflowing *Europe*, and the *Saracens* and *Turks* great parts of *Asia* and *Africk*. It is hard therefore to pronounce what knowledge hath been in the World, or what accounts of Antiquity ; Neither can we well judge what remain, or of what things the memory may be still latently conserv'd ; for besides those Manuscripts that are yet unexamined in these parts of Christendom, and those that have been scarce view'd in the great *Abyssine* or *Æthiopick* Library, there are many, doubtless, of good value in other parts ; and we know particularly of two noble Libraries, that of *Buda*, and that of *Fez*, both in the hands of *Mahometans* ; who keep them as the Dragon did the Golden Apples, will neither make use of them themselves, nor suffer others to peruse them. The Library of *Fez* is said to contain thirty two thousand Volumes in *Arabick*, and though the *Arabick* Learning was most-what *Western*, and therefore of less account, yet they did deal in *Eastern* Learning too ; for *Averroes* writ a Book with that Title, *Philosophia Orientalis*. There may be also in the *East* thousands of Manuscripts unknown to us, of greater value than most Books we have : And as to those subjects we are treating of, I should promise my self more light and confirmation from the *Syriack* Authors than from any others. These things being consider'd, we can make but a very imperfect estimate, what evidences are left us, and what accounts of the Primitive Earth ; and if these deductions and defalcations be made, both for what Books are wholly lost, and for what lie asleep or dead in Libraries, we have reason to be satisfied in a Theory of this nature, to find so good attestations as we have
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produc'd for the several parts of it; which we purpose to inlarge upon considerably at another time and occasion.

But to carry this Objection as far as may be, let us suppose it to be urg'd still in the last place, that though these Humane writings have perisht, or be imperfect, yet in the Divine writings at least, we might expect, that the memory of the Old World, and of the Primitive Earth should have been preserv'd. To this I answer in short, That we could not expect in the Scriptures any Natural Theory of that Earth, nor any account of it, but what was general; and this we have, both by the *Tehom-Rabba* of *Moses*, and the description of the same Abyſſe in other places of Scripture, as we have shown at large in the First Book, *Chap. 7.* And also by the description which *S. Peter* hath given of the Ante-diluvian Heavens and Earth, and their different constitution from the present. You will say, it may be, that that place of *S. Peter* is capable of another interpretation; so are most places of Scripture, if you speak of a bare capacity, they are capable of more than one interpretation; but that which is most natural, proper and congruous, suitable to the words, suitable to the Argument, and suitable to the Context, wherein is nothing superfluous or impertinent, that we prefer and accept of as the most reasonable interpretation. Besides, in such Texts as relate to the Natural World, if of two interpretations propos'd, one agrees better with the Theory of Nature than the other, *ceteris paribus*, that ought to be prefer'd. And by these two rules we are willing to be tri'd, in the exposition of that remarkable Discourse of *S. Peter's*, and to stand to that sense which is found most agreeable to them.

*2 Pet. 3. 5,
6, &c.*

Give me leave to conclude the whole Discourse with this general Consideration; 'Tis reasonable to suppose, that there is a Providence in the conduct of *Knowledge*, as well as of other affairs on the Earth; and that it was not design'd that all the mysteries of Nature and Providence should be plainly and clearly understood throughout all the Ages of the World, but that there is an Order establisht for this as
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for other things, and certain Periods and Seasons; And what was made known to the Ancients only by broken Conclusions and Traditions, will be known (in the later Ages of the World) in a more perfect way, by Principles and Theories. The increase of Knowledge being that which changeth so much the face of the World, and the state of Humane affairs, I do not doubt but there is a particular care and superintendency for the conduct of it, by what steps and degrees it should come to light, at what Seasons, and in what Ages; what evidence should be left, either in Scripture, Reason, or Tradition for the grounds of it, how clear or obscure, how disperst or united; all these things were weigh'd and consider'd, and such measures taken as best suit the designs of Providence, and the general project and method propos'd in the government of the World. And I make no question but the state both of the Old World, and of that which is to come, is exhibited to us in Scripture in such a measure and proportion, as is fit for this fore-mention'd purpose; not as the Articles of our Faith, or the precepts of a good Life, which he that runs may read, but to the attentive and reflexive, to those that are unprejudic'd, and to those that are inquisitive, and have their minds open and prepar'd for the discernment of mysteries of such a nature.

Thus much in answer to that general Objection which might be made against this Theory, *That* it is not founded in Antiquity. I do not doubt but there may be many particular Objections against Parts and Sections of it, and the exposing it thus in our own Tongue may excite some or other, it may be, to make them; but if any be so minded, I desire (if they be Scholars) that it may rather be in *Latin*, as being more proper for a subject of this nature; and also that they would keep themselves close to the substance of the Theory, and wound that as much as they can; but to make excursions upon things accidental or collateral, that do not destroy the *Hypothesis*, is but to trouble the World with impertinencies. Now the substance of the Theory is this, **T H A T** there was a *Primitive Earth* of another form from the present,

present, and inhabited by Mankind till the Deluge ; That it had those properties and conditions that we have ascrib'd to it, namely, a perpetual Equinox or Spring, by reason of its *right* situation to the Sun ; Was of an Oval Figure, and the exterior face of it smooth and uniform, without Mountains or a Sea. That in this Earth stood *Paradise* ; the doctrine whereof cannot be understood but upon supposition of this Primitive Earth, and its properties. Then that the disruption and fall of this Earth into the Abyffe, which lay under it, was that which made the Universal Deluge, and the destruction of the Old World ; And that neither *Noah's* Flood, nor the present form of the Earth can be explain'd in any other method that is rational, nor by any other Causes that are intelligible. These are the Vitals of the Theory, and the primary Assertions whereof I do freely profess my full belief, and whosoever by solid reasons will show me in an Errour, and undeceive me, I shall be very much oblig'd to him. There are other lesser Conclusions which flow from these, and may be call'd Secondary, As that the Longevity of the Ante-diluvians depended upon their perpetual Equinox, and the perpetual equality and serenity of the Air ; That the Torrid Zone in the Primitive Earth was uninhabitable ; And that all their Rivers flow'd from the extreme parts of the Earth towards the Equinoctial ; there being neither Rain nor Rainbow in the temperate and habitable Regions of it ; And lastly, that the place of *Paradise*, according to the opinion of Antiquity, was in the Southern Hemisphere. These, I think, are all truly deduc'd and prov'd in their several ways, though they be not such essential parts of the Theory as the former. There are also besides, many particular Explications that are to be consider'd with more liberty and latitude, and may be perhaps upon better thoughts, or better observations, correct-ed, without any prejudice to the general Theory. Those places of Scripture which we have cited, I think, are all truly appli'd ; and I have not mention'd *Moses's Cosmopæia*, because I thought it deliver'd by him as a Lawgiver, not as a Philosopher ; which I intend

tend to show at large in another Treatise, not thinking that discussion proper for the Vulgar Tongue. Upon the whole, we are to remember, that some allowances are to be made for every *Hypothesis* that is new-propos'd and untri'd, and that we ought not out of levity of wit, or any private design, discountenance free and fair Essays, nor from any other motive, but the only love and concern of Truth.

C H A P. X.

Concerning the Author of Nature.

Seeing the Theory which we have propos'd in this Work is of that extent and comprehension, that it begins with the first foundation of this World, and is to reach to the last Period of it, in one continued Series or chain of Nature; It will not be improper, before we conclude, to make some reflections and remarks what *Nature* is, and upon what Superiour Causes she depends in all her Motions and operations: And this will lead us to the discovery of the *Author* of Nature, and to the true Notion and state of *Natural Providence*, which seems to have been hitherto very much neglected, or little understood in the World. And 'tis the more reasonable and fitting, that we should explain these Notions before we shut up this Treatise, lest those Natural Explications which we have given of the Deluge, and other things, should be mistaken or misappli'd; Seeing some are apt to run away with pieces of a Discourse, which they think applicable to their purpose, or which they can maliciously represent, without attending to the scope or just limitations of what is spoken.

By *Nature* in general is understood All the Powers of Finite Beings, with the Laws establish'd for their action and conduct, according to the ordinary course of things. And this extends both to Intellectual Be-

ings and Corporeal ; but seeing 'tis only the Material World that hath been the subject of our Discourse, Nature, as to that, may be defin'd, The Powers of *Matter*, with the Laws establish'd for their action and conduct. Seeing also *Matter* hath no action, whether from it self, or impress'd upon it, but *Motion*, as to the Corporeal World Nature is no more than The powers and capacities of *Matter*, with the Laws that govern the *Motions* of it. And this definition is so plain and easie, that, I believe, all parties will agree in it ; There will also be no great controversie what these Laws are, As that one part of *Matter* cannot penetrate another, nor be in several places at once ; That the greater Body overcomes the less, and the swifter the slower ; That all *Motion* is in a right line, till something obstruct it or divert it ; which are points little disputed as to the matter of fact ; but the points concerning which the controversie ariseth, and which are to lead us to the Author of Nature, are these, *Who* or *what* is the Author of these *Laws* ? of this *Motion* ? and even of *Matter* it self ; and of all those modes and forms of it which we see in Nature ?

