A new theory of the earth, from its original, to the consummation of all things, wherein the Creation of the world in six days, the universal Deluge, and the general Conflagration, as laid down in the Holy Scriptures, are shewn to be perfectly agreeable to reason and philosophy. With a large introduction concerning the genuine nature, style and extent of the Mosaick history of the creation / By William Whiston.

Contributors

Whiston, William, 1667-1752.

Publication/Creation

London: Printed for J. Whiston, 1737.

Persistent URL

https://wellcomecollection.org/works/x2j73hzy

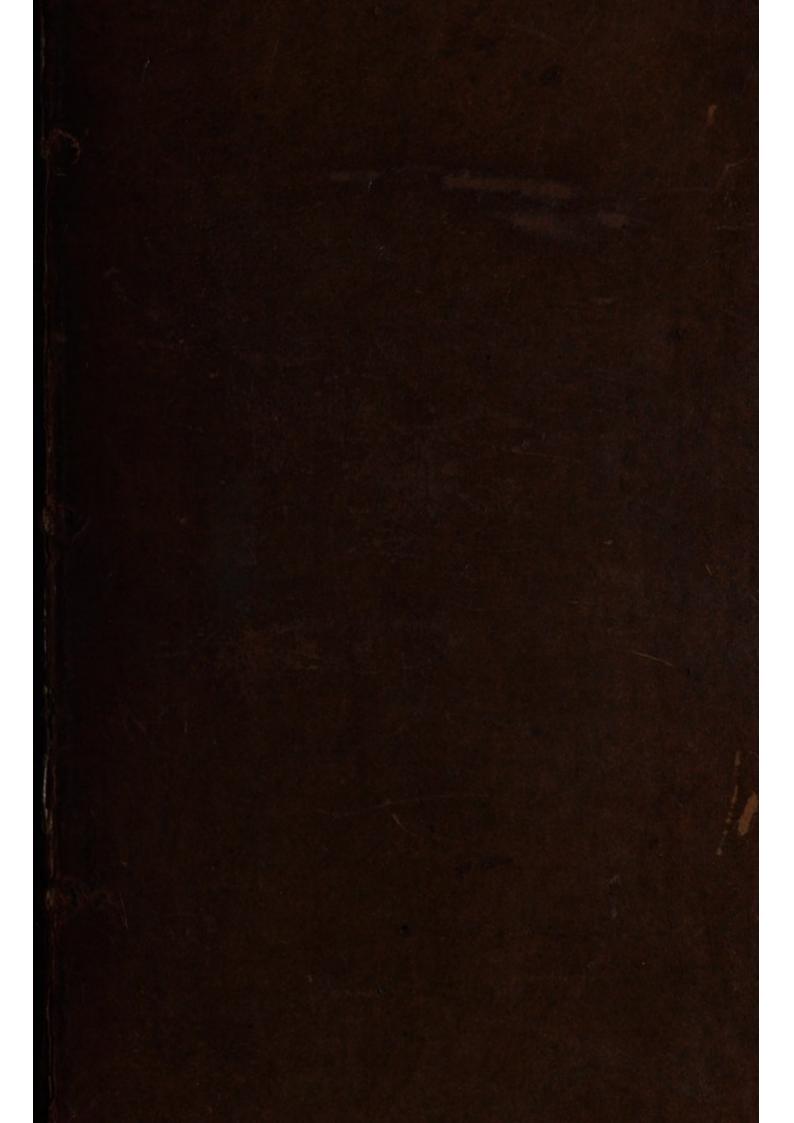
License and attribution

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection 183 Euston Road London NW1 2BE UK T +44 (0)20 7611 8722 E library@wellcomecollection.org https://wellcomecollection.org

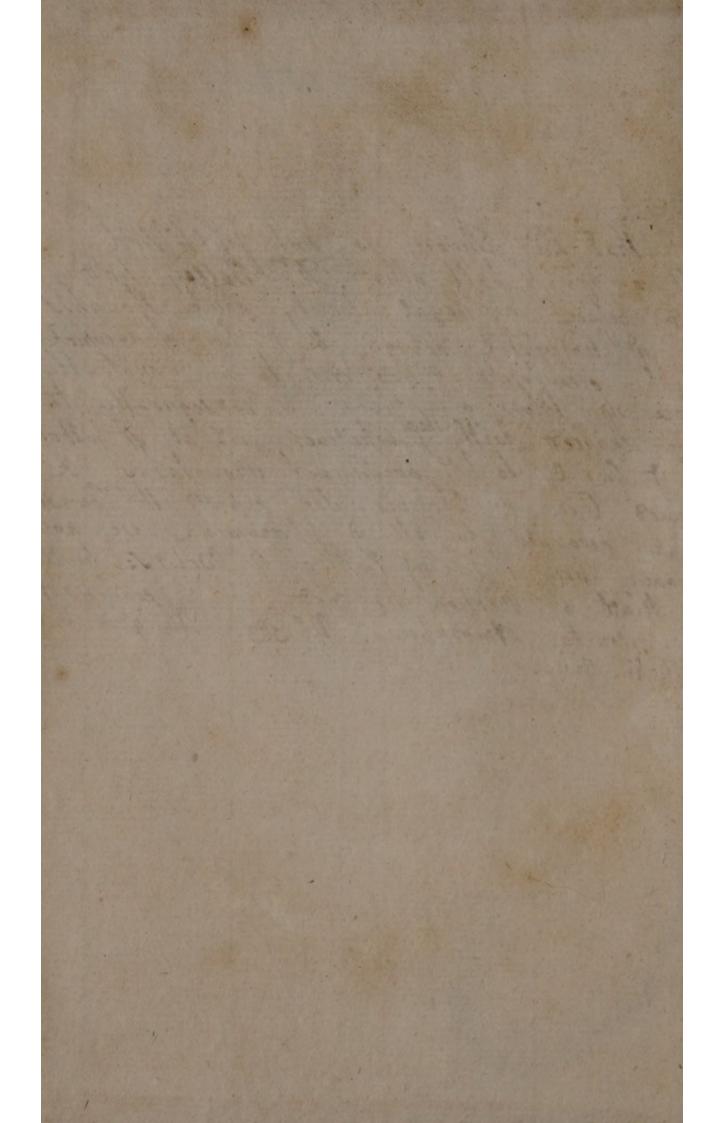


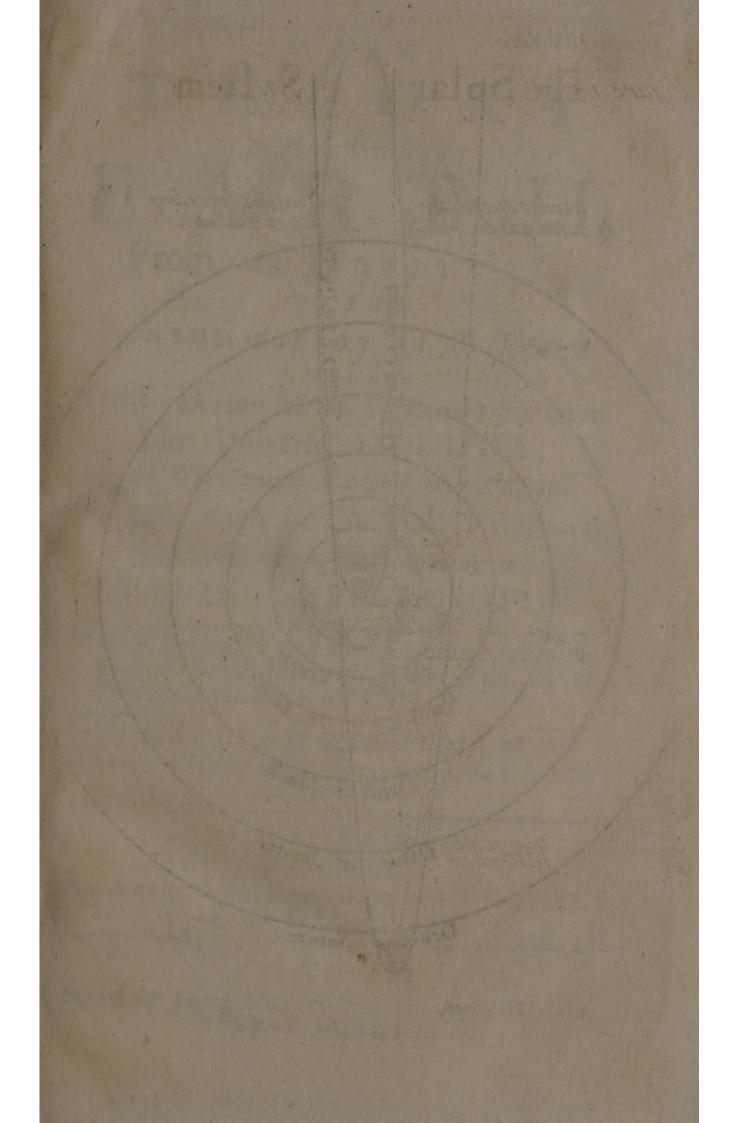
54800/8

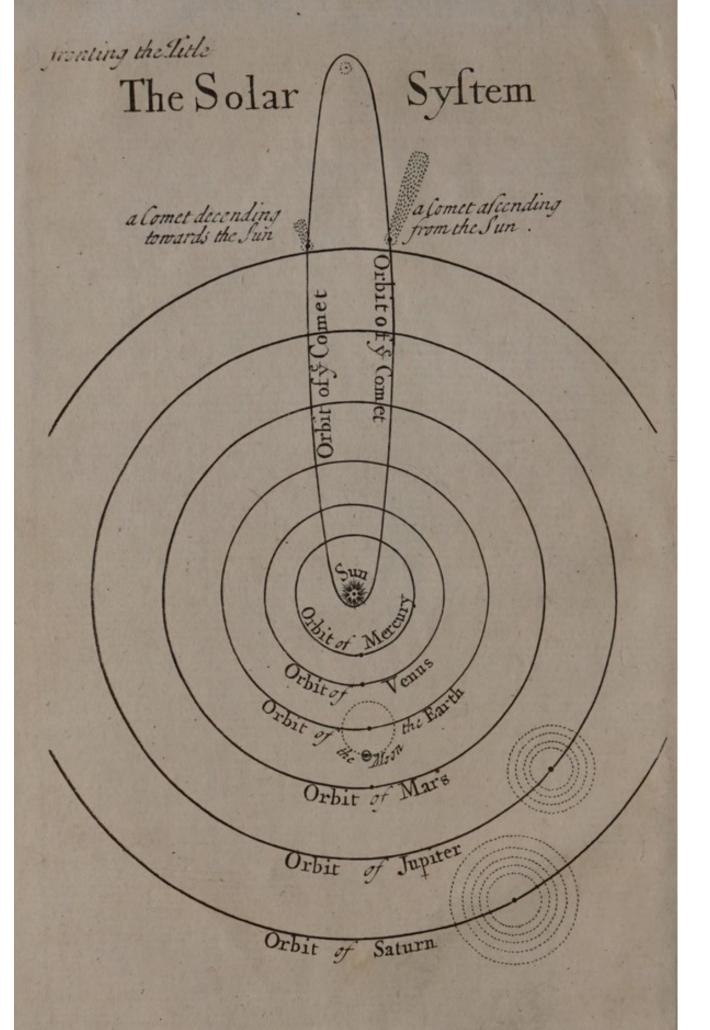


George Paterson of Custle Huntly Eng!