The Question useth chiefly to be put concerning *Motion*, how it came into the World ; what the first Source of it is, or how *Matter* came at first to be mov'd ? For the simple notion of *Matter*, not divided into parts, nor diversified, doth not imply *Motion*, but *Extension* only ; 'Tis true, from *Extension* there necessarily follows *mobility*, or a capacity of being mov'd by an External power, but not actual or necessary *Motion* springing from it self. For dimensions, or length, breadth, and depth, which is the *Idea* of *Matter*, or of a *Body*, do no way include local *Motion*, or translation of parts ; on the contrary, we do more easily and naturally conceive simple *Extension* as a thing steddly and fixt, and if we conceive *Motion* in it, or in its parts, we must superadd something to our first thought, and something that does not flow from *Extension*. As when we conceive a *Figure*, a *Triangle*, *Square*, or any other, we naturally conceive it fixt or quiescent, and if afterwards we imagine

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gine it in Motion, that is purely accidental to the Figure; in like manner it is accidental to Matter, that there should be Motion in it, it hath no inward principle from whence that can flow, and its Nature is compleat without it; Wherefore if we find Motion and Action in Matter, which is of it self a dead inactive mass, this should lead us immediately to the Author of Nature, or to some External power distinct from Matter, which is the Cause of all Motion in the World.

In single Bodies, and single parts of Matter, we readily believe and conclude, that they do not move, unless something move them, and why should we not conclude the same thing of the whole mass? If a Rock or Mountain cannot move it self, nor divide it self, either into great gobbets, or into small powder, why should it not be as impossible for the whole mass of Matter to do so? 'Tis true, Matter is capable both of motion and rest, yet to conceive it undivided, un-diversified and unmov'd, is certainly a more simple Notion, than to conceive it divided and mov'd; and this being first in order of Nature, and an adequate conception too, we ought to inquire and give our selves an account how it came out of this state, and by what Causes, or, as we said before, how *Motion came first into the World.*

In the second place, That diversity which we see in Nature, both as to the qualities of Matter, and the compositions of it, being one step further than bare Motion, ought also to be a further indication of the Author of Nature, and to put us upon inquiry into the Causes of this diversity. There is nothing more uniform than simple Extension, nothing more the same throughout, all of a piece, and all of a sort, similar, and like to it self every where, yet we find the matter of the Universe diversified a thousand ways, into Heavens and Earth, Air and Water, Stars, Meteors, Light, Darknes, Stones, Wood, Animals, and all Terrestrial Bodies; These diversifications are still further removes from the natural unity and identity of Matter, and a further argument of some external and superiour power that hath given these different forms

to the several portions of Matter by the intervention of Motion. For if you exclude the Author of Nature, and suppose nothing but Matter in the World, take whether *Hypothesis* you will, either that Matter is without Motion of it self, or that it is of it self in Motion, there could not arise this diversity, and these compositions in it. If it was without Motion, then the case is plain, for it would be nothing but an hard inflexible lump of impenetrable extension, without any diversity at all. And if you suppose it mov'd of it self, or to have an innate Motion, that would certainly hinder all sort of natural concretions and compositions, and in effect destroy all Continuity. For Motion, if it be essential to Matter, it is essential to every Atome of it, and equally diffus'd throughout all its parts; and all those parts or Atomes would be equal to one another, and as little as possible; For if Matter was divided into parts by its own innate Motion, that would melt it down into parts as little as possible, and consequently all equal to one another, there being no reason why you should stop those divisions, or the effect of this innate *impetus* in any one part sooner than in another, or in any part indeed till it was divided as much as was possible; Wherefore upon this principle, or in this method all the Matter of the Universe would be one liquid or volatile mass, smaller than pin-dust, nay, than Air or Æther: And there would be no diversity of forms, only another sort of identity from the former. And so, upon the whole, you see, that Matter, whether we allow it Motion, or no Motion, could not come into that variety of tempers and compositions in which we find it in the World, without the influence and direction of a Superior external Cause, which we call the Author of Nature.

But there is still a further and stronger Argument from this Head, if we consider not only the diversity of Bodies, that the mass of Matter is cut into, but also that that diversity is *regular*, and in some parts of it admirably artful and ingenious. This will not only lead us to an Author of Nature, but to such an Author as hath Wisdom as well as Power. Matter is a
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brute Being, stupid and senseless, and though we should suppose it to have a force to move it self, yet that it should be able to meditate and consult, and take its measures how to frame a World, a regular and beautiful structure, consisting of such and such parts and Regions, and adapted to such and such purposes, this would be too extravagant to imagine; to allow it not only Motion from it self, but Wit and Judgment too; and that before it came into any Organical or Animate composition.

You'l say, it may be, The Frame of the World was not the result of counsel and consultation, but of *necessity*; Matter being once in Motion under the conduct of those Laws that are essential to it, it wrought it self by degrees from one state into another, till at length it came into the present form which we call the World. These are words thrown out at random, without any pretence of ground, only to see if they can be confuted; And so they may easily be, for we have shown already, that if Matter had innate Motion, it would be so far from running into the orderly and well dispos'd frame of the World, that it would run into no frame at all, into no forms, or compositions, or diversity of Bodies; but would either be all fluid, or all solid; either every single particle in a separate Motion, or all in one continued mass with an universal tremor, or inclination to move without actual separation; And either of these two states is far from the form of a World. Secondly, as to the Laws of Motion, as some of them are essential to Matter, so others are not demonstrable, but upon supposition of an Author of Nature. And thirdly, though all the Laws of Motion be admitted, they cannot bring Matter into the form of a World, unless some measures be taken at first by an intelligent Being; I say some measures be taken to determine the primary Motions upon which the rest depend, and to put them in a way that leads to the formation of a World. The mass must be divided into Regions, and Centers fixt, and Motions appropriated to them; and it must be consider'd of what magnitude the first Bodies, or the first divisions of Matter should be, and how mov'd:
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Besides, there must be a determinate proportion, and certain degree of motion impress'd upon the universal Matter to qualify it for the production of a World; if the dose was either too strong or too weak, the work would miscarry; And nothing but infinite Wisdom could see thorough the effects of every proportion, or every new degree of Motion, and discern which was best for the beginning, progress, and perfection of a World. So you see the Author of Nature is no way excluded, or made useless by the Laws of Motion, nor if Matter was promiscuously mov'd would these be sufficient causes of themselves to produce a World, or that regular diversity of Bodies that compose it.

But 'tis hard to satisfy men against their inclinations, or their interest: And as the regularity of the Universe was always a great stumbling-stone to the *Epicuræans*; so they have endeavour'd to make shifts of all sorts to give an account and answer to it, without recourse to an intelligent Principle; And for their last refuge, they say, that Chance might bring that to pass, which Nature and Necessity could not do; The Atoms might hit upon a lucky sett of Motions, which though it were casual and fortuitous, might happily lead them to the forming of a World. A lucky hit indeed, for Chance to frame a World: But this is a meer shuffle and collusion; for if there was nothing in Nature but Matter, there could be no such thing as Chance, all would be pure mechanical necessity; and so this answer, though it seem very different, is the same in effect with the former, and *Epicurus* with his Atomists are oblig'd to give a just mechanical account, how all the parts of Nature, the most compound and elaborate parts not excepted, rise from their Atoms by pure necessity: There could be no accidental concurrence or coalition of them, every step, every motion, every composition was fatal and necessary. And therefore 'tis non-sence for an *Epicuræan* to talk of Chance, as Chance is oppos'd to Necessity; And if they oppose it to *Counsel* and *Wisdom*, 'tis little better than non-sence, to say the World and all its furniture rise by Chance, in that notion of it. But

it will deserve our patience a little to give a more full and distinct answer to this, seeing it reacheth all their pleas and evasions at once.

What proof or demonstration of Wisdom and Counsel can be given, or can be desir'd, that is not found in some part of the World, Animate or Inanimate? We know but a little portion of the Universe, a meer point in comparison, and a broken point too, and yet in this broken point, or some small parcels of it, there is more of Art, Counsel and Wisdom shewn, than in all the works of men taken together, or than in all our *Artificial* World. In the construction of the Body of an Animal, there is more of thought and contrivance, more of exquisite invention, and fit disposition of parts, than is in all the Temples, Palaces, Ships, Theaters, or any other pieces of Architecture the World ever yet see: And not Architecture only, but all other Mechanism whatsoever, Engines, Clock-work, or any other is not comparable to the Body of a living Creature. Seeing then we acknowledge these artificial works, wheresoever we meet with them, to be the effects of Wit, Understanding and Reason, is it not manifest partiality, or stupidity rather, to deny the works of Nature, which excel these in all degrees, to proceed from an intelligent Principle? Let them take any piece of Humane Art, or any Machine fram'd by the wit of Man, and compare it with the body of an Animal, either for diversity and multiplicity of workmanship, or curiosity in the minute parts, or just connexion and dependance of one thing upon another, or fit subserviency to the ends propos'd, of life, motion, use and ornament to the Creature, and if in all these respects they find it superiour to any work of Humane production, as they certainly must do, why should it be thought to proceed from inferior and senseless Causes? ought we not in this, as well as in other things, to proportion the Causes to the Effect? and to speak truth, and bring in an honest Verdict for Nature as well as Art.

In the composition of a perfect Animal, there are four several frames or Compages joyn'd together, The Natural, Vital, Animal, and Genital; Let them examine

examine any one of these apart, and try if they can find any thing defective or superfluous, or any way inept, for matter or form. Let them view the whole Compages of the Bones, and especially the admirable construction, texture and disposition of the Muscles, which are joyn'd with them for moving the Body, or its parts. Let them take an account of the little Pipes and Conduits for the Juices and the Liquors, of their form and distribution; Or let them take any single Organ to examine, as the Eye, or the Ear, the Hand or the Heart; In each of these they may discover such arguments of Wisdom, and of Art, as will either convince them, or confound them; though still they must leave greater undiscover'd. We know little the insensible form and contexture of the parts of the Body, nor the just method of their Action; We know not yet the manner, order, and causes of the Motion of the Heart, which is the chief Spring of the whole Machine; and with how little exactness do we understand the Brain, and the parts belonging to it? why of that temper and of that form? how Motions are propagated there, and how conserv'd? how they answer the several operations of the Mind? why such little discomposures of it disturb our Senses, and upon what little differences in this the great differences of Wits and Genius's depend. Yet seeing in all these Organs, whose make and manner of action we cannot discover, we see however by the Effects, that they are truly fitted for those offices to which Nature hath design'd them, we ought in reason to admire that Art which we cannot penetrate; At least we cannot but judge it a thing absurd, that what we have not wit enough to find out or comprehend, we should not allow to be an argument of wit and understanding in the Author, or Inventor of it. This would be against all Logick, common Sense, and common *Decorum*. Neither do I think it possible to the mind of man, while we attend to evidence, to believe that these, and such like works of Nature came by *Chance*, as they call it, or without Providence, forecast and wisdom, either in the first Causes, or in the proximate; in the design, or in the execution; in the
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preparation to them, or in the finishing of them.

Wherefore, in my judgment, if any be of this persuasion, it cannot be so much the effect of their understanding, as of their disposition and inclination; and in moral things mens opinions do as often spring from the one as from the other. For my part I do generally distinguish of two sorts of opinions in all men, *Inclination-opinions*, and *Reason'd-opinions*; Opinions that grow upon mens Complexions, and Opinions that are the results of their Reason; and I meet with very few that are of a temperament so equal, or a constitution so even pois'd, but that they incline to one sett of Opinions rather than another, antecedently to all proofs of Reason: And when they have espous'd their opinions from that secret sympathy, then they find out as good Reasons as they can to maintain them, and say, nay think sometimes, that 'twas for the sake of those Reasons that they first imbrac'd them. We may commonly distinguish these Inclination-opinions from the Rational, because we find them accompanied with more Heat than Light, a great deal of eagerness and impatience in defending of them, and but slender arguments. One might give instances of this, both in Sects of Religion and Philosophy, in *Platonists*, *Stoicks*, and *Epicuræans*, that are so by their temper more than their reason, but to our purpose it will be sufficient to instance in one hearty *Epicuræan*, *Lucretius*, who is manifestly such, more from his inclination, and the bent of his Spirit, than from the force of Argument. For though his suppositions be very precarious, and his reasonings all along very slight, he will many times strut and triumph, as if he had wrested the Thunder out of *Joves* right hand; and a Mathematician is not more confident of his demonstration, than he seems to be of the truth of his shallow Philosophy. From such a principle of natural Complexion as this, I allow a man may be Atheistical, but never from the calm dictate of his Reason; yet he may be as confident, and as tenacious of his Conclusion, as if he had a clear and distinct evidence for it. For I take it to be a true Maxim in Humane Nature, that *A strong inclination,*

with a little evidence, is equivalent to a strong evidence. And therefore we are not to be surpris'd, if we find men confident in their opinions many times far beyond the degree of their evidence, seeing there are other things besides evidence that incline the Will to one Conclusion rather than another. And as I have instanc'd in Natural Complexion, so *Interest* hath the same effect upon Humane Nature, because it always begets an inclination to those opinions that favour our interest, and a disinclination to the contrary; And this principle may be another ingredient, and secret perswasive to Atheism; for when men have run themselves so deep into Vice and Immorality, that they expect no benefit from a God, 'tis in a manner necessary to their quiet, and the ease of their mind, that they should fancy there is none; for they are afraid, if there be a God, that he will not stand neuter, and let them alone in another World. This, I say, is necessary to the quiet of their mind, unless they can attain that great Art, which many labour after, of *non-reflection*, or an *unthinking faculty*, as to God and a World to come. But to return to our Argument, after this short digression ----

As that regular diversity which we see in the forms of Nature, and especially in the Bodies of Animals, could not be from any blind principle, either of Necessity or of Chance; So, in the last place, that *Subordination* which we see in the parts of Nature, and subserviency to one another, the less Noble to the more Noble, the Inanimate to the Animate, and all things upon Earth unto Man, must needs have been the effect of some Being higher than Matter, that did wisely dispose all things so at first, and doth still conserve them in the same order. If Man had been born into the World, and a numerous host of Creatures, without any provision or accommodation made for their subsistence and conveniences, we might have suspected that they had come by Chance, and therefore were so ill provided for; but which of them can complain? through their various Kinds and Orders, what is their awanting? They are all fitted to their several Elements, and their ways of living, Birds,
Beasts,

Beasts, and Fishes, both by the form and shape of their Bodies, the manner of their covering, and the quality of their food. Besides, they are instructed in little Arts and Instincts for their conservation; and not only for their proper conservation, but also to find a way to make and bring up young-ones, and leave behind them a Posterity; And all this in so fit a method, and by such a pretty train of actions, as is really admirable.

Man is the Master of all, and of him a double care is taken; that he should neither want what Nature can afford, nor what Art can supply. He could not be provided of all conveniences by Nature only, especially to secure him against the injuries of the Air; but in recompence, Nature hath provided materials for all those Arts which she see would be needful in Humane Life; as Building, Cloathing, Navigation, Agriculture, &c. that so Mankind might have both wherewithal to answer their occasions, and also to imploy their time, and exercise their ingenuity. This Oeconomy of Nature, as I may call it, or well ordering of the great Family of living Creatures, is an argument both of Goodness and of Wisdom, and is every way far above the powers of brute Matter. All regular administration we ascribe to conduct and judgment; If an Army of men be well provided for in things necessary both for Food, Cloaths, Arms, Lodging, Security and Defence, so as nothing is awanting in so great a multitude, we suppose it the effect of care and forecast in those persons that had the charge of it; they took their measures at first, computed and proportion'd one thing to another, made good regulations, and gave orders for convenient supplies. And can we suppose the great Army of Creatures upon Earth manag'd and provided for with less fore-thought and Providence, nay, with none at all, by meer Chance? This is to recede from all rules and analogy of Reason, only to serve a turn, and gratifie an unreasonable humour.

To conclude this Argument; There are two general Heads of things, if I recollect aright, which we make the marks and characters of Wisdom and Reason,

son, Works of Art, and the Conduct of affairs or direction of means to an end; and wheresoever we meet, either with regular material works, or a regular ordination of affairs, we think we have a good title and warrant to derive them from an intelligent Author; Now these two being found in the Natural World, and that in an eminent degree, the one in the Frame of it, and the other in the Oeconomy of it, we have all the evidence and ground that can be in arguing from things visible to things invisible, that there is an Author of Nature, Superiour both to Humane Power and Humane Wisdom.

Before we proceed to give any further proofs or discoveries of the Author of Nature, let us reflect a little upon those we have already insisted upon; which have been taken wholly from the Material World, and from the common course of Nature. The very existence of Matter is a proof of a Deity, for the *Idea* of it hath no connexion with existence, as we shall show hereafter; however we will take leave now to set it down with the rest, in order as they follow one another.

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| 1. <i>The existence of Matter.</i> | 5. <i>The Laws for communication and regulation of that Motion.</i> |
| 2. <i>The Motion of Matter.</i> | 6. <i>The regular effects of it, especially in the Animate World.</i> |
| 3. <i>The just quantity and degree of that Motion.</i> | 7. <i>The Oeconomy of Nature, and fit Subordination of one part of the World to another.</i> |
| 4. <i>The first Form of the Universe upon Motion impressed; both as to the Divisions of Matter, and the Leading Motions.</i> | |

The five first of these Heads are prerequisites, and preparatives to the formation of a World, and the two last areas the image and character of its Maker, of his Power, Goodness and Wisdom, impressed upon it. Every one of them might well deserve a Chapter to it self, if the subject was to be treated on at large; but this is only an occasional dissertation, to state the Powers of Matter, lest they should be thought boundless

less, and the Author of Nature unnecessary, as the *Epicuræans* pretend; But notwithstanding their vain confidence and credulity, I defie them or any man else to make sence of the Material World, without placing a God at the Center of it.