Mote. That this Theory is not fruthished lill a of & half offer Dr. Halley had laid before of noyal society some thoughts on of universal delage & of choc of alcometo which occasioned of asclares to our moderally to have carried with the whalever we at it bottom of if ha & lo he overhuned Mountains & burnes These whalever die opposes the ourse to accounts for all of phanomina we now discover from this Impetus of of Waters: but no kind of Mealing is made of of condensate of a contensate. M. 383, Abrigam: O.vi part: ii. Jr :...







ANEW

THEORY

OF THE

EARTH,

From its ORIGINAL,

TOTHE

CONSUMMATION of all Things.

WHEREIN

The CREATION of the World in Six Days,
The Universal DELUGE,

And the General CONFLAGRATION,

As laid down in the Holy Scriptures,

Are shewn to be perfectly Agreeable to

REASON and PHILOSOPHY.

With a large INTRODUCTION concerning the genuine Nature, Style, and Extent of the Mofaick History of the CREATION.

By WILLIAM WHISTON, M. A.

Some time Professor of the Mathematicks in the University of CAMBRIDGE.

The FIFTH EDITION.

To which is added,

An APPENDIX, containing a new THEORY of the DELUGE.

LONDON,

Printed for John Whiston at Mr. Boyle's Head in Fleet-street. MDCC XXXVII.

94688 (7)

CONSUMMATE ON OUTLANDERS. As I sid down in the Holy Seciotures,

> HIBTORIOAL MEDICAL MEDICAL

SUMMO VIRO

ISAACO NEWTON,

Equiti Aurato,

Apud CANTABRIGENSES quondam

MATHESEOS PROFESSORI LUCASIANO

Longe Celeberrimo,

Apud LONDINENSES

Societatis Regalis PRÆSIDI ORNATISSIMO, Necnon

REGIO NUMMORUM CUSORUM MAGISTRO,
REIPUBLICÆ, quoquò patet, LITERARIÆ
ORNAMENTO.

Seculi, Gentis, Academiæ
EGREGIO DECORI,

ORBIS PHILOSOPHICI Deliciis.

Qui REM LITERARIAM,
Praesertim MATHEMATICAM,
Eousque Excoluit, Adauxit, Dilatavit,

Ut ipsam PHYSICAM
Intra Pomœria sua complecti,
ET MUNDI SYSTEMA,
Conatu inaudito, ditioni suæ subjicere
Tandem aliquando audeat.

Morum, Candor & Modestia,

Quem sagax Animus & penetrans;

Quem assidui Labores, indesesse Vigiliæ,

Industria incredibilis,

Promovendis veræ ac solidæ Sapientiæ studiis unicè dicata.

QUEM

Rerum Divinarum Humanarumque,

UNIVERSÆ PHILOSOPHIÆ,
Peritia plane singularis:

Quem demum

PHILOSOPHIÆ NATURALIS, Quin & OPTICES speciatim,

Mirandorum Lucis & Colorum Phænomenorum,
PRINCIPIA MATHEMATICA,

Auro contra æstimanda, & mortalibus vix aut ne vix quidem propalanda temere,

Ultimæ posteritati æternum commendabunt.

Exiguum hocce

Tentaminis Philosophici Spicilegium, E Messe NEWTONIANA

Primitus sublectum;

Subfidiis, Confiliis, Auspiciis potissimum Newtonianis Acceptum,

Uti par est, referendum ratus, Totum hoc, qualecunque sit,

NEWTONI

Nomini,

In omne ævum perennaturo, Nuncupandum;

Et,

In Grati Animi Munuóowov, Consecrandum Censuit

GULIELMUS WHISTON.

17 Kal. Jun. A. D. 1696.



Of the Mosaica Greatin

A

DISCOURSE

Concerning the

Nature, Style, and Extent

OF THE

Mosaick HISTORY

OF THE

CREATION.

T being no inconfiderable Part of the enfuing Theory, to account for the Creation of the World, agreeably to the Description thereof in the Book of Genesis, it cannot but be very necessary in this Place, to discourse of the Nature of that Sacred History, the Style in which it is Writ, and how far it is to be Extended. The Misunderstanding of which Points has been, I think, the principal Occasion of those Perplexities and Contrarieties into which Men have run with relation to it; while some have adher'd to the common and vulgar, tho' less rational Expofition; without any Confideration of Nature, Reason, Philosophy, or just Decorum in the feveral

feveral Parts of it: And Others, on the contrary, have been so sensible of the Wildness and Unreasonableness of That, that they have ventur'd to exclude it from any just Sense at all; afferting it to be a meer Popular, Parabolick, or Mythological Relation; in which the plain Letter is no more to be accounted for, or believ'd, than the fabulous Representations of Æsop, or at best, than the mystical Parables of our Saviour. Of what mischievous Consequence this latter is commonly esteem'd, I need not say; a late ex-Dr. Tho. cellent Author, who thought it absolutely neceffary to be introduc'd, having felt Reflections the Earth, sufficiently severe, and seen Effects sufficiently mischievous of such an Interpretation: And how unworthy of God, how incoherent and abfurd the former Exposition is in it felf, and must be esteem'd by free and inquisitive Thinkers, 'tis not difficult to make appear to any impartial Man, and shall in this Discourse be particularly attempted. Indeed I cannot but imagine that, as those who plead for the Mythological Sense, do it only because they suppose it imposfible to give a commodious and rational Scheme of it on any other Hypothesis; and therefore will easily and readily embrace any more literal Interpretation which shall agree to the Divine Attributes, the Reason of their own Minds, and the true System of the World: So I think those who, notwithstanding its apparent Incongruities, adhere to the vulgar Exposition, will have great reason to encourage, and rest satisfy'd in such an Account, as shall at once keep sufficiently close to the Letter of Moses, and yet be far from allowing what contradicts the Divine Wifdom, Common Reason, or Philosophick Deductions: To both which therefore, I persuade

Burnet's Theory of and Archaologia.

my felf this new Attempt ought not to be unac-

ceptable.

But because the principal Difficulty is likely to arise from the Prejudices and Prepossessions of the latter, and from the vulgar and common Notions already fix'd in the Minds of most Men, relating to this Mosaick Creation; I shall in this Place chiefly have a respect to them, and endeavour to evince, That the Notions they have entertain'd of the Nature, Style, and Extent of the Creation of the World in Six Days, are false, precarious, and no less contrary to the Holy Scriptures themselves, than to found Reason and true Philosophy. The Proposition therefore which shall be the Subject of this Differtation, and includes the whole Point before us, shall be this: The Mosaick Creation is not a Nice and Philosophical Account of the Origin of all Things; but an Historical and True Representation of the Formation of our single Earth out of a confus'd Chaos, and of the successive and visible Changes thereof each Day, till it became the Habitation of Mankind.

That this Proposition is exactly agreeable to that Account, which in the following Theory is given of this Creation, will be evident upon the Perusal thereof; and that the same Proposition is alike agreeable to the Design and Style of the Sacred Penman in the first Chapter of Genesis, is what I am now to make appear. And that I shall endeavour to do by the following Arguments; which though they might have been distinguished, and suited to the several Branches of this Affertion, yet for Ease I shall wave that Niceness, and set them down indifferently in that Order they were put into by my own Thoughts, before I intended to adapt them to the just Form B 2 of 4

of the foregoing Proposition: Strength of Reafoning, more than Exactness of Composure, being the Aim of the Author in this whole Theory: And if he be found to go upon solid Grounds, he hopes the Reader will never the less embrace the Conclusions, because of the Inaccuracy of the Style, or Harshness of the Periods; which wholly to have avoided, he freely owns, would to him have been more tedious and operose than the Work it self; and so he hopes 'twill not be expected from him by the Inquisitive Reader: Which Apology once for all he desires may be accepted, and call'd to mind whenever (as too frequently it will) there shall be Occasion in the following Pages.

I. The very first Words of Moses plainly imply, That the Production of all the World out of Nothing, which we usually style Creation, was precedaneous to the Six Days Works, given an Ac-Gen. i. r. count of in the same Chapter. In the beginning God created the heaven and the earth, fays the Scripture; which is, as I take it, a Preface or Introduction to the following Account, and may be thus paraphras'd: "Although that History of the Origin of the World, which shall now be " given you, do not extend any farther; as will "appear presently, than that Earth we live upon, with those Bodies which peculiarly belong to it; and so the rest of the Universe be not at all directly concern'd therein; and although the same History will not reach to the Creation of the Matter, but only Production of the Form, and Disposition of the Earth it " felf: Yet, to prevent any Misunderstanding, " and obviate any ill Effects of perfect Silence 66 touching these Things, I am oblig'd, by the

66 Divine

Original of all Beings whatsoever, was primarily owing to that same God of Israel,
whose Works I am going to relate; and that
not only this Earth, with all its Bodies, but
the vast Frame of Universal Nature, was by
him at first created out of Nothing, and dispos'd into those several Systems which now
are extant, and make up what, in the largest
Sense, is styl'd Heaven and Earth, or the whole
World.

This Sense of the Words is allow'd by our late Excellent Commentator, the Right Reverend the late Lord Bishop of Ely; whose Sentiments cannot but be justly valued by all who are conversant in his Expositions of the Holy Scriptures; and is, I think, not a little confirm'd by the following Words; And the Earth was with- Gen. i. 2. out Form and Void, and Darkness was upon the Face of the Deep, and the Spirit of God moved on the Face of the Waters. Where 'tis clear, that as foon as the Holy Writer descends to the Description of the Chaos, and the commencing of the Six Days Creation, he mentions not a Word of any Production out of Nothing, (before suppos'd and afferted to have been past and done, In the Beginning of Things.) He omits and thereby feems to exclude that Heaven, or those Superior Systems of the World already spoken of, from any Place therein: And by the whole Coherence appears to confine the Narration following to the Earth alone, with its Dependances. Moses does not say, as the common Expositors do, "That just at " the Commencing of the Six Days Work, the " Earth, and all the rest of the World was " originally produc'd; But that, When God " had (formerly) created all the World, which pothefes

" is usually distinguished into the Heaven and the Earth, the Latter of these, (the Consideration whereof was alone pertinent to the present Design) at the Time preceding the Six Days Work, was in a Wild, Irregular, and Dark Condition; or such a perfect Chaos, as nothing but the Power of God, and his Spirit's moving on, and influencing the same, could ever have reduc'd into a habitable World.

This is a very eafy and natural Account of this Matter, and I think the most obvious and genuine Signification of the Words themselves. And were not Mens Minds too much prejudic'd with other Apprehensions, this alone might be fufficient to limit their Thoughts, and prevent their Enquiries after any Creation of Bodies out of Nothing in the Six Days Work; and their ftretching the fame beyond the Earth, either to the whole System of Things, as the most do; or indeed to the Solar System, with which others are more modestly contented in the Case. Which two Things once granted me, the Proposition we are now upon would foon be establish'd, and little farther Labour become necesfary.

But that I may give all possible Satisfaction, and lay this Foundation firm, on which my Account of the Mesaick Creation is entirely superstructed; I shall more at large prove the same Truths: Craving the Pardon of those Readers who are already satisfy'd in these Matters, if I shall seem to them to insist too long on a plain Case; as perhaps they may (and that I think

very justly) esteem this to be.

And indeed, The Prejudices of Men are here fo great; their ill Opinion of Philosophical Hypotheses

potheses in these Cases so deeply rooted; the Attempts hitherto made have been fo unsuccessful, and besides, the Honour of God in his Holy Word is fo much concern'd; and the usual Expositions of this History of the Origin of Things are fo poor, so jejune, so unbecoming the Penman, much more the primary author of the same; that a large and full Discourse is but necessary: And tho' it should prove somewhat prolix, 'twill be, 'tis hop'd, not improper; but as well serviceable to Religion as to Philosophy; by rescuing this Ancient, Venerable and Sacred Account of the Origin of Things, from such false and unwary Glosses as have been, and still are put upon it; as have rendred it, in the Opinion of too many, an uncouth and incredible System; nay, somewhat below some of those Ocoyoviau or Κοσμογονίαι which the imperfect Traditions of the Heathen World enabled them to describe. To proceed therefore in the Arguments before us, I affirm,

II. That the Words here us'd of Creating, Making or Framing of Things, on which the main Stress is laid, in the Style of Scripture are frequently of no larger Importance than the Proposition we are upon does allow; and signify no more than the ordering, disposing, changing, or new modelling those Creatures which existed already, into a different, and sometimes perhaps a better, and more useful State than they were in before. I do not fay this is the utmost, or only Importance of these Words; I have already allow'd, that Creating, in the first Words of Genesis, includes Producing out of Nothing.; and I add, that in our common Creed, wherein we profess our Faith in God the Father Al-B 4 mighty,

mighty, Maker of Heaven and Earth; the Words are, agreeably to the Extent of the Divine Power, and the Nature of that Profession, to be taken in the same large and comprehensive Sense: And the like is to be said of many other Places of the Holy Scripture. But then I observe withal, that the other more narrow and limited Sense is very common and samiliar in the Holy Writings; and therefore, where the Subject-matter and Coherence require it, as I think 'twill be evident they do in the present Case, these Words both may and ought to be taken in the same limited Acceptation.

This Signification of the two latter Words Make and Frame, will, I suppose, be granted me by all; and that the same is as true of the other word Create, the following Texts will sufficiently evince; and from the promiscuous Use of them all, and others of a like Importance, might however be fairly supposed. If, says

Num. xvi. Moses, the Lord make a new thing, or Create at Creature, and the Earth open her Mouth and swallow them up. Where none can imagine any Thing produc'd out of Nothing; but only such an unusual and miraculous disposal of Things as would at once demonstrate God's Vengeance against the Wicked, and his absolute Command over all

Ifa. xlv. 7. Creatures. Thus God himself says, I form the light and Create darkness; I make peace and Create evil; I the Lord do all these things: Where the Objects of the Divine Creation being not real and substantial Beings, could not be capable of a proper Production out of Nothing: Which also is the Case in the Verse immediately following, Let righteousness spring up together; I the Lord have Created it. Thus also, says God by the same

Cap. lxv. Prophet; I Create new Heavens and a new Earth: which,

lohn avi

5.24.

.8 .iivx

DI Jiiiz

Gen. ii.

.a. bnami

which, tho' the very Case before us, yet would oddly enough be expounded of an Annihilation of the World, and a Reproduction of it again. But what comes still more home to our Purpose is, that in the very History of the Creation it felf, the Word Create as well as Make, is us'd in the Sense we contend for; the very same Things being afcrib'd to the Creating and Making Power of God, which are also describ'd as the regular Offspring of the Earth and Seas: God Created Gen. i. 21. great Whales, and every living Creature that moveth; which the waters brought forth abundantly after their kind. And God Said, Let the Earth y 24, 25. Bring forth the living Creature after his kind, Cattle and creeping thing, and Beast of the Earth after his kind; and it was so: And God made the Beast of the Earth after his kind, and Cattel after their kind, and every thing that creepeth upon the Earth after bis kind: And God fare that it was good.

So that fince the Words made use of in the History of the Creation are there, and every where taken promiscuously; since some of them are, by the Confession of all, of no larger Importance than the Proposition before us will admit; and fince, lastly, that Word, of which the greatest Doubt can arise, has been prov'd not only in other Texts of Scripture, but in the very Hiftory of which we are treating, to be of no more determinate Signification than the rest, and alike capable of the Sense we here put upon it; I think 'tis a clear Case, that if no Argument can be drawn from fuch Words for, yet neither can there justly be any against, that Proposition we are now upon. shall not need to look out for a

III. These fynonymous Phrases, The World; or the Heavens, and the Earth, under which the Obiect

35.80

50.

20.

5. 24.

Apoc.

xvii. 8. Mark

y 4.

Com-

ject of the fix Days Creation is comprehended every where in Scripture, do not always denote the whole System of Beings; no, nor any great and general Portion of them; but are in the Sacred Style frequently, if not mostly, to be restrain'd to the terraqueous Globe with its dependences; and consequently both may, and, if the subject matter require it, ought to be understood in fuch a restrained Sense, and no other: That by these Phrases the Mosaick Creation, or fix days work is usually understood, is evident every where in Scripture, as the following Texts will eafily evince: God who made the World, and all Acts xvii. things therein. The Divine Noy was in the World, Johni. 10. and the World was made by Him, and the World knew Him not. Hence those frequent Expressions, From Mat. xiii. the Foundation of the World, from the Beginning of the xxiv. 21. World, from the Creation of the World, and before the & xxv. 34. World was; which, tho' capable of including more, must yet be allow'd to have generally a John xvii peculiar, nay, fometimes, a fole regard to the fix days work, particularly styl'd by St. Mark, The Rom.i. Beginning of the Creation which God created. In the same manner, and with the like fre-Eph. i. 4. Heb. iv. 3. quency, the other Phrase, Heaven and Earth, de-& ix. 26. notes the same six days work also: Thus the Hea-1 Pet. i. 20. vens and the Earth were finish'd, and all the Host of them. These are the Generations of the Hea-XIII. 8. & vens and of the Earth when they were created, in the day that the Lord God made the Earth and Gen. ii. 1 the Heavens. In fix days the Lord made Heaven and Earth, the Sea, and all that in them is, and rested the seventh day; which being so express, mand 4. I shall not need to look out for any other parallel places.

> And that both the World, and Heaven and Earth, fignify the terraqueous Globe alone, with

its Air or Atmosphere, and other Appurtenances, without including the whole Universe, nay, or Solar System also, (which yet I do not deny fometimes to be comprehended therein) the following Texts will sufficiently shew. Our Lord says of the Woman who pour'd the Ointment on him, Wheresoever this Gospel shall be preach-13. ed in the whole World, there shall also this which 13. this Woman bath done be told for a memorial of ber. His Charge and Commission to his Apo-Itles was, Go ye into All the World, and preach Mark xvi. the Gospel to every Creature. The Tempter came 15. to Jesus, and shew'd him All the Kingdoms of Mat. iv. 8. the World, and the Glory of them. In all which places, no other than the habitable Earth can be understood: And 'tis still so frequent and natural for Men to use this manner of Speech in the same restrained Sense to this very day, that one may the lefs wonder at the Sacred Style in this Cafe. But this word, the World, having not fo much difficulty in it, nor being fo much stood upon, as those which follow, the Heavens and the Earth, I shall no longer infift upon it, but proceed.

And here, when the World, as a totum integrale, is divided into its two contradistinct Parts, the Heavens and the Earth, it will be said, That by such a Phrase or Enumeration of the Parts of the Universe, no less can be meant than the whole World in the largest Acceptation; or, however, more must be intended than the bare Earth, which is but one Member or Branch, and so certainly less than that whole of which it is a

part.

In answer whereto, I freely confess, That the Heavens and the Earth do not seldom denote the entire

entire Universe; an Instance of which the first words of Genesis have already afforded us; but that they always do so, I have reason to deny. As the Signification of the Earth is known, and capable of no Ambiguity, so 'tis quite otherwise with the word Heaven, which in common use, and the sacred Authors, sometimes refers to 2 Cor. xii. the seat of the Blessed, or, in St. Paul's Phrase,

the third Heaven; fometimes to the Place of the Sun, Moon, and Stars; and otherwhiles is no farther to be extended than the Clouds, or the open Expansum about the Earth, where the Air, Atmosphere, Meteors, Clouds and Volatils, have their Abode. Instances of the two former Significations, were it pertinent to my present Purpose, might easily be produc'd; but that not being so, I shall wave the same, and only prove the third and last Signification, namely, That by the Heavens is frequently understood nothing more than the Atmosphere of the Earth, with its appendant or contained Bodies.

Thus, God made the Firmament, and divided the Waters which were under the Firmament, from the Waters which were above the Firmament; and it was so. And God called the Firmament, Heaven. Which Place is so express; and in the very History it self, which we are about also, that it ought to be of peculiar Force in the present Case.

Cap. xi. 4. Thus also the Builders of Babel said, Go to, Let us build us a City, and a Tower, whose Top may Deut.ix. 1. reach unto Heaven. So mention is made of Cities Mat. xxiv. great and fenc'd up to Heaven. The Clouds pass 30. by the name of the Clouds of Heaven; nay, they are by the Psalmist, (agreeably to the Interposition of the Expansum, Firmament of Heaven on the second Day of the Creation between the superior and inferior Waters) made as it were

its

its farthest Boundaries and Limits; the Waters contain'd in them being call'd, Waters which are Psal. above the Heavens. The very Fowls which still cxlviii. 4. reside nearer to the Earth, are styl'd the Fowls of Mat. viii. Heaven; and were originally appointed to sty 20. & above the Earth in the open Firmament of Hea-xiii. 32. ven. By all which Places 'tis evident, That the Gen. i. 20. word Heaven is commonly so far from including the Sun or Planetary Chorus, (much less the fix'd Stars, with all their immense Systems) that the Moon, our attending and Neighbour Planet, is not taken in: The utmost Bounds of our Atmosphere, being so of this our Heaven also: which was the only Point which remain'd to be clear'd.

But here, before I proceed further, I must take notice of a confiderable Objection, which threatens to wrest this Argument out of my Hands, and indeed to subvert the entire Foundation of the Proposition before us; and is, I freely own, the main Difficulty in this whole Matter; and 'tis this, That fuch a Sense of the Words, World, and Heaven, and Earth, as has been pleaded for, whatever may be faid in other Cases, will yet by no means fit here, nor take in all the Extent of the Mosaick Creation; because 'tis certain, that neither the Light, by whose Revolution Night and Day are distinguish'd; nor the Sun, Moon, and Stars, which are fet in that Fir-Gen. i. 14, mament of Heaven of which Moses speaks, be- 15, 17. long to our Atmosphere, or are limited by those Boundaries, within which we confine the prefent History; and 'tis equally certain, that both of them pertain to the Mosaick Creation, and are the first and fourth Days Works therein; and by confequence, it may be faid, the Subject of the fix Days Creation must be the whole System

System of the heavenly Bodies, or at least that particular one in which the Earth is, and is styl'd

the Solar System.

Now this Objection is in part already taken off by the Sense in which the Production and Creation of Things has been shewn to be frequently taken in the Holy Scriptures; whereby there appears to be no Necessity of believing these Bodies to have been then originally brought into Being, when they are first mention'd in the Mosaick Creation.

But because this is not meerly the chief, but only considerable Objection against the Proposition we are upon; because it seems to have been the principal Occasion of Mens Mistakes and Prejudices about this whole History; and because 'tis the single Instance wherein this entire Theory, so far as I know, seems to recede from the obvious Letter of Scripture; 'twill be but proper to give it a particular Review, and clear withal, not only this, but several other like Expressions and Passages, in the Holy Scripture.