To these considerations taken wholly from the Corporeal World, give me leave to add one of a mixt nature, concerning the *Union of our Soul and Body*. This strange effect, if rightly understood, doth as truly discover the Author of Nature, as many Effects that are accounted more Supernatural. The Incarnation, as I may so say, of a Spiritual substance, is to me a kind of standing miracle; That there should be such an union and connexion reciprocally betwixt the motions of the Body, and the actions and passions of the Soul, betwixt a substance Intellectual, and a parcel of organiz'd Matter, can be no effect of either of those substances; being wholly distinct in themselves, and remote in their natures from one another. For instance, when my Finger is cut, or when 'tis burnt, that my Soul thereupon should feel such a smart and violent pain, is no consequence of Nature, or does not follow from any connexion there is betwixt the Motion or Division of that piece of Matter, I call my Finger, and the passion of that Spirit I call my Soul; for these are two distinct Essences, and in themselves independent upon one another, as much as the Sun and my Body are independent; and there is no more reason in strict Nature, or in the essential chain of Causes and Effects, that my Soul should suffer, or be affected with this Motion in the Finger, than that the Sun should be affected with it; nay, there is less reason, if less can be, for the Sun being Corporeal, as the finger is, there is some remote possibility that there might be communication of Motion betwixt them; but Motion cannot beget a thought, or a passion by its own force; Motion can beget nothing but Motion, and if it should produce a thought, the Effect would be more noble than the Cause. Wherefore this Union is not by any necessity of Nature, but only from a positive Institution, or Decree establishd by the Author of Nature, that there should be such a communication

cation betwixt these two substances for a time, *viz.* during the Vitality of the Body.

'Tis true indeed, if Thought, Apprehension, and Reason, was nothing but Corporeal Motion, this Argument would be of no force; but to suppose this, is to admit an absurdity to cure a difficulty; to make a Thought out of a local Motion, is like making a God out of a Stock, or a Stone; for these two are as remote in their Nature, and have as different *Idea's* in the Mind, as any two disparate things we can propose or conceive; Number and Colour, a Triangle and Vertue, Free-will and a Pyramid are not more unlike, more distant, or of more different forms than Thought and local Motion. Motion is nothing but a Bodies changing its place and situation amongst other Bodies, and what affinity or resemblance hath that to a *Thought*? how is that like to Pain, or to a doubt of the Mind? to Hope or to Desire? to the *Idea* of God? to any act of the Will or Understanding, as judging, consenting, reasoning, remembring, or any other? These are things of several orders, that have no similitude, nor any mixture of one another. And as this is the nature of Motion, so on the other hand in a *Thought* there are two things, *Consciousness*, and a *Representation*; *Consciousness* is in all Thoughts indifferently, whether distinct or confus'd, for no man thinks but he is conscious that he thinks, nor perceives any thing but he is conscious that he perceives it; there is also in a Thought, especially if it be distinct, a representation; 'tis the image of that we think upon, and makes its Object present to the Mind. Now what hath local Motion to do with either of these two, *Consciousness*, or *Representativeness*? how doth it include either of them, or hold them any way affixt to its Nature? I think one may with as good sence and reason ask of what colour a Thought is, green or scarlet, as what sort of Motion it is; for Motion of what sort soever, can never be conscious, nor represent things as our Thoughts do. I have noted thus much in general, only to show the different nature of Motion and Cogitation, that we may be the more sensible that they have no mutual connexion in

us, nor in any other Creature from their essence or essential properties, but by a supervenient power from the Author of Nature, who hath thus united the Soul and the Body in their operations.

We have hitherto only consider'd the ordinary course of Nature, and what indications and proofs of its Author, that affords us; There is another remarkable Head of Arguments from effects extraordinary and supernatural, such as Miracles, Prophecies, Inspirations, Prodigies, Apparitions, Witchcraft, Sorceries, &c. These at one step lead us to something above Nature, and this is the shortest way, and the most popular; several Arguments are suited to several tempers, and God hath not left himself without a proper witness to every temper that is not wilfully blind. Of these witnesses, we now speak of, the most considerable are Miracles, and the most considerable Records of them are the Books of Scripture; which if we consider only as an History, and as having nothing Sacred in them more than other good Histories, that is, truth in matter of fact, we cannot doubt but there have been miracles in the World; That *Moses* and the Prophets, our Saviour and his Apostles wrought Miracles, I can no more question, than that *Cæsar* and *Alexander* fought Battles, and took Cities. So also that there were true Prophecies and Inspirations we know from Scripture, only consider'd as a true History. But as for other supernatural effects that are not recorded there, we have reason to examine them more strictly before we receive them, at least as to particular instances; for I am apt to think they are like Lotteries, where there are ten or twenty Blanks for one Prize; but yet if there were no Prizes at all, the Lottery would not have credit to subsist, and would be cri'd down as a perfect Cheat; So if amongst those many stories of Prodigies, Apparitions, and Witchcrafts, there were not some true, the very fame and thought of them would die from amongst men, and the first broachers of them would be hooted at as Cheats. As a false Religion that hath nothing true and solid mixt with it, can scarce be fixt upon Mankind; but where there is a mixture of true
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and false, the strength of the one supports the weakness of the other. As for Sorcery, the instances and examples of it are undeniable; not so much those few scatter'd instances that happen now and then amongst us, but such as are more constant, and in a manner National in some Countries, and amongst barbarous people. Besides, the Oracles, and the Magick that was so frequent amongst the Ancients, show us that there have been always some Powers more than Humane tampering with the affairs of Mankind. But this Topic from effects Extraordinary and Supernatural, being in a great measure Historical, and respecting evil Spirits as well as the Author of Nature, is not so proper for this place.

There is a third Sett or Head of Arguments, that to some tempers are more cogent and convictive than any of these, namely, Arguments *abstract* and *Metaphysical*; And these do not only lead us to an Author of Nature in general, but show us more of his properties and perfections; represent him to us as a supream Deity, infinitely perfect, the fountain of all Being, and the steady Center of all things. But reasons of this order, being of a finer thred, require more attention, and some preparation of Mind to make us discern them well, and be duly sensible of them. When a man hath withdrawn himself from the noise of this busie World, lock'd up his Senses and his Passions, and every thing that would unite him with it, commanded a general silence in the Soul, and suffers not a Thought to stir, but what looks inwards; Let him then reflect seriously, and ask himself, *What am I*, and *How came I into Being*? If I was Author and Original to my self, surely I ought to feel that mighty Power, and enjoy the pleasure of it; but, alas, I am conscious of no such force or Vertue, nor of any thing in my Nature, that should give me necessary existence; It hath no connexion with any part of me, nor any faculty in me, that I can discern. And now that I do exist, from what Causes soever, *Can I secure my self in Being*? now that I am in possession, am I sure to keep it? am I certain that three minutes hence I shall still exist? I may or I may not, for ought I see; Either seems

seems possible in it self, and either is contingent as to me; I find nothing in my Nature that can warrant my subsistence for one day, for one hour, for one moment longer. I am nothing but Thoughts, fleeting Thoughts, that chase and extinguish one another; and my Being, for ought I know, is successive, and as dying as they are, and renew'd to me every moment. This I am sure of, that so far as I know my self, and am conscious what I am, there is no principle of immutability, or of necessary and indefectible existence in my Nature; and therefore I ought in reason to believe that I stand or fall at the mercy of other Causes, and not by my own will, or my own sufficiency.

Besides, I am very sensible, and in this I cannot be mistaken, that my Nature is, in several respects, weak and imperfect; both as to Will and Understanding. I *will* many things in vain, and without effect, and I wish often what I have no ability to execute or obtain. And as to my Understanding, how defective is it? how little or nothing do I know in comparison of what I am ignorant of? Almost all the Intellectual World is shut up to me, and the far greatest part of the Corporeal; And in those things that fall under my cognizance, how often am I mistaken? I am confin'd to a narrow sphere, and yet within that sphere I often erre; my conceptions of things are obscure and confus'd, my reason short-sighted; I am forc'd often to correct my self, to acknowledge that I have judg'd false, and consented to an error. In sum, all my powers I find are limited, and I can easily conceive the same kind of perfections in higher degrees than I possess them, and consequently there are Beings, or may be, greater and more excellent than my self, and more able to subsist by their own power. Why should I not therefore believe that my Original is from those Beings rather than from my self? For every Nature, the more great and perfect it is, the nearer it approacheth to necessity of existence, and to a power of producing other things. Yet, the truth is, it must be acknowledg'd, that so long as the perfections of these other Beings are limited and finite, though they be far superiour to us, there is no necessity ariseth

from their Nature that they should exist; and the same Arguments that we have us'd against our selves; they may, in proportion, use against themselves; and therefore we must still advance higher to find a self-originated Being, whose existence must flow immediately from his essence, or have a necessary connexion with it.

And indeed all these different degrees of higher and higher perfections lead us directly to an highest, or Supream degree, which is Infinite and unlimited Perfection. As subordinate causes lead to the first, so Natures more perfect one than another lead us to a Nature infinitely perfect, which is the Fountain of them all. Thither we must go, if we will follow the course of Reason, which cannot stop at one more than another, till it arrive there; And being arriv'd there, at that Sovereign and Original Perfection, it finds a firm and immoveable ground to stand upon; the steady Center of all Being, wherein the Mind rests and is satisfied. All the scruples or objections that we mov'd against our selves, or other Creatures, take no place here; This Being is conscious of an All-sufficiency in it self, and of immutability as to any thing else, including in it all the causes of existence, or, to speak more properly, all necessity of existence. Besides, that we exist our selves, notwithstanding the imperfection and insufficiency of our Nature, is a just collateral proof of the existence of this Supream Being; for such an effect as this cannot be without its cause, and it can have no other competent cause but that. And as this Being is its own Origin, so it must needs be capable of producing all Creatures; for whatsoever is possible, must be possible to it; and that Creatures or finite Beings are possible, we both see by experience, and may also discern by Reason; for those several degrees of perfection, or limitations of it, which we mention'd before, are all consistent Notions, and consequently make consistent Natures, and such as may exist; but contingently indeed, and in dependance upon the first Cause.

Thus we are come at length to a fair resolution of that great Question, *Whence we are,* and *how we continue in Being?* And this hath led us by an easie ascent

to the Supream Author of Nature, and the first Cause of all things; and presents us also with such a Scheme and Draught of the Universe, as is clear and rational; every thing in its order, and in its place, according to the dignity of its Nature, and the strength of its principles. When the Mind hath rais'd it self into this view of a Being infinitely perfect, 'tis in a Region of Light, hath a free prospect every way, and sees all things from top to bottom, as pervious and transparent. Whereas without God and a First Cause, there is nothing but darkness and confusion in the Mind, and in Nature; broken views of things, short interrupted glimpses of Light, nothing certain or demonstrative, no Basis of Truth, no extent of Thought, no Science, no Contemplation.

You will say, it may be, 'Tis true, something must be *Eternal*, and of *necessary existence*, but why may not *Matter* be this *Eternal necessary Being*? Then our Souls and all other Intellectual things must be parts and parcels of *Matter*; and what pretensions can *Matter* have to those properties and perfections that we find in our Souls, how limited soever? much less to *necessary existence*, and those perfections that are the foundation of it? What exists *Eternally*, and from it self, its existence must flow immediately from its essence, as its cause, reason or ground; for as Existence hath always something antecedent to it in order of Nature, so that which is antecedent to it must infer it by a necessary connexion, and so may be call'd the cause, ground, or reason of it. And nothing can be such a ground, but what is a perfection; nor every perfection neither, it must be Sovereign and Infinite perfection; for from what else can necessary existence flow, or be inferr'd? Besides, if that Being was not infinitely perfect, there might be another Being more powerful than it, and consequently able to oppose and hinder its existence; and what may be hinder'd is contingent and arbitrary. Now *Matter* is so far from being a Nature infinitely perfect, that it hath no perfection at all, but that of bare *substance*; neither Life, Sense, Will or Understanding; nor so much as Motion, from it self; as we have show'd before. And

therefore this brute inactive mass, which is but, as it were, the Drudge of Nature, can have no right or title to that Sovereign prerogative of Self-existence.

Thus we have made a short Survey, so far as the bounds of a Chapter would permit, of those evidences and assurances which we have, from abstract Reason, and the external World, that there is an Author of Nature; and That, a Being infinitely perfect, which we call *God*. We may add to these, in the last place, that universal consent of Mankind, or natural instinct of Religion, which we see, more or less, throughout all Nations, Barbarous or Civil. For though this Argument, 'tis true, be more disputable than the rest, yet having set down just grounds already from whence this Natural judgment or persuasion might spring, we have more reason to impute it to some of those, and their insensible influence upon the Mind, than to the artifices of Men, or to make it a weakness, prejudice, or error of our Nature. That there is such a propension in Humane Nature, seems to be very plain; at least so far as to move us to implore, and have recourse to invisible Powers in our extremities. Prayer is natural in certain cases, and we do at the meer motion of our natural Spirit, and indeliberately, invoke God and Heaven, either in case of extream danger, to help and assist us; or in case of injustice and oppression, to relieve or avenge us; or in case of false accusation, to vindicate our innocency; and generally in all cases desperate and remediless as to Humane power, we seem to appeal, and address our selves to something higher. And this we do by a sudden impulse of Nature, without reflexion or deliberation. Besides, as witnesses of our Faith and Veracity, we use to invoke the Gods, or Superiour Powers, by way of imprecation upon our selves, if we be false and perjur'd; And this hath been us'd in most Nations and Ages, if not in all. These things also argue, that there is a Natural Conscience in Man, and a distinction of moral *Good* and *Evil*; and that we look upon those invisible Powers as the Guardians of Vertue and Honesty. There are also few or no people upon the Earth but have something of Exter-

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nal Religion, true or false; and either of them is an argument of this natural anticipation, or that they have an opinion that there is something above them, and above visible Nature; though what that *something* was they seldom were able to make a good judgment. But to pursue this Argument particularly, would require an Historical deduction of Times and Places, which is not suitable to our present design.

To conclude this Chapter and this Subject; If we set Religion apart, and consider the Deist and Atheist only as two Sects in Philosophy, or their doctrine as two different *Hypotheses* propos'd for the explication of Nature, and in competition with one another, whether should give the more rational account of the Universe, of its Origin and *Phænomena*; I say, if we consider them only thus, and make an impartial estimate, whether System is more reasonable, more clear, and more satisfactory, to me there seems to be no more comparison, than betwixt light and darkness. The *Hypothesis* of the Deist reacheth from top to bottom, both thorough the Intellectual and Material World, with a clear and distinct light every where; is genuine, comprehensive, and satisfactory; hath nothing forc'd, nothing confus'd, nothing precarious; whereas the *Hypothesis* of the Atheist is strain'd and broken, dark and uneasy to the Mind, commonly precarious, often incongruous and irrational, and sometimes plainly ridiculous. And this judgment I should make of them abstractly from the interest of Religion, considering them only as matter of Reason and Philosophy; And I dare affirm with assurance, if the faculties of our Souls be true, that no Man can have a System of Thoughts reaching thorough Nature, coherent and consistent in every part, without a Deity for the Basis of it.

C H A P. XI.

Concerning

NATURAL PROVIDENCE.

Several incroachments upon Natural Providence, or misrepresentations of it, and false methods of Contemplation; A true method propos'd, and a true representation of the Universe. The Mundane Idea, and the Universal System of Providence; Several subordinate Systems, That of our Earth and Sublunary World; The course and Periods of it; How much of this is already treated of, and what remains. The Conclusion.

WE have set bounds to Nature in the foregoing Chapter, and plac'd her Author and Governour upon his Throne, to give Laws to her Motions, and to direct and limit her Power in such ways and methods as are most for his honour. Let us now consider Nature under the conduct of Providence, or consider *Natural Providence*, and the extent of it; And as we were cautious before not to give too much power or greatness to Nature, consider'd apart from Providence, so we must be careful now, under this second consideration, not to contract her bounds too much; lest we should by too mean and narrow thoughts of the Creation, Eclipse the glory of its Author, whom we have so lately own'd as a Being infinitely perfect.

And to use no further Introduction, In the *first place*, we must not by any means admit or imagine, that all Nature, and this great Universe was made only for the sake of Man, the meanest of all Intelligent Creatures that we know of; Nor that this little Pla-

net where we sojourn for a few days, is the only habitable part of the Universe; These are Thoughts so groundless and unreasonable in themselves, and also so derogatory to the infinite Power, Wisdom, and Goodness of the First Cause, that as they are absurd in Reason, so they deserve far better to be mark'd and censur'd for Heresies in Religion, than many Opinions that have been censur'd for such, in former Ages. How is it possible that it should enter into the thoughts of vain Man, to believe himself the principal part of God's Creation, or that all the rest was ordain'd for him, for his service or pleasure? Man, whose follies we laugh at every day, or else complain of them; whose pleasures are vanity, and his Passions stronger than his Reason; Who sees himself every way weak and impotent, hath no power over external Nature, little over himself; cannot execute so much as his own good resolutions; mutable, irregular, prone to evil. Surely if we made the least reflection upon our selves with impartiality, we should be asham'd of such an arrogant Thought. How few of these Sons of Men, for whom, they say, all things were made, are the Sons of Wisdom? how few find the paths of Life? They spend a few days in folly and sin, and then go down to the Regions of death and misery. And is it possible to believe, that all Nature, and all Providence are only, or principally for their sake? Is it not a more reasonable character or conclusion, which the Prophet hath made, *Surely every Man is vanity?* Man that comes into the World at the pleasure of another, and goes out by an hundred accidents; His Birth and Education generally determine his fate here, and neither of those are in his own power; His wit also is as uncertain as his fortune; He hath not the moulding of his own Brain, however a knock on the Head makes him a Fool, stupid as the Beasts of the Field; and a little excess of passion or melancholy makes him worse, mad and frantick. In his best Senses he is shallow, and of little understanding, and in nothing more blind and ignorant than in things Sacred and Divine; He falls down before a stock or a stone, and says, Thou art my God; He can believe

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non-sence and contradictions, and make it his Religion to do so. And is this the great Creature which God hath made *by the might of his Power, and for the honour of his Majesty?* upon whom all things must wait, to whom all things must be subservient? Methinks we have noted weakneses and vanities enough in the Nature of Man, this need not be added as the top of all, that with all these he is so Vain, as to think that all the rest of the World was made for his sake.