Now, in order to the giving what Satisfaction I can in this Point; let it be consider'd, That as to the first Point, the Creation of Light on the first Day, it is not at all afferted in the History; but only that then it first appear'd in the World:

with reference to this very Day's Work, expresses

Gen. i. 3, God said, Let there be light, and there was light.

And God saw the light that it was good; and God divided the light from the darkness. And God called the light Day, and the darkness he called Night. And, indeed, Light does not seem capable it self of Creation out of Nothing in a proper Sense; tho' the luminous Body from whence 'tis deriv'd be so. And accordingly St. Paul,

it

it exceeding properly, when he fays, that God at this Time commanded the light to Shine out of 2 Cor. iv. darkness. Which original Commencement of the 6. Light upon the Face of the Earth this first Day of the Mosaick Creation being not only allow'd, but particularly accounted for in the following Theory, this can be no Difficulty in the prefent Cafe. The Creation therefore of the Heavenly Bodies, the Sun, the Moon, and the Stars, is the fole remaining Difficulty in the Case before us. And that would not appear so hard, if the Translation of the Words of Moses were but amended, and the Verses hereto relating, read thus: And God said, Let there be lights in the firma-Gen.i. 14, ment of the Heaven, to divide the day from the 15, 16, 17. night; and let them be for signs, and for seasons, and for days, and years; and let them be for lights in the firmament of the Heaven, to give light upon the Earth; and it was so. And God having (before) made two great lights, the greater light to rule the day, and the lesser light to rule the night; and baving (before) made the stars also, God set them in the firmament of Heaven, to give light upon the Earth, &c. or, which is all one, And God bad (before) made two great lights, the greater light to rule the day, and the lesser light to rule the night; he had (before) made the stars also: and God set them in the firmament, &c. In which Rendring, 'tis only changing the perfettum for the plusquam perfectum, and every Thing is clear and easy, and the Objection vanishes of its own accord; the Creation of the heavenly Bodies being hereby affigned to a former Time, and the Work of the fourth Day no other than the placing them in our Firmament; according as the Account hereafter to be given does require.

Now to prove this a fair and just Interpretation, (to omit that the Creation of the Heavens and Heavenly Bodies had been related before the fix Days Work) 'tis only necessary to observe, that the Hebrew Tongue having no plusquam perfectum, must, and does sometimes express the Sense of it by the perfectum; and that, accordingly, the particular Circumstances. of each Place must alone determine when thereby the Time prefent, and when that already past and gone, is to be understood. How many Knots in the Scripture the Omission of this Obfervation has left unfolv'd, and which being observ'd, would be immediately untied, I shall not go about to enumerate; there being fo many in the very History before us, of the Origin of the World, that I shall not go one jot farther for Instances to confirm the before-mention'd Translation; and which, on the Account of their Agreement in Place, will more forcibly

Gen. ii. 2. plead for a like Agreement in Sense also. On the seventh day God had ended his work which he had made, and he rested on the seventh day from

all his work which he had made. —— He had rested from all his work which God had created and made.

* 5,6. — The Lord God had not caused it to rain on the Earth, and there had not been a man to till the ground; but there had gone up a mist from the Earth, and had water'd the whole face of the

ground; and the Lord God had formed Man out of the dust of the ground, and had breathed into

his nostrils the breath of life. — And the Lord God had planted a garden eastward in Eden. —

And out of the ground had the Lord God made to grow every tree that is pleasant to the sight,

the Lord God had formed every beast of the field,

E

¥ 7.

¥ 8.

y 9.

field, and every fowl of the air. — In all which Places the whole Context is fo clear'd by this rendring, and so many strange Absurdities avoided, that there is, I think, all imaginable Reason

to acquiesce in it.

And tho' the fourth day's work is among those other, where no fuch alteration need be made; in which therefore it may feem hard to allow of a fingle instance against the use in the precedent and fubsequent Context in the first Chapter, yet the circumstances of that day being peculiar; the like mixture of the perfectum and plusquam perfectum being in the fecond Chapter, and in other places of Scripture to be observ'd; and a distinct work being still hereby preserv'd to that day, the placing the Sun, Moon, and Stars in our Firmament, which otherwise is after a fort double; do all, in good measure, take away the force of fuch Reafoning, and conspire to allow us that Interpretation before given, and thereby to secure the Proposition before us from that grand Objection which feemed capable of caufing so great an obstruction in our course. But if any should be dissatisfy'd with this Answer, I shall, for their sakes, enter deeper into this matter; and, without any affiftance from what has been already faid, endeavour to establish the Proposition before us, and take away the foundation of the present difficulty.

And here I observe, That the Scripture all along accommodates its self to the vulgar Apprehensions of Men, with relation to such Points of Natural Philosophy as they were not able to comprehend; and in particular, with relation to the Site, Distance, Magnitude, Use, and Motions of the Heavenly Bodies. Tho' these be really very distinct, as well as distant from the

C

Earth,

Earth, with all its Dependances; yet are they rarely, if ever, so consider'd in the Holy Scriptures. They are all along there represented as siery Luminaries plac'd in our Atmosphere, and as much belonging to, and depending on the Earth as the Clouds, Meteors, or other Aerial Phænomena: And so 'tis no wonder that in the History before us, they are included among the rest of their Fellows, and come within the verge of the Mosaick Creation, notwithstanding its proper limits be no larger than we here assign thereto. In order to the accounting for which things, I shall,

(1.) Shew the Truth of the Observation, in feveral instances from the Holy Scriptures.

(2.) Shew the rational Original and Occasion

of fuch ways of fpeaking.

-117782

- (3.) Explain what, according to my Notion, must be meant by the Creation or Production of these Heavenly Bodies in the Mosaick History before us; and prove such a Construction to be agreeable to the sacred Style in other Places.
- (4.) Assign some Reasons, why, in a History of the Origin of our Earth, these remote and distant Bodies come to be taken notice of, tho their own proper Formation did not at all belong to it.
- (1.) I shall shew the truth of the Observation, in several Instances from the Holy Scriptures; namely, that the Heavenly Bodies are no otherwise there described than with relation to our Earth, and as Members and Appurtenances of our Atmosphere. And this Observation is confirm'd by the first mention that is made of them

in this very History we are upon; all the Circumstances whereof fully attest the truth of what is here affirm'd of them. When God said Let Gen. i. 3, there be Light, or when the Light first display'd 4, 5. it felf, notwithstanding those numberless advantages accruing to the whole World therefrom, none are taken notice of but fuch as respect our Sublunary World. 'Twas entirely with regard to our Light and Darkness, our Day and Night, that all was done, as far as can be collected from the Words of Moses. Thus, as soon as the Heavenly Bodies are made, tho' they be univerfally useful, and belong to the entire Solar System, yet are they here plac'd in the Firmament of our Heaven, (a Phrase us'd in this History for y 14, 15, our Air only) to divide our Day from Night, to 16, 17,18. be to us for signs and seasons, for days and years; to be for lights in the firmament of beaven to give light upon the earth; to rule over our day and night, to divide our light from darkness. And as to the order of their Introduction, 'tis not that of their own proper Greatness or Dignity, but that of their respective Appearance and Uses bere below. All which is far from a full account of the real Original, universal Intentions, and true Places of these Glorious Bodies; but on the Supposition here made use of, exactly easy and natural. Agreeably whereto, when our Air is clogg'd with gross Vapours, so as to hide or disfigure their Faces to us, The Sun is said to be turn'd into Acts ii. 20. Darkness, and the Moon into Blood; and when some Aerial Meteors, call'd by their Names, and for a moment resembling them, shoot and drop down in the Air; the Stars are faid to fall from Mat. xxiv. Heaven. The Sun and Moon, as if they were 29. two Globes of Fire and Light pendulous in our Air, and hanging over certain places, are order'd

Joshua x. to stand still, the one upon Gibeon, the other in the Valley of Aijalon. The Sun is represented as Pfal. xix. set in a Tabernacle, rejoycing as a Giant to run bis race. His going forth, is said to be from the 4, 5, 6.

Hatah xl. 22.

end of Heaven, or the Horizon; and his circuit Vide Pfal. unto the ends of it. All which Expressions, with civ. 1,&c. many others through the whole Bible, plainly shew, That the Scripture did not intend to teach Men Philosophy, or accommodate it felf to the true and Pythagorick System of the World. The Holy Writers did not consider the Heavenly Bodies absolutely, as they are great and noble in themselves, main and glorious Parts of the Universe, very distinct from our Earth, plac'd at various and immense Distances from it, and from one another; defign'd for, and fubfervient to very many, very wife, and very comprehenfive Ends and Methods of the Divine Providence; dispos'd in a regular order, in proportionate and harmonious Periods and Revolutions, and finally endued with mighty Powers and Influences, with respect to numerous and vast Systems of Beings. Under such a consideration we might have expected another fort of Reprefentation of the Heavenly Bodies, their Original, Defigns, Courses, and Circumstances, than the foregoing Texts, or their parallels, every where afford us. But if we look on them under the Notion of Neighbour-Luminaries, which are fituate at the utmost bounds of our Atmofphere, and belong, as well as the Clouds, to our Earth; which are appointed to be our peculiar Attendants, and a part of our Retinue; ferve our fingle Necessities, and every day rife and fet on purpose to provide for our Advantage and Convenience: If, I fay, we thus look upon them, (as all Men not otherwise taught by

by Astronomy do and must) the Texts abovecited, and the whole current of the Holy Books will easily accord and correspond to such a System. And I dare appeal to any impartial and competent Judge, to which of the foremention'd Schemes the most obvious and easy Sense of the Expressions of Scripture hereto relating are adapted; and whether it does not usually speak as an honest and inquisitive Countryman, who no more doubted of the Heavenly Bodies, than of the Clouds appertaining to the Earth; rather than as a new Astronomer, who knew them to be vastly distant from, and to have nothing in a peculiar manner to do with the same. Which will be less wonder'd at, when we consider in the next place,

(2.) The Reason and Occasion of such ways of speaking. And here I shall not content my felf in general to observe, that the design of Divine Revelation was quite of another Nature, than requir'd a nice Adjustment and Philosophick Explication of the Natural World; that the Capacities of the People could not bear any fuch things; that the Prophets and Holy Penmen themselves, unless over-rul'd by that Spirit which spake by them, being seldom or never Philosophers, were not capable of representing these things otherwise than they, with the Vulgar, understood them: That even, still, those who believe the true System of the World, are forc'd among the Vulgar, and in common Conversation to speak as they do, and accommodate their Expressions to the Notions and Apprehensions of the generality of Mankind: I shall not, I say, content my felf with fuch Observations, most of which are usually, and with good reason, insisted on in the present case; but rather attempt to find out the true Origin and Source of fuch Notions C 3 and

and Expressions, made use of, as by most other. Writers, so especially by the Sacred Ones in the

Holy Bible.