And as due humility and the consideration of our own meanness, ought to secure us from any such vain opinion of our selves, so the perfection of other Beings ought to give us more respect and honour for them. With what face can we pretend, that Creatures far superiour to us, and more excellent both in Nature and condition, should be made for our sake and service? How preposterous would it be to ascribe such a thing to our Maker, and how intolerable a vanity in us to affect it? We that are next to the Brutes that perish, by a sacrilegious attempt, would make our selves more considerable than the highest Dignities. It is thought to have been the crime of *Lucifer*, who was thrown down from Heaven to Hell, that he affected an equality with the Almighty; and to affect to be next to the Almighty is a crime next to that. We have no reason to believe, but that there are, at least, as many orders of Beings above us, as there are ranks of Creatures below us; there is a greater distance sure betwixt us and God Almighty, than there is betwixt us and the meanest Worm, and yet we should take it very ill, if the Worms of the Earth should pretend that we were made for them. But to pass from the invisible World to the visible and Corporeal, ----

Was that made only for our use? 'Tis not the millionth part of the Universe that is known to us, much less useful; We can neither reach with our Eye, nor our imagination those Armies of Stars that lie far and deep in the boundless Heavens. If we take a good Glass, we discover innumerable more Stars in the Firmament than we can with our single Eye; And yet if you take a second Glass, better than the first, that

that carries the sight to a greater distance, you see more still lying beyond the other ; And a third Glass that pierceth further still makes new discoveries of Stars ; and so forwards, indefinitely and inexhaustedly for any thing we know, according to the immensity of the Divine Nature and Power: Who can reckon up the Stars of the Galaxy, or direct us in the use of them ? And can we believe that those and all the rest were made for us ? Of those few Stars that we enjoy, or that are visible to the Eye, there is not a tenth part that is really useful to Man ; And no doubt if the principal end of them had been our pleasure or conveniency, they would have been put in some better order in respect of the Earth ; They lie carelessly scatter'd, as if they had been sown in the Heaven, like Seed, by handfuls ; and not by a skilful hand neither. What a beautiful Hemisphere they would have made, if they had been plac'd in rank and order, if they had been all dispos'd into regular figures, and the little ones set with due regard to the greater, Then all finish'd and made up into one fair piece or great Composition, according to the rules of Art and Symmetry. What a surprizing beauty this would have been to the Inhabitants of the Earth ? what a lovely Roof to our little World ? This indeed might have given one some temptation to have thought that they had been all made for us ; but lest any such vain imagination should now enter into our thoughts, Providence (besides more important Reasons) seems on purpose to have left them under that negligence or disorder which they appear in to us.

The second part of this opinion supposeth this Planet, where we live, to be the only habitable part of the Universe ; And this is a natural consequence of the former ; If all things were made to serve us, why should any more be made than what is useful to us. But 'tis only our ignorance of the System of the World, and of the grandeur of the works of God, that betrays us to such narrow thoughts. If we do but consider what this Earth is, both for littleness and deformity, and what its Inhabitants are, we shall not be apt to think it the Monopoly of all the Divine fa-

*See the Lat.
Treat. lib. 1.
c. 10. p. 109,
&c.*

vours, of his goodness, and of his Providence. But we will not enlarge upon this part of the opinion, lest it should carry us too far from the subject, and it will fall, of its own accord, with the former. Upon the whole we may conclude, that it was only the Sublunary World that was made for the sake of Man, and not the Great Creation, either Material or Intellectual; and we cannot admit or affirm any more without a manifest injury, depression, and misrepresentation of Providence, as we may be easily convinc'd from these four Heads; *The* meanness of Man and of this Earth, *The* excellency of other Beings, *The* immensity of the Universe, And *The* infinite perfection of the First Cause. Which I leave to your further meditation, and pass on to the second rule, concerning Natural Providence.

In the second place then, if we would have a fair view and right apprehensions of Natural Providence, we must not cut the chains of it too short, by having recourse, without necessity, either to the First Cause, in explaining the Origins of things, or to Miracles, in explaining particular effects. This, I say, breaks the chains of Natural Providence, when it is done without necessity, that is, when things are otherwise intelligible from second Causes. Neither is any thing gain'd by it to God Almighty; for 'tis but, as the Proverb says, to rob *Peter* to pay *Paul*, to take so much from his ordinary Providence, and place it to his extraordinary. When a new Religion is brought into the World, 'tis very reasonable and decorous that it should be usher'd in with Miracles, as both the *Jewish* and *Christian* were; but afterwards things return into their Chancel, and do not change or overflow again, but upon extraordinary occasions or revolutions. The power *Extraordinary* of God is to be accounted very Sacred, not to be touch'd or expos'd for our pleasure or conveniency; but I am afraid we often make use of it only to conceal our own ignorance, or to save us the trouble of inquiring into Natural Causes. Men are generally unwilling to appear ignorant, especially those that make profession of knowledge, and when they have not skill enough to explain

plain some particular effect in a way of Reason, they throw it upon the First Cause, as able to bear all; and so placing it to that account, they excuse themselves, and save their credit; for all men are equally wise, if you take away Second Causes, as we are all of the same colour, if you take away the Light.

But to state this matter, and see the ground of this rule more distinctly, we must observe and consider, See Book 1. c. 8. at the end. that *The Course of Nature is truly the Will of God*; and as I may so say, his first Will; from which we are not to recede, but upon clear evidence and necessity. And as in matter of Religion we are to follow the known reveal'd will of God, and not to trust to every impulse or motion of Enthusiasm, as coming from the Divine Spirit, unless there be evident marks that it is Supernatural, and cannot come from our own; So neither are we, without necessity, to quit the known and ordinary Will and Power of God establish'd in the course of Nature, and fly to Supernatural Causes, or his extraordinary Will; for this is a kind of Enthusiasm or Fanaticism as well as the other: And no doubt that great prodigality and waste of Miracles which some make, is no way to the honour of God or Religion. 'Tis true, the other extream is worse than this, for to deny all Miracles, is in effect to deny all reveal'd Religion; therefore due measures are to be taken betwixt these two, so as neither to make the Divine Power too mean and cheap, nor the Power of Nature illimited and all-sufficient.

In the Third place, To make the Scenes of Natural Providence considerable, and the knowledge of them satisfactory to the Mind, we must take a true Philosophy, or the true principles that govern Nature, which are Geometrical and Mechanical. By these you discover the footsteps of the Divine Art and Wisdom, and trace the progress of Nature step by step, as distinctly as in Artificial things, where we see how the Motions depend upon one another, in what order, and by what necessity. God made all things in *Number, Weight and Measure*, which are Geometrical and Mechanical Principles; He is not said to have made things by *Forms and Qualities*, or any combination

of qualities, but by these three principles, which may be conceiv'd to express the subject of three Mathematical Sciences, Number, of *Arithmetick*; Weight, of *Statics*; and *Measure* and Proportion, of *Geometry*; If then all things were made according to these principles, to understand the manner of their construction and composition, we must proceed in the search of them by the same principles, and resolve them into these again. Besides, the nature of the subject does direct us sufficiently; for when we contemplate or treat of Bodies, and the Material World, we must proceed by the modes of Bodies, and their real properties, such as can be represented, either to Sense or Imagination, for these faculties are made for Corporeal things; but Logical Notions, when appli'd to particular Bodies, are meer shadows of them, without light or substance. No man can raise a Theory upon such grounds, nor calculate any revolutions of Nature; nor render any service, or invent any thing useful in Humane Life: And accordingly we see, that for these many Ages, that this dry Philosophy hath govern'd Christendom, it hath brought forth no fruit, produc'd nothing good, to God or Man, to Religion or Humane Society.

To these true principles of Philosophy, we must joyn also the true System of the World. That gives scope to our thoughts, and rational grounds to work upon; but the vulgar System, or that which *Aristotle* and others have propos'd, affords no matter of contemplation. All above the Moon, according to him, is firm as Adamant, and as immutable; no change or variation in the Universe, but in those little removes that happen here below, one quality or form shifting into another; there would therefore be no great exercise of Reason or Meditation in such a World, no long Series's of Providence; The Regions above being made of a kind of immutable Matter, they would always remain in the same form, structure, and qualities, so as we might lock up that part of the Universe as to any further Inquiries, and we should find it ten thousand years hence in the same form and state wherein we left it. Then in this Sublunary
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World there would be but very small doings neither, things would lie in a narrow compass, no great revolution of Nature, no new Form of the Earth, but a few anniversary *Corruptions* and *Generations*; and that would be the short and the long of Nature, and of Providence, according to *Aristotle*. But if we consider the Earth, as one of those many Planets that move about the Sun, and the Sun as one of those innumerable fixt Stars that adorn the Universe, and are the Centers of its greatest Motions; and all this subject to fate and change, to corruptions and renovations; This opens a large Field for our Thoughts, and gives a large subject for the exercise and expansion of the Divine Wisdom and Power, and for the glory of his Providence.

In the last place, Having thus prepar'd your Mind, and the subject, for the Contemplation of *Natural Providence*, do not content your self to consider only the present face of Nature, but look back into the first *Sources* of things, into their more simple and original states; and observe the progress of Nature from one form to another, through various modes and compositions. For there is no single Effect, nor any single state of Nature, how perfect soever, that can be such an argument and demonstration of Providence, as a Period of Nature, or a revolution of several states consequential to one another; and in such an order and dependance, that as they flow and succeed, they shall still be adjusted to the periods of the moral World; so as to be ready always to be the ministers of the Divine Justice or beneficence to Mankind. This shows the manifold riches of the Wisdom and Power of God in Nature. And this may give us just occasion to reflect again upon *Aristotle's* System and method, which destroys Natural Providence in this respect also; for he takes the World as it is now, both for Matter and Form, and supposeth it to have been in this posture from all Eternity, and that it will continue to Eternity in the same; so as all the great turns of Nature, and the principal scenes of Providence in the Natural World are quite struck out; and we have but this one Scene for all, and a pitiful one

one too, if compar'd with the infinite Wisdom of God, and the depths of Providence. We must take things in their full extent, and from their Origins, to comprehend them well, and to discover the mysteries of Providence, both in the Causes and in the Conduct of them. That method which *David* followed in the contemplation of the Little World, or in the Body of Man, we should also follow in the Great; take it in its first mass, in its tender principles and rudiments, and observe the progress of it to a compleat form; In these first stroaks of Nature are the secrets of her Art; The Eye must be plac'd in this point to have a right prospect, and see her works in a true light. *David* admires the Wisdom of God in the Origin and formation of his Body; *My Body*, says He, *was not hid from thee, when I was made in secret, curiously wrought in the lower parts of the Earth; Thine eyes did see my substance being yet unperfect, and in thy Book all my members were written; which in continuance were fashioned, when as yet there was none of them, or being at first in no form. How precious are thy Thoughts to me, O God, &c.* This was the subject of *David's* Meditations, how his Body was wrought from a shapeless mass into that marvellous composition which it had when fully fram'd; and this, he says, was under the Eye of God all along, and the model of it, as it were, was design'd and delineated in the Book of Providence, according to which it was by degrees fashion'd and wrought to perfection. *Thine eyes did see my substance yet being imperfect, in thy Book all my members were drawn, &c.* *Job* also hath aptly express'd those first rudiments of the Body, or that little Chaos out of which it riseth, *Hast thou not poured me out as Milk, and crudled me like Cheese? Thou hast cloathed me with Skin and Flesh, and fenced me with Bones and Sinews.* Where he notes the first Matter and the last Form of his Body, its compleat and most incompleat state. According to these examples we must likewise consider the Greater Bodies of Nature, The Earth and the Sublunary World; we must go to the Origin of them, the Seminal Mass, the Chaos out of which they rise; Look upon the World first as an Embryo-world, without

Psal. 139.
15, 16.

Job 10. 10,
11.

without form or shape, and then consider how its Members were fashion'd, how by degrees it was brought into that diversity of parts and Regions, which it consists of, with all their furniture, and with all their ornaments. The *Idea* of all which was beforehand, according to *David's* expression, written in the Divine Mind; and we partake of that wisdom, according to our capacity, in seeing and admiring the methods of it.

These seem to be necessary preparatives or directions to those that would contemplate, with profit, Natural Providence, and the great works of God in the visible Creation. We consider'd Nature in the precedent Chapter abstractly, and in her self, and now we consider her under the Conduct of Providence, which we therefore call Natural Providence; And as we have endeavour'd to remove those false notions and suppositions that lay as Clouds upon her face, so we must now endeavour to represent her in a better light, and in a fuller beauty. By *Natural Providence* therefore we understand, *The Form or Course of Universal Nature, as actuated by the Divine Power, with all the Changes, Periods, and Vicissitudes that attend it, according to the method and establishment made by the Author of it.* I said of *Universal Nature*, through all the orders of Beings in the Intellectual World, and all the Regions and Systems of Matter in the Corporeal. For, having prov'd in the foregoing Chapter, that there is an Author of Nature, A Being infinitely Perfect, by whose power and influence alone all finite Natures exist and act, we have an assured ground to conclude, that nothing can come to pass, throughout the whole Creation, without the prescience and permission of its Author; And as it is necessary to suppose, that there is an *Idea* in the Divine Understanding of all the mass of Beings produc'd or Created, according to the several ranks and orders wherein they stand; so there is also an *Idea* there, according to which this great Frame moves, and all the parts of it, in beauty and harmony.

And these two things, the Essences of all Beings, and the Series of their Motions, compose the MUNDANE

DANE IDEA, as I may so call it ; or that great All-comprehensive Thought in the Divine Understanding, which contains the System of Universal Providence, and the state of all things, past, present, or to come. This glorious *Idea* is the express Image of the whole Creation, of all the works of God, and the disposition of them ; here lie the mysteries of Providence, as in their Original ; The successive Forms of all Nature ; and herein, as in a Glass, may be view'd all the Scenes of Time or Eternity. This is an Abyſſe of Sacred Wisdom, The inexhausted treasure of all Science, The Root of Truth, and Fountain of Intellectual Light ; And in the clear and full contemplation of this is perfect happiness, and a truly beatifick Vision.

But what concerns the Intellectual World in this *Idea*, and the Orders or Natures that compose it, is not our present business to pursue ; We are to speak of the Corporeal Universe, whereof we will make now a short and general Survey, as it lies under Providence. The Corporeal Universe, how immense soever it be, and divided into innumerable Regions, may be consider'd all as one System, made up of several subordinate Systems. And there is also one immense design of Providence co-extended with it, that contains all the fate, and all the revolutions of this great Mass. This, I say, is made up of several subordinate Systems, involving one another, and comprehending one another in greater and greater Orbs and Compositions ; and the Aggregate of all these is that which we call the *Universe*. But what the Form of these Compositions is, and what the Design of Providence that runs thorough them all, and comprehends them all, this is unsearchable, not only to Humane Understanding, but even to Angels and Archangels.

Wherefore leaving those greater Systems and Compositions of the Universe, as matter of our admiration, rather than of our knowledge, There are two or three kinds of lesser Systems that are visible to us, and bring us nearer to our subject, and nearer home. *That* of a Fixt Star, single ; *That* of a Fixt Star with
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its Planets, and *That* of a single Planet, Primary or Secondary. These three Systems we see and enjoy more or less. No doubt there are Fixt Stars single, or that have no Planets about them, as our Sun hath; nay, 'tis probable, that at first the whole Universe consisted only of such; Globes of liquid Fire, with Spheres about them of pure Light and Æther: Earths are but the dirt and skum of the Creation, and all things were pure as they came at first out of the hands of God. But because we have nothing particular taught us, either by the light of Nature or Revelation, concerning the Providence that governs these, of what use they are to Intellectual Beings, how animated by them, what diversity there is amongst these Æthereal Worlds, what Periods they have, what Changes or Vicissitudes they are capable to undergo; because such Inquiries would seem too remote, and carry us too far from our subject, we leave these Heavenly Systems to the enjoyment and contemplation of higher and more noble Creatures.

The Sun, with all the Planets that move about him, and depend upon him, make a second sort of System; not considerable indeed, if compar'd with the whole Universe, or some of the greater Compositions in it, but in respect of us, the System of the Sun is of vast extent; We cannot measure the greatness of his Kingdom, and his Dominion is without end. The distance from the highest Planet to the nearest fixt Star in the Firmament is unmeasurable, and all this belongs to the Empire of the Sun; besides the several Planets and their Orbs, which cast themselves closer about his Body, that they may receive a warmer and stronger influence from him; for by him they may be said to *live* and *move*. But those vast spaces that lie beyond these opaque Bodies, are Regions of perpetual light; One Planet may eclipse the Sun to another, and one Hemisphere of a Planet to the other Hemisphere makes night and darkness, but nothing can eclipse the Sun, or intercept the course of his light to these remote Æthereal Regions; They are always luminous, and always pure and serene. And

if the worst and Planetary parts of his Dominions be replenisht with Inhabitants, we cannot suppose the better to lie as Desarts, uninjoy'd and uninhabited; his Subjects then must be numerous as well as his Dominions large; And in both respects this System of a Fixt Star, with its Planets (of which kind we may imagine innumerable in the Universe, besides this of the Sun, which is near and visible to us) is of a noble Character and Order, being the habitation of Angels and glorified Spirits, as well as of mortal Men.