God has fo fram'd the Eyes of Men, that when the distance of Bodies, and their proper Magnitude is very great, they shall both be imperceptible to us. There is every way from our Eye a spherical Distance or Superficies which terminates our distinct Perception of Objects; and beyond which, all Distances and Magnitudes, abfolutely confidered, are not by us distinguishable. The Clouds, tho' lying parallel to the Horizon, they are (fo far as comes at once within our view) almost in the same Plane, yet to us they feem bent into a concave Figure, or kind of Hemispherical Superficies, almost equidistant on every Side from its Center, the Eye of the Spectator, and so feem every way to touch the Ground at a Mile or two distance from him. And this happens by reason of the Impersection of our Sight, which distinguishing remote Objects but to a certain distance, beyond which the Clouds are, can have no other Idea of their Situation than small and like Objects at that Spherical Superficies would excite. On which Principle 'tis certain, that till Geometrick and Philosphick Principles rectify Men's Notions, all Bodies what soever beyond the Clouds, fuch as the Celestial are, must needs be esteem'd at the same equidistant Superficies with the Clouds, and appear among them, and by consequence 'twould be on this account, as possible for the Vulgar to be perfuaded that the Clouds were vastly remote from, and bear no relation to this Earth, as that the Sun, Moon, and Stars were fo; and to them as strange to have found no account of the Formation of them with that of the other visible World, as the omission of the Clouds would have been. It being impossible that the Sun, for instance, tho' so many millions of Miles distant, should to us appear above one or two from us; and alike impossible that his bigness, tho' so many thousand Miles in Diameter, should appear to be so many Feet to us on Earth: As all who have any skill

in Opticks very well know.

So that fince these Heavenly Bodies are and must needs be to our Sight and Imagination at the fame distance with the Clouds, and confequently, as to us, are with them plac'd in our own Air; since their visible Magnitude, Situation, Motion, and Habitudes, are all one with respect to us, as if they were really light and fiery Balls rowling upon or just above the Clouds; fince their apparent Changes, Figures, Colour, Countenances, Effects, and Influences would be (as far as Sense and vulgar Observation could determine) on this Earth, and its Inhabitants, the very fame as were to be expected from fuch light and fiery Balls, revolving at the prefumed distance; when all wife Men, especially the Sacred Penmen, in their Writings defign'd for the Advantage and Instruction of all, condescend still to the Apprehensions and Capacities of Men, and speak of the Being of things as they constantly Appear; of which the Bible is full of Instances: All these things consider'd, 'tis not to be wonder'd at, that the Heavenly Bodies are accounted Appendages of our Earth, and agreeably thereto made mention of in the Mosaick Crea-

(3.) I shall explain what, according to my Notion, must be meant by the Creation or Production of these Heavenly Bodies in the History before us, and demonstrate such a Construction

to be agreeable to the facred Style in other places. Now 'tis eafy to tell what is meant by their Creation in the case before us, when it has appear'd that their Production out of nothing was precedaneous to the fix days Work, and that they are wholly consider'd as belonging to our Earth, and plac'd in our Air; viz. Their primary being so plac'd; their first becoming visible to Men on Earth, or in other words, their Original Appearing there. I mean in plain English, Light is faid then first to be, (for it being an effect of the Heavenly Bodies, not a distinct thing from them, is not by Moses, as I have already noted, said to Gen. i. 3. be made or created,) when the superior Regions of the Chaos were become fo far clear and defecate, that the Rays of the Sun in some degree could penetrate the fame, enough to render a fenfible Diffinction between Night and Day, or that space the Sun was above, and that it was beneath the Horizon. And agreeably, the Sun, Moon, and Stars, are then faid first to be, or to 14, 16. be made, when afterwards the Air was rendred fo

1 . . .

very clear and transparent, that those Luminaries became conspicuous, and their Bodies distinctly visible, as in a clear Day or Night they now appear to us. to assistant of the agent assistant

That this Exposition is agreeable to the Scriture Style, is evident by this Observation, That feveral things are there affirm'd to be, in any certain manner, when only those effects we feel are fuch as they would be were they fo indeed; and 'tis not unufual to affert the being of any Caufe, when all those consequences are no otherwife in the World, and with regard to Men, than they must and would be upon its real Existence, without any exacter niceness as to the truth of the same. Thus God is said several times

to

to repent of somewhat he had before done, when his future Actions are the very same as would in Human, as well as Divine Affairs, be the certain consequences of a proper Repentance: Thus also God is said to be pleas'd or angry with Men, and that in a very passionate and sensible manner, when he confers such great Mercies, or inflicts fuch great Judgments, as were he really fo, he must naturally do. Thus also Eyes and Ears are frequently suppos'd of God, because he as certainly is conscious of all the Actions and Speeches of Men, as if he really faw and heard the fame. In a different instance, The Sun is said to stand still or move, tho' in propriety of Speech, as is now well known, those affections ought to be afcrib'd to the Earth, because every thing, as to sensible appearance, is in the fame condition as from the Annual and Diurnal Motions of the Sun, were they real, must, and would obtain. The Sun is faid to be turn'd into Darkness, and the Moon into Blood, as was just now observ'd, when, without any alteration in themselves, they appear of a dark or bloody Countenance to the Inhabitants of the Earth. Nay, which is most of all to our present purpose, God is then said to make all things new, Apoc. xx. and to create a new Heaven, and a new Earth, 5. when, at the utmost, he so changes the Constitu-Ifa. lxv. tion and State of our Earth, as to render there- 17. by this whole Sublunary World very different from, and much excelling that which formerly appear'd. In all which, and innumerable other Instances, 'tis plain and evident, that the Holy Writers do not consider merely how things are in themselves, but how they are to us; not what is their proper nature, but visible appearance in the World.

But here, lest this Doctrine should be abus'd,

I must interpose this necessary caution, That fuch a liberty is neither by other Authors, nor the facred Penmen taken on all occasions, or in every case; but peculiarly when the sublimity of the Matter, the capacities of the People, the more easy instilling useful Principles into Men, or fome other weighty reason, requires such an accommodation. 'Tis chiefly with regard to the Spiritual Nature, and fublime way of operation in God; or fuch Physical and Philosophick Truths, as relate to diffant, invisible, or inacceffible bodies; the absolute Essences or Affections whereof, were not explicable to the vulgar in a plain and natural manner. In which cases this Liberty in the Interpretation of Scripture is, with the greatest Justice to be allow'd. But 'twere thence very unreasonable to extend it to all others, or indeed to any, where the fame, or as good Reasons were not affignable. He who should argue, that because the Literal sense of Scripture about the Corporeal Members, and Human Passions of the Divine Nature, is not to be strictly urg'd; that therefore when he is call'd a Spirit, and represented as the Rewarder of Good, and the Punisher of Bad Men, those Expressions are no more to be depended on; or he who should infer, that because the First and Fourth Days Work, the Origin of Light, and the making of the Heavenly Bodies, must not be strictly literal, that therefore neither in the Mosaick Creation, ought the other four to be any more esteemed so; he, I say, that should thus argue or infer, would be very unfair and unreasonable; because he would affert that in one case, without ground, which on peculiar and weighty ones alone was allow'd in another. Thus those things that are ascrib'd to God, which floor I

which evidently agree to his Nature and Idea, are fure to be literally understood; tho' the other which are repugnant thereto be not: And in like manner, 'tis but just to believe, that so much of the Mosaick Creation, as related directly to the Earth and its appurtenances, and fo came at once within the comprehension of the History, and of the capacities of the Readers, ought literally to be interpreted; tho' fome things extraneous to the formation of the Earth, and beyond the notice of the People, be to be taken in a different acceptation. Tho' the common use of Tropes and Figures make our Speech very often not to be literal, yet generally we can understand one another very well without danger of deception, or of turning plain Sentences into Allegorical Discourses, in our Conversation one with another.

And 'tis evident that the Holy Books ought not to be tormented or eluded, as to their obvious sense, on every occasion, under pretence that some particular Texts are to be construed another way. That SACRED RULE ought for ever RELIGIOUSLY to be observ'd, That we never for sake the plain, obvious, easy and natural sense, unless where the nature of the thing it self, parallel places, or evident reason, afford a folid and sufficient ground for so doing.

Now this being presuppos'd, I shall leave it to the impartial Reader to judge, after the perufal of this whole discourse, whether I have not fubstantial reasons for the present Exposition; and whether therefore, any one ought to blame my receding from the Letter in this fingle Cafe, or imagine that I give a just handle thereby to others, to Allegorize away this History of the

Creation, or any other parts of Scripture.

eriT (.r)

: gniwolled own And

And I must here own and profess, That tho I think, in case the common Translation be receiv'd, there is an absolute necessity of receding from the Letter in the point before us, and that this Venerable and Sacred Kooponoula, or History of the Creation, is otherwise in the highest degree strange and unaccountable to the free Reafon of Mankind; yet I am fully of opinion, that generally the difficulties occurring in the Sacred Books are to be clear'd, not by a greater receding from, but a closer adhering to the obvious and most natural Interpretation of the Periods therein contain'd: And that, the general nature of the Scripture Style every where duly observ'd and consider'd, several great scruples with relation to the Actions and Providence of God, and other things contain'd in those Books, would be taken away, if we might be allow'd to recede a little from the receiv'd opinions of Men, and Placits of Systematical Authors; on no other condition than that, for a recompence, we keep fo much the closer to the Oracles of God, and the obvious and literal Interpretation of them; and explain the Bible no otherwise than the plain words themselves would appear most naturally to intend to any difinterested and unconcern'd Person: Of which many Instances might easily be given, were this a proper place for it. But I must leave this digression, and return to what I before propos'd in the

(4.) Last place, viz. To affign some Reasons why in a History of the Origin of our Earth, these remote and distant Bodies come to be taken notice of, tho' their own proper formation did not at all belong to it. Now though many might eafily be alledg'd for this procedure, yet I shall include the main I intend here to insist on (1.) The

in the two following:

(1.) The Advantage of the Jews, or fecuring them from the Adoration of the Host of Heaven, could not otherwise have been provided for. Now as the foundation of fuch Idolatry is taken away by their being included in this History, which imply'd them to be fuch dependent and created Beings, as could have no influence of their own, but what were deriv'd from God; and consequently were subject to his Dispofal and Government; which affirm'd them to be by Him plac'd in the Firmament, and there subjected to fuch Motions, Rules, and Laws, by which they became advantageous and ferviceable to the World: So had they been taken no notice of, they would have feem'd exempted Bodies, and when all Worship of Terrestrial things was demonstrated by this account of their original, to be foolish and absurd, that of the Celestial Bodies would feem thereby to be permitted at least, if not patroniz'd and recommended to 'em.

For fince, as we have before observ'd, 'twas impossible for the Jews to know the real state of the case, and to apprehend that they were vastly remote from, and fo no way belonging to this Earth, or its Formation; there was no other way to apply a fitting remedy to that prevailing custom of worshipping the Host of Heaven (so particularly caution'd by Moses) but to conde-Deut. iv. scend to the Capacities of the People, and sup- 19.8 xvii. posing them light and siery Globes pendulous 3. in the Air, and revolving just beyond or among the Clouds, as they appear'd to them to do, to recount their respective, as well as the real Formation of the other parts of the visible World; and affign them their proper place and distinct period in the Six days work, as well as any other

other more directly concern'd therein. The Sun, Moon and Stars, were fuch noble and glorious Bodies, and fo visible, fo remarkable, fo useful parts of the World; and the Heathen Nations so generally doted on the Worship of them, that had they been entirely omitted in this parcular account of the Origin of things, there would have been the most eminent danger of this kind of Idolatry among the Jews; and the feeming approbation of that practice, to which they were fo prone before, from the filence of their great Lawgiver in his Creation of the World, might probably have defy'd all diffuations, and been the most fatal encouragement to so vile a Worship that were easy to be imagin'd. Any particular declaration of the reasons of such omisfion, from the real Distance, Magnitude, Motions, and Defigns of the faid Bodies, and how improperly they could be reduc'd within the faid narration (the only precaution supposable in the case) being more likely to discredit the whole Book, than overcome their prejudices; than give them a true and just Idea of the matter it self, and fo obviate their false reasonings and practices thereupon in the foremention'd Idolatry. So that 'twas abfolutely necessary to include the Heavenly Bodies in the Mosaick Creation, in order to prevent Idolatry among the Jews: which feems to have been a principal aim not only of recording this whole Narration, but of the entire Mosaick Dispensation; and therefore was in the first place by all means to be consider'd and provided for.