A Planetary System is the last and lowest; And of these, no doubt, there is great variety, and great differences; not only of Primary and Secondary, or of the principal Planet, and its Moons or Attendants, but also amongst Planets of the same rank; for they may differ both in their original constitution, and according to the form and state they are under at present; of which sort of differences we have noted * some amongst our Planets, though they seem to be all of much what the same original constitution. Besides, according to external circumstances, their distance, manner of motion, and posture to the Sun, which is the Heart of the whole System, they become different in many things. And we may observe, that those leading differences, though they seem little, draw after them innumerable others, and so make a distinct face of Nature, and a distinct World; which still shows the riches and fecundity of Divine Providence, and gives new matter of contemplation to those that take pleasure in studying the works and ways of God. But leaving all other Planets or Planetary Systems to our meditations only, we must particularly consider our own.

Having therefore made this general Survey of the great Universe, run thorough the boundless Regions of it, and with much ado found our way home to that little Planet where our concerns lie, This Earth or Sublunary World, we must rest here as at the end of our course; And having undertaken to give the general Theory of this Earth, to conclude the present Treatise,

* *Book 1.*
chap. last,
p. 168.

Treatise, we'll reflect upon the whole work, and observe what progress we have hitherto made in this Theory, and what remains to be treated of hereafter. This Earth, though it be a small part or particle of the Universe, hath a distinct System of Providence belonging to it, or an Order establisht by the Author of Nature for all its *Phænomena* (Natural or Moral) throughout the whole Period of its duration, and every interval of it ; for as there is nothing so great as to be above the Divine care, so neither is there any thing so little as to be below it. All the Changes of our World are fixt, How, or how often to be destroy'd, and how renew'd ; What different faces of Nature, and what of Mankind, in every part of its Course ; What new Scenes to adorn the Stage, and what new parts to be Acted ; What the Entrance, and what the Consummation of all. Neither is there any sort of knowledge more proper, or of more importance to us that are the Inhabitants of this Earth, than to understand this its Natural and Sacred History, as I may so call it, both as to what is past, and what is to come. And as those greater Volumes and Compositions of the Universe are proportion'd to the understanding of Angels and Superior Beings, so these little Systems are *Compendium's* of the Divine Wisdom more fitted to our capacity and comprehension.

The Providence of the Earth, as of all other Systems, consists of two parts, Natural, and Sacred or Theological. I call that Sacred or Theological that respects Religion, and the dispensations of it ; the government of the Rational World, or of Mankind, whether under the light of Nature only, or of a Revelation ; the method and terms of their happiness and unhappiness in a future life ; The State, Oeconomy, and Conduct of this, with all the Mysteries contain'd in it, we call Theological Providence ; in the head whereof stands the Soul of the Blessed *Messiah*, who is Lord of both Worlds, Intellectual and Material. When we call the other part of Providence *Natural*, we use that word in a restrain'd sense, as

respecting only the Material World; and accordingly this part of Providence orders and superintends the state of the Earth, the great Vicissitudes and Mutations of it; for we must not imagine, but that these are under the eye of Providence, as well as Humane affairs, or any revolutions of States and Empires. Now seeing both in the Intellectual and Corporeal World there are certain Periods, Fulnesses of Time, and fixt Seasons, either for some great Catastrophe, or some great Instauration, 'Tis Providence that makes a due harmony or Synchronism betwixt these two, and measures out the concurrent fates of both Worlds, so as Nature may be always a faithful minister of the Divine pleasure, whether for rewards or punishments, according as the state of Mankind may require. But Theological Providence not being the subject of this work, we shall only observe, as we said before, what account we have hitherto given of the Natural state of the Earth, and what remains to be handled in another Treatise, and so conclude.

I did not think it necessary to carry the story and original of the Earth, higher than the Chaos, as *Zoroaster* and *Orpheus* seem to have done; but taking That for our Foundation, which Antiquity Sacred and Profane doth suppose, and Natural Reason approve and confirm, we have form'd the Earth from it. But when we say the Earth rise from a Fluid Mass, it is not to be so crudely understood, as if a rock of Marble, suppose, was fluid immediately before it became Marble; no, Things had a gradual progression from one form to another, and came at length to those more permanent forms they are now settled in: Stone was once Earth, and Earth was once Mud, and Mud was once fluid. And so other things may have another kind of progression from fluidity; but all was once fluid, at least all the exterior Regions of this Earth. And even those Stones and Rocks of Marble which we speak of, seem to confess they were once soft or liquid, by those mixtures we find in them of Heterogeneous Bodies, and those spots and Veins disperst thorough their substance;
for

for these things could not happen to them after they were hard and impenetrable, in the form of Stone or Marble. And if we can soften Rocks and Stones, and run them down into their first Liquors, as these observations seem to do, we may easily believe that other Bodies also that compose the Earth, were once in a fluid Mass, which is that we call a Chaos.

We therefore watch'd the motions of that Chaos, and the several transformations of it, while it continued Fluid; and we found at length what its first Concretion would be, and how it settled into the form of an habitable Earth. But that form was very different from the present form of the Earth, which is not deducible from a Chaos, by any known laws of Nature, or by any wit of Man; as every one, that will have patience to examine it, may easily be satisfied. That first Earth was of a smooth regular surface, as the Concretions of Liquors are, before they are disturb'd or broken; under that surface lay the Great Abyſſe, which was ready to swallow up the World that hung over it, and about it, whensoever God should give the command, and the Vault should break; And this constitution of the Primæval Earth gave occasion to the first Catastrophe of this World, when it perisht in a Deluge of Water. For that Vault did break, as we have shown at large, and by the dissolution and fall of it, the Great Deep was thrown out of its bed, forc'd upwards into the Air, and overflow'd in that impetuous Commotion the highest tops of the Fragments of the ruin'd Earth, which now we call its Mountains. And as this was the first great and fatal Period of Nature; so upon the issue of this, and the return of the Waters into their Channells, the second face of Nature appear'd, or the present broken form of the Earth, as it is *Terraqueous, Mountainous, and Cavernous*. These things we have explain'd fully in the first Book, and have thereby settled two great Points, given a rational account of the *Universal Deluge*, And shown the Causes of the irregular form of the present or *Post-diluvian Earth*. This being done, we have appli'd our selves, in the

Second

Second Book, to the description of the *Primæval Earth*, and the examination of its properties; And this hath led us by an easie tract to the discovery of *Paradise*, and of the true Notion and Mystery of it; which is not so much a spot of ground where a fine Garden stood, as a course of Nature, or a peculiar state of the Earth; *Paradisiacal* in many parts, but especially in one Region of it; which place or Region we have also endeavour'd to determine, though not so much from the Theory as from the suffrages of Antiquity.

THUS much is finish'd, and this contains the Natural Theory of the Earth till this present time; for since the Deluge all things have continued in the same state, or without any remarkable change. We are next to enter upon new Matter and new Thoughts, and not only so, but upon a Series of *Things and Times to come*, which is to make the Second part of this Theory. Dividing the duration of the World into two parts, Past and Future, we have dispatch'd the first and far greater part, and come better half of our way; And if we make a stand here, and look both ways, backwards to the Chaos, and the Beginning of the World, and forwards to the End and consummation of all things, though the first be a longer prospect, yet there are as many general Changes and Revolutions of Nature in the remaining part as have already happen'd; and in the Evening of this long Day the Scenes will change faster, and be more bright and illustrious. From the Creation to this Age the Earth hath undergone but one Catastrophe, and Nature hath had two different faces; The next Catastrophe is the CONFLAGRATION, to which a new face of Nature will accordingly succeed, *New Heavens* and a *New Earth*, *Paradise* renew'd, and so it is call'd the *Restitution* of things, or *Regeneration* of the World. And that Period of Nature and Providence being expir'd, then follows the *Consummation of all things*, or the General *Apotheosis*; *when Death and Hell shall be swallowed up*
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in victory; When the great Circle of Time and Fate is run; or according to the language of Scripture, *When the Heavens and the Earth shall pass away, and Time shall be no more.*

MAY we, in the mean time, by a true Love of God above all things, and a contempt of this Vain World which passeth away; By a careful use of the Gifts of God and Nature, the Light of Reason and Revelation, prepare our selves and the state of things for the great Coming of our Saviour. To whom be Praise and Honour for evermore.

FINIS.

in order; When the great Circle of Time and Fate
is run; or according to the language of Scripture
When the flowers and the fruits shall pass away, and
Time shall be no more.

MAY we, in the mean time, by a true Love of God
desire all things, and a contempt of this Vain World which
passes away; By a careful use of the Gifts of God and
Nature, the Light of Reason and Revelation, prepare our
souls and the fate of things for the great Coming of our
Saviour. To whom be Praise and Honour for ever.

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