(2.) The peculiar Nature and Circumstances of this History of the Creation, necessarily require the mention of the Heavenly Bodies, as well as of any other parts of the Visible World. And

'tis this mistake that has hitherto hindred any rational account thereof; that Men have either suppos'd it a real and philosophical relation of the proper Creation of all things; or a meer mythological and mysterious Reduction of the visible part of it to six periods or divisions, under which mighty Mysteries were suppos'd to be hid, and by which the foundation of a feventhday Sabbath was to be laid among the Jews. Now tho' fomewhat of truth may possibly be contained in each of these different notions; yet I think 'tis undeniable, that they are neither of them to be acquiesced in, and by no means give a fatisfactory account of the compleat Nature and Kind of this History. That alone to which all its particulars exactly answer, and which is as literal and philosophical as the capacities of the Jews could expect or reach, and did require, is, An Historical Journal or Diary of the Mutations of the Chaos, and of the visible Works of each Day, such an one as an honest and observing Spettator on the Earth would have made, and recorded, nay and believ'd to be in all cases the truth and the reality of the things themselves. Now that this Idea alone fits this facred History, might easily be made out by the confideration of the particulars related, and of those omitted, with all the other circumstances thereof, by no means corresponding to any other Hypothesis; but most exactly to this before us; without the least force offer'd to the Nature and System of the World, to the divine Perfections, or the free Reason of Mankind; and exactly fuitable to the Style of the Holy Books, in the mention of the Phanomena of the Natural World in other places. For as to that Objection against this Nature of the Hexameron, That it cannot be that of An Historical Jour-DODINGO nal.

nal, such as a Spectator on the Earth would have made; because 'tis suppos'd there was then no fuch Spectator in being to make it; I shall anfwer in the words of my Reply formerly made to it, that this Argument is, I think, neither conclusive nor true. For tho' there were no real Spectator at first, yet the nature of the Hiftory might, for good reasons, be such as I affignnotwithstanding. But to speak my mind freely, I believe that the Messias was there actually prefent; That He made the Journal; That He deliver'd it after to Moses on Mount Sinai; and that from thence it appears in the front of his Pentateuch at this Day. Which Journal being suppos'd, (and by that time this Differtation is confider'd throughout, I hope 'twill appear no precarious supposition) 'tis evident that both the appearance of Light, and of the Bodies themselves, the Sun, Moon and Stars, (the things we are now enquiring about) must as certainly come within its limits, and make as remarkable Turns and Changes in the World, as far as a Spectator could judge, as any other within the entire fix days could possibly do. The appearance of Light to him who never before is fuppos'd to have feen fuch a thing, and must have been till then incompass'd with the thickest Darkness; and the plain view of the Heavenly Bodies themselves to him who before had no manner of notion of 'em, especially when he had no natural means of diftinguishing them from Light and fiery Balls, fituate just above, and pertaining to the Clouds; must as certainly have inferr'd a new Creation, and under fuch a notion have been recorded in their due place in the Journal beforemention'd, as any other whatfoever; and their order, position, and uses would naturally be recounted

counted no otherwise than we now find them in the Mosaick Creation. From which Consideration I think 'tis not at all surprizing, that these Parts of the visible World, how remote and separate soever they be from our Earth in themselves, are yet included in this History before us; and have their distinct Periods in the six Days Work; tho' at the same time the Kooponoisa it self doth properly relate to the formation of the sublunary World only.

IV. I prove that the History before us, extends not beyond the Earth and its Appendages, because that confused Mass, or rude Heap of heterogeneous Matter, which we call the Chaos, whence all the feveral Parts were deriv'd, extended no further. It will here, I suppose, be allow'd me, that the ancient Chaos, so famous among the old Philosophers, and so evidently referr'd to by Moses, was the entire and single Source or Promptuary of the fix Days Productions; and that confequently nothing ought to be esteem'd a Part of that Creation, but what, in its Rudiments and Principles was fo of the Chaos alfo; and this Postulatum is so agreeable to Moses, as well as to all the ancient Accounts of the Chaos, and I think so suitable to the Sentiments of most Men, that I shall, without farther Proof, suppose it granted me, and betake my felf immediately to the other Branch of the Argument, and endeavour to evince, that the Chaos was fo far from comprehending the entire Matter of the Universe, nay, or of the Solar System, that it reach'd not fo far as the Moon, nor indeed any farther than that Terraqueous Globe we now inhabit, with fuch Bodies as are immediately contiguous and appertaining thereto. Which I think the following

lowing Arguments will sufficiently demonstrate.

(1.) If we appeal to external Nature, and enquire what confused Masses or Chaos's either at present are, or ever, within the Annals of Time, were extant in the visible World, we shall discover no Footsteps of any such Thing, excepting what the Atmosphere of a Comet affords us. therefore, without the allowance of precarious and fanciful Hypotheses, relying on no known Phænomena of Nature, a Comet's Atmosphere bethe fole Pretender; if moreover the fame Atmosphere gives a Just, Adequate, Primitive, and Scriptural Idea of that ancient Chaos; if it anfwers its particular Phænomena, recounted by facred or prophane History; if it prove a peculiarly fit Foundation of fuch an Earth as ours is, and is extraordinarily adapted to fuit, and account for its present and past Phænomena; all which shall be prov'd hereafter; I think we may cease our farther Enquiries, and with the highest reafon and justice conclude, That a Comet, or more peculiarly the Atmosphere thereof, was that very Chaos from whence that World arose, whose Original is related in the Mofaick History: And with equal Reason and Justice be satisfy'd, (which is but a certain consequent thereof) that not the innumerable Systems of the fix'd Stars, nor the narrower System of the Sun, nay, nor the Moon her felf, but our Earth alone, was the proper Subject of the Mofaick Creation, Which Conclusion will be farther established by the coincidence of the feveral Days Works recounted by Moses, with those natural and orderly Mutations which, in the Digestion and Formation of a Planet from a Comet's Atmosphere, would mechanically proceed therefrom, as hereafter will appear.

(2.) The

Vid. Hy-

(2.) The Chaos mention'd by Moses is by him expresly call'd The Earth, in contradistinction to The Heavens, or the other Systems of the Universe; and all its Parts taken notice of in the facred History, appear, by the following Series of the Scripture, to belong to our Earth, and no other. The Words of Moses are, In the Gen. i. Beginning God created the Heaven and the Earth; 1, 2. and the Earth was without Form and void, and Darkness was upon the Face of the Deep; and the Spirit of God moved upon the Face of the Waters. Where I think 'tis plain, as has been already obferv'd, that when the Author comes to the Chaos or Foundation of the fix Days Work, he excludes the Heavens from any share therein, and calls the Chaos it felf, An Earth without form and void, with Darkness upon the Face of its Abyss; and this all ought to grant: These being the very Words from which 'tis concluded that the Heathen Chaos was no other than what Moses deriv'd the World from.

And that the Chaos is here confin'd to the Earth, will sure appear more credible by the latter branch of this Argument, which observes no other Parts to be mention'd belonging thereto, than such as the succeeding Series of the Holy Scriptures, as well as the known Phanomena of Nature shew to have afterward belong'd to our Earth and no other, viz. an Abys or Deep, and Waters: both of them frequently mention'd in the Holy Books, and now actual Parts of the present Globe, as will appear hereafter.

So that fince Moses calls his Chaos expressly the Earth; since by the coherence of his Discourse he excludes the Heavens, taken in a large and proper Sense, from the same; since, lastly, he mentions no other Parts of this Chaos than such

as afterward, and at this Day, are Parts of our Earth; 'tis fomewhat unaccountable, and like a kind of fate upon Commentators, that they should unanimously resolve to make this Chaos of fo extravagant a compass as they too incongruoufly do; and that they should agree in it so univerfally, tho' without any warrant from, nay, contrary to, the obvious sense of the Text it felf, and the plain drift, coherence and description of Moses therein. I know it will be faid, the first and fourth Days Works, (the Origin of Light, and of the Sun, Moon and Stars) neceffitated fuch a supposition, and gave just cause for the common Exposition. Which as I believe to have been the true occasions of all fuch mistaken Glosses, so I think them far from just and necessary ones; and if what has been already faid has clear'd those difficulties, there can be no reason to reject the cogency of the present Argument, but a great deal to rest satisfied in it; and to confess it no less unscriptural, than 'tis abfurd, to expect from this fingle Chaos, a Sun, Moon, and Systems of fix'd Stars, as hitherto the World has commonly done.

include the Sun or fix'd Stars, because just before the extraction of Light from it, as 'tis usually explain'd, it was dark and caliginous; which on such a supposition is not conceivable. A strange

Vid. Lem. fuch a supposition is not conceivable. A strange 36. infrà. Darkness this! where more than ninety nine Parts of an Hundred (whether we take in the entire System of the World, or the Solar System only) appear to be fiery Corpuscles, and the very same from whence all the fix'd Stars, or at least the Sun, were constituted; and are now the

(3.) The Mosaick and ancient Chaos could not

Fountain of all that Light and Heat which the World has ever fince enjoy'd. Let every un-

biass'd

biass'd Person judge, how dark that Chaos could be, where the opake and obscure Parts were so perfectly inconsiderable, in comparison of the light, the active, and the fiery ones. So that on this Hypothesis, the state of the Chaos must have been exceeding light, hot, and fiery, before the first Day's Work; when it was on the contrary, according to all Antiquity, facred and profane, dark and caliginous. 'Tis true, upon the separation of the Particles of Light, (the business, in this Hypothesis, of the first Day) the Chaos would become obscure and dark enough, at the same time that the Sun, or fix'd Stars, were collecting their Masses so lately extracted, and were growing splendid and glorious. But this is to contradict the History, according to which the Light, on the first Day, is consider'd with relation to the Chaos, and its diffinguishing Night and Day There; not as it was collecting into Bodies of Light without it, (which rather must belong to the fourth Day's Work;) when by this Account'tis evident, that this Day is the peculiar time for the most pitchy Darkness possible; for when all the Light was just separated from the Chaos, the most caliginous Night must certainly enfue. So that unless we can change the Order in Moses, and prove that the Chaos before the first Day's Work was all over Light, and on the first Day cover'd with the thickest Darkness, we in vain pretend to justify the vulgar opinion, and include the Sun or fix'd Stars among the other Matter of the Chaos.

Besides, since Heat is the main instrument of Nature, in all its separations of Parts, and productions of Bodies, 'tis sure a very improper season just then to extract the light and siery Corpuscles out of the Chaos, when the Formation

D 3

of Things began, and there was the principal occasion for their presence and efficacy, that ever was, or could possibly be. A strange method of Generation! To take away the cause at the very instant when it was to produce its effects; and to recount the effects not before, but as soon as ever the cause is taken away! But to

proceed.

(4.) The now undoubted property of the universal Gravitation of Matter, contradicts and overthrows this fancy of the heavenly Bodies having been originally included in, and at the Creation extracted from the Chaos of which we are speaking. For on this Hypothesis, in case they once were mingled with the Parts of the Earth, fince they are now at immense Distances from it, they must have fled off every way from their former Place, and in a small Space of time have thrown themselves to those vastly remote Seats which they have ever fince posses'd. Now if instead of the vis centripeta, a vis centrifuga; instead of mutual attraction, a mutual repulse or avoidance were found to be the standing unchang'd Law of Nature, and Property of Matter, this might have look'd like a possible, at least, if not a probable Hypothesis; and the whole Order of Nature ever fince need not have been contradicted in this primary Formation of things. But fince the contrary force, that I mean of mutual Tendency, Attraction, or Gravitation obtains, and that, as far as we have any means of knowing, univerfally, which Sir Isaac Newton has demonstrated, there is no room or foundation in Nature for fuch an imagination.

'Tis by no means impossible, that all the Bodies in the Universe should approach to one another, and at last unite in the common Centre of

Gravity

Gravity of the entire System: nay, from the Vid. Corol. universality of the Law of Gravitation, and the 1, & 2: finiteness of the World, in length of time, ex-infrà. cept a miraculous Power interpose and prevent it, it must really happen. But by what Law of Nature, or Property of Bodies, they, when once conjoin'd, (as those I now oppose must affirm)

should be separated, 'tis hard to conceive."

Which difficulty is increas'd by the prodigious velocity of their Motions; fince, according to the vulgar Hypothesis, but a few Hours can be allow'd the Heavenly Bodies to waft them to those immensely, yet variously distant Seats, which they were immediately and for ever after to possess. All which harsh and ungrounded fictions are entirely avoided, and all things represented according to the known Laws of Matter and Motion, in that natural and easy Hypothesis we take; and which therefore is as confonant to, as the other is averse from the Make

and Constitution of the Natural World.

(5.) This fancy, that the Heavenly Bodies proceeded originally from the Terrestrial Chaos, and cast themselves off from it every way, supposes the Earth to be the Centre of the World, or of all that System of Bodies; and they plac'd in a kind of Circumference every way about it. How well foever fuch a Notion would agree with the Vulgar or Ptolemaick System of the World, I fear the Pythagorean, which has forc'd its reception, and is univerfally receiv'd by Astronomers, will not at all square therewith. In that Account which would only include the Planetary or Solar System within the fix Days Creation, the Sun, its known and undoubted Centre, feems the only proper Place for fuch a Chaos as were to be the common fource and promptuary of

the whole: but in the vulgar Account, where all the fix'd Stars and Planets of the Universe are to be suppos'd at a Centre together, we, who know not the Bounds and Circumference of the World, cannot be suppos'd able to pitch upon a Centre proper for so immense and strange a Chaos. Only one may venture to say, that the Earth, a small moveable Planet, revolving about the Sun,

is an ill-chosen one however.

And now upon a recollection and view of this whole Argument, I do not question but an unprejudic'd person, who knew nothing of the fentiments of Commentators, or of the opinions of the Vulgar; and who had only been converfant in the Works and Word of God, the Book of external Nature, and the Book of Scripture, would eafily find the bounds of the Mosaick Creation; and on a little confideration and comparison of the facred and prophane Accounts of the primitive Chaos, with the present Nature and Situation of the Heavenly Bodies, would quickly be convinc'd that our Earth alone were therein concern'd; he could fcarce be suppos'd once to dream that the origin of the Sun and Planets, much less of innumerable Suns and Planets, and of the entire Universe, was there accounted for. Such notions, how general foever, are not the refult of Nature and Scripture carefully confider'd and compar'd one with another, but the effects of ignorance of the Frame of the World, and of the Style of Scripture; of an unacquaintedness with the Works, and thence an inability of judging concerning the Word of God relating to them; or indeed commonly of a certain μικεοψυχία, or Narrowness of Soul, which Temper, Education, Conversation, Application to some particular Studies and Authors, with a ftrange-

ness to free and generous Enquiries, some or all have been the unhappy occasion of. In short, tis because Men are not able to give themselves or others a fatisfactory Account of fuch things, that they are forced to fall into a beaten Path, and content themselves with those poor and jejune Schemes, which, when carefully examin'd, prove neither Rational nor Scriptural, but are as perfectly contradictory to found Philosophy, as they are to the genuine Sense of those very Texts on which they build their Conclusions. Every unbiass'd Mind would easily allow, that like Effects had like Causes; and that the Bodies of the fame general Nature, Uses, and Motions, were to be deriv'd from the same Originals; and confequently, that the Sun and the fixed Stars had one, as the Earth, and the other Planets another fort of Formation. If therefore any free Confiderer found that one of the latter fort, that Planet which we inhabit, was deriv'd from a Chaos; by a parity of Reason he would suppose, every one of the other to be so deriv'd also; I mean each from its particular Chaos.

Nay, truly, I might carry this matter still higher, and if one Planet must be made Parent to another, justly claim the principal Place for Jupiter, probably above 200 times as big as our Earth, and the largest and most considerable of all the Sun's Chorus; and so with greater shew of probability affert, that from its Chaos any of the other Planets were deriv'd, than it felf from theirs. Particularly the Earth is so small a Globe, that in point of Dignity or Origination, very many of the Celestial Bodies may most fairly claim the Precedence of it, and curb its aspiring pretensions to any such mighty Prerogatives above its fellows. There is in reality no occasion

for any fuch childish Reasoning on either side; and every one of the Planets (especially the Moon, fo exactly refembling her Sifter Earth) ought to be deduc'd from a distinct Chaos of its own, as well as that particular one which Providence has allotted for the Seat of Mankind. And 'tis not to be question'd, were we as well acquainted with the Nature, Constitution, and Uses of the other Planets, with their various Inhabitants, and the feveral Methods of Divine Providence relating to 'em all as we are with our own, we should not be backward to allow 'em every one a proportionable share in the care of Heaven, and a like conduct in their Origins and Periods, as the Earth, on which we dwell, can boast of. We should, 'tis probable, soon understand, that, (bating the stupendous and miraculous Dispensation of the Gospel by the Messias Θεάνθεωπ () as well the Moral, as the Natural Histories of these Worlds; those of their first Rise out of Chaos's, of their feveral Changes, Revolutions and Catastrophes, with regard to the inanimate, the animate, and reasonable Beings, both as to the Dignity of the things themselves, and their Newness to us, would equally deserve the View and Consideration of inquisitive Minds, with any like Accounts relating to our own Earth; and we should easily satisfy our selves, that that fingle Chaos of which we now speak, the Seminary of our present Earth, was so far from extending it felf to the Sun, or fix'd Stars, that not the least secondary Planet in the Solar System could be contain'd therein.

V. The Mosaick Creation is confin'd to our Earth, with its Appurtenances, because otherwise the Time of the Creation of each Body was

fo extremely disproportionate to the Work it self, as is perfectly irreconcilable to the Divine Wisdom of its Creator, and to the Accounts of the Works themselves as they are set down by Moses.

In order to the Reader's perceiving and admitting the Force of this, and some following Arguments, I must premise some things touching the Nature of such Reasonings, and how far they may be made use of without any just Imputation of Boldness, Irreverence, or presumptuous Stint-

ing and Determining the Divine Actions.

And here I freely confess, That 'tis not neceffary in all Cases that we should comprehend the Reasons of the Divine Actions or Providence before we can be under an Obligation to believe them. They may be hid from us on feveral Accounts, tho' the things themselves be plain in Scripture. Under which Circumstances, I heartily own the strictest Obligation to yield our unfeigned Affent to what God has clearly reveal'd, notwithstanding we cannot see the entire Accountableness thereof to our imperfect Understandings. But then, 'tis one thing to be above, and another to be repugnant to our Reason; 'tis one thing to be beyond the Comprehension of, and another directly contradictory to our Human Faculties. Besides, the Clearness or Obscurity of the Revelation is here very confiderable: the former Cafe resolves our Assent into the Divine Veracity; but the latter may only be the Mistakes of Human Deductions; and by confequence, tho' our fallible Reasonings be superseded by the first, yet there is room for them in the fecond. I believe, for inftance, and am oblig'd fo to do, that our Saviour Christ is truly Θεάνθεωπ G, God and Man, because I find it every where plain and evident

evident that the Style, Titles, Attributes, Actions afcrib'd to the Son through the whole Bible, and all Christian Antiquity, demonstrate him to be the very next Being to the Supreme God, and quite superior to all subordinate Creatures; or to be God the Word, who was incarnate for the Salvation of Men; tho' it may be I am not able to give a clear Account of every thing relating to his Person or Incarnation. But I do not think my felf equally oblig'd to believe the Doctrine of absolute and uncondition'd Reprobation, because the Proofs alledg'd for it are far from being clear, and because 'tis not so properly above, as contradictory to the most evident Reason. And this comes nearest to the present Case; in which, neither can any one justly affert the Plainness of the Revelation on the fide of the common Scheme, nor alledge the Sublimity of the Subject, on account whereof it might be fairly suppos'd above the reach of our finite Capacities. The Scripture, as I take it, is evidently for, at least must be own'd not evidently against this restrained Sense of the Mosaick History before us; and the Subject it felf is finite and limited, and so within our ken, and capable of our Comprehension: on which Accounts fuch Arguments as follow ought to have their Place, and if confiderable, their Force and Influence on our Faith also, and go a great way to determine fuch a Dispute as we are now upon.

And 'tis fure not impossible, within certain Bounds, for a considering Man to determine what is rational, wise and prudent; what is confonant to the Nature of things; what is suitable to Forecast and Contrivance; what is, in most cases, proper, decent and becoming, even with relation to the Divine Operations in the World,

We

We naturally, in the reflecting on the System of external Nature, observe many Marks and Tokens of the Wisdom and Art, the Skill and Artifice of the Great Creator; which supposes that we are in good measure competent Judges in fuch Matters. And indeed, 'tis but changing the Scene, and confidering what we naturally pronounce to be rational and orderly, fit and proportionable among Men; what will become a wise General or Statesman, a skilful Builder and Architect, nay, an ordinary Workman or Artificer, in usual and obvious Cases: What on the one hand are the Tokens of Forefight and Prudence; and on the other, of Heedlesness and Folly, in the common Affairs of Life; and we shall not wholly be to feek what to think of feveral analogous Actions relating to God himfelf: due Allowance being every where made for that infinite Distance, and different State and Management of the Supreme Governor of the World, from those of all finite Beings, depending on, and fubject to him. Thus we collect our Ideas of the Divine Attributes, by confidering what is good, great, valued and esteemed, lovely and venerable among Men, and afcribing every fuch thing to the Divine Nature; who being the Origin of them all, must contain them within himfelf in a higher and more eminent manner. By accumulating all Things that appear Perfections in Men, or other Creatures, and removing all Imperfections necessarily adhering to them, we arrive at the Notion of an Infinitely Perfect Being; which is but another Name for God; and whom, on that account, we justly think the proper Object of our Worship and Adoration.

Since therefore our very Ideas of the Divine Properties are owing to, and depend on, our Con-

fideration

fideration of those lesser degrees of the same which we observe in Men; and since the reason why the contrary Properties are not by us afcribed to him, is, because we find that in Men they argue Imperfection: What is a Sign or Effect of fome degree of Perfection in Men, must also be acknowledg'd a Sign or Effect of a like Perfection in God. And what is a Sign or Effect of Imperfection in Men, must also be own'd, if it were supposable, a Sign or Effect of a like Imperfection in God. Thus, for instance, we certainly gather, that God cannot be properly pleas'd or delighted in the Misery and Torment of his Creatures, where yet the Justice and Wisdom of his Government may require him feverely to punish 'em; because we cannot but esteem it an odious Vice, and base Imperfection in a Judge on Earth, in like Cases, to be so affected; and whether we will or no. we look upon it as an Instance of Cruelty and Barbarity of Disposition to relish and taste a Sweetness, in the Cries and Groans of condemned and dying Malefactors. In like manner we justly conclude, God cannot Impose on innocent Creatures, no not by fuch Wiles, Stratagems, or other Methods of Collusion, wherein yet direct and downright Falshood were avoided; because we find a spontaneous Aversion and Indignation arises in our Minds, when fuch Tricks and Shams are discover'd among Men. And by the same way, and equal force of Reasoning, we may collect, that God cannot, in the Formation or Disposition of Things, no more than in other Cases, act abfurdly or difagreeably to Reason; disproportionately or unfuitably to the Nature of Things; immethodically without Rule and Order, or foolishly without Drift and Design, according as an impartial and confidering Man, who were duly acquainted

acquainted with the System of Nature, would judge and determine in the Case. And consequently, 'tis a dishonourable Reslection on God, to ascribe to him those things which to the free Faculties of Mankind would amongst us be look'd on as Marks of Unskilfulness, Imprudence, or Folly, in parallel Cases; and for which meer Men could not escape the most severe and indecorous

Imputations.

Put the Case that I should chance to observe a certain Master-builder in his parcelling out the several distinct Tasks of the Under-workmen, and apportioning the Time he would allow to the finishing of the whole; and that I perceiv'd 9 Parts of 10 were to be done in one Day, but the other fingle Part had a Month's Space affign'd to it; and yet 9 Parts of 10 of the entire Number of Workmen were to club together for that Work to be done in the Month, while only every tenth Man were permitted to affift at the Day's Task: Were it possible to suppose such a Case on Earth, I need not inform you what Opinion the Spectator would have of the Abilities or Prudence of the Architect. Or, Put the Case, that an ordinary Husbandman, who had two Plots of Ground, the one of a score Feet in Circumference, not very promifing or capable of Cultivation above others, the other of a thousand Acres of good Land, and very fit for Tillage or Improvement; should spend four or five Days every Week about his little spot of indifferent Ground, and allot no more than the remaining one or two for the Care and Management of the other spacious Field: 'tis easy to imagine under what Notion and Character the Plowman would pass in the World. Or lastly, Suppose one should light upon an Historian, who undertook

took to give a compleat and full Account of fome large and spacious Country, with the many noble Kingdoms, Principalities, Lordships, and Governments therein contain'd; and upon Perufal, nothing was to be found mention'd in any particular manner, but a certain little and remote Island (so inconsiderable, that the generality of the Inhabitants of the Main Land never heard fo much as its Name) which indeed was describ'd carefully, and its feveral Circumstances diligently accounted for; but as to the rest, there appear'd no more than at the Conclusion of a Chapter, two or three Names of its principal Divisions, and fome Advantages which one or two of their Maritime Towns afforded this small Island, and then all was concluded. Now he that should take this for a just and adequate History of the whole, and earnestly contend for the Compleatness and Perfection of the Work, would be certainly taken for a strange Person; or rather would be thought in Jest, and to design the real exposing of the Folly and Ridiculousness of the Publisher thereof. These familiar Instances amongst Men, shew what unbrib'd and untainted Nature instantaneously pronounces in fuch Cases; and thereby direct us what we ought to judge in parallel ones, in which God himself is directly interested.

Where the Change of the Person is so far from altering, that it exceedingly confirms these Dictates of right Reason, and makes those Suppositions which were barsh and incredible with regard to Men, to become intolerable and impious when apply'd to the Deity. Whatsoever bears the Characters of Truth, Justice, Order, Wisdom, and Contrivance, which I cannot but expect from good and skiful Men; I undoubtedly require and believe of the Divine Majesty without the least

Hefi-

Hesitation, in the highest degree and supremest measure imaginable. But whatsoever looks like Falseness, Injustice, Consusion, Folly, and a wild Disproportion or Precipitancy among Men, and which I am difficultly induc'd to imagine of frail and imperfect Creatures like my felf, I am much more hardly perfuaded, or rather find it impossible to believe of God. Those very Faculties, by which I am enabled to distinguish and pass a Sentence in these Matters, are deriv'd from God, and part of the Divine Image on the Soul of Man; and shall I so oddly make use of them, that what I could not be brought to credit of any one of my Neighbours, it were fo uncouth, abfurd, and preposterous, I freely admit and contend for when afcrib'd to my Creator? The Mind of Man, if it have leave to reflect freely, can no more acquiesce in any Scheme of the Works of God, where nothing of Forecast, Order, Decorum, and Wisdom is conspicuous; where every Period appears puzzling, immethodical, disproportionate, and ill-dispos'd, (and fuch is that of the vulgar Idea of the Mofaick Creation, as will be prov'd prefently) than it can believe Contradictions; or that God is an infinitely wife and perfect Being indeed, but yet at the same time acting what, in the common Sense of Mankind, argues the greatest Folly and Imperfection; which entirely and with plenary Satisfaction to do, is certainly impossible. There is somewhat in the Human Soul that has too quick a Sense of the Decency and Fitness of things, and withal too deep a Veneration for the adorable Majesty of God, to be easy under, though it may be overborn with, fuch Notions. It cannot be willing to believe that of its Wife and Glorious Creator, which for another to believe of it felf

felf would be esteem'd as an high Indignity. 'Tis true, there is fo great a difference between the compass of the Divine, and the straitness of Human Knowledge; between the state of Creatures and of the Creator, Bleffed for evermore; there may be fuch an Incapacity in us to reach, or unfathomable, yet wife Reasons for God to hide some things from us; not to infift on the Divine Prerogative, which frees him from the Obligation of giving an Account of every thing to any of those Beings he has made; that we ought to be very wary of arguing from Man to God, without due Allowance for these Considerations; and consequently mighty cautious of affirming or denying whatever is afcrib'd to him from fuch a Comparison. In particular, where-ever a clear Revelation interpofes, we are bound to quit our fallible Reasonings, and fully to acquiefe in fuch a Decision: it being impossible for God to Lye, but by no means fo, that we may be mistaken.

But then this necessary Prudence and Wariness is chiefly, if not only, concern'd in fublime and mysterious Points; concerning the incomprehenfible Nature, or unfearchable Providences of God; which Doctrines are fometimes fo much above the present Scene of Things; so remote from the Notions and Affairs of this World; relate to and depend upon fuch other Systems of Beings or Circumstances of the invisible World; that we ought not rashly to pass our Judgment on them; but wait till our Souls become fo improv'd, and our Understandings so enlightened in a future State; till our Means of Information, and Opportunities of looking through the whole Chain and System, be so many more than now they are, that we may justly be suppos'd more competent Judges,

and

and equal Arbitrators, than at present the Imperfection of our Condition will permit us in Reason

to pretend to.

But this being again precaution'd, to prevent any Misconstruction or Abuse of this Reasoning, I cannot but fay, that fince 'twill be hard to prove the Case before us to be of so exalted a Nature as to transcend our Faculties; and perhaps still harder to prove the plainness of the Revelation on the fide of the common Exposition, I am fully persuaded, that while the Persections of God are, as to our Affent, deduc'd from their Effects, they may in good measure, within certain Bounds, as was before discours'd, be judg'd of by what is observable among Men. And as whatsoever is worthy, good, and valuable among our felves, is rightly own'd as an Efflux and Gift of God; fo whatfoever is preposterous, absurd, or disorderly, whatsoever is unworthy, base, or despicable, in human Affairs, cannot without great Indignity be believed of him; and where we have no other ways of determining, fuch Reasonings ought to be perfualive and decretory.

Now therefore, all this being faid by way of Introduction to this, and fome following Arguments, let us apply it to the Case before us; and supposing, (which yet I need not allow) that the Matter were indifferent on all other Considerations, let us speak freely whether such a Method, such Time, and such Proportion of the several Parts as the ordinary Scheme of the Creation sets before us, be in any degree so well contrived, and suitably disposed, as I say not a Divine, but a mere Human Architect may be supposed the Author of. I need not here give a particular Account of the vulgar Exposition of the sirst Chapter of Genesis: 'tis sufficiently known as to the

E 2

main

main Parts of it. But the Disproportions I would take notice of in it under this Head are these Three:

(1.) The Length of the Day usually affign'd, is wholly disproportionate to the Business done upon it.

(2.) While the Works of each of the other Days are fingle, distinct, and of a Sort, the Third Day has two quite different, nay, almost incompa-

tible Works affigned to it.

(3.) And principally, The Earth with its Furniture, how inconfiderable a Body foever it be, takes up four entire Days, at least, of those fix which were allotted to the whole Creation; whilft the Sun, Moon and Stars, those vastly greater and more confiderable Bodies, are crowd-

ed into one single Day together.

(1.) The Length of the Day usually affign'd of twenty-four Hours is wholly disproportionate to the Bufiness done upon it. This plainly appears by the History it self; where, to omit other Instances, the whole Train in the Generation or first Production of Animals, has no longer a Space afforded to it; when yet all Experience fhews, that a much longer is necessarily requir'd, and has obtain'd in all the fubsequent Ages. Now I do not question but it will be confess'd by all, that according to the constant Process of Nature, this Time is utterly infufficient for this Purpose: But what will be faid is, that a Divine Power immediately interpos'd, and either form'd every thing in its grown and mature State; or at least accelerated and hasten'd the Course of Nature, fo as to enable her to perfect each Creature in fo short a Space; and that consequently, no straitness of Time ought to be alledg'd on this Account. In answer whereto I freely grant, that God can produce all Things in their most perfect

perfect State, in a Moment; and if that could be prov'd to have been the Method here, this Exception were of no Validity. But as on fuch a Supposition 'tis strange that fix entire and succesfive Days should be requisite to, or pitch'd upon by an infinite and unlimited Agent, when the instantaneous Creation of the whole appears in this Case more agreeable to the Dignity and Power of the Creator; fo I am pretty fecure that this Hypothesis, how common soever, is repugnant to the Mosaick History. The Sacred Penman does there ascribe indeed the Origin of every thing to the Divine Power; yet no otherwise than the like would be, and is done by the holy Writers afterwards, nay, by every body at this Day; when yet the constant Method of Generation is exactly observ'd. If any of us were ask'd, Who made us? We should foon answer, God; without the least Imagination that we were excufed from that nine Month's abode, and gradual growth in our Mother's Womb; which every one by the general Rule and Method of Nature is oblig'd to undergo. Which appears in the present case to be the Intention of the holy Writer, because he makes these very Animals Productions of the Water and Earth, as well as the proper Effects of the Divine Power; as hath been observ'd al-Gen. i. 20, ready on another Occasion. And those who deny 21, 24. this gradual Generation according to the Courfe of Nature, must, without Reason, recede from the Letter of Moses, and all the old Traditions of the Heathen Philosophers, and that when by fo doing they render this facred History more difficult and unintelligible than it really is.

But if instead of Immediate Creation, it be said that 'twas only a supernatural Acceleration of natural Causes, without any other Alteration of the

E 3

Process;

Process; which is I think the only probable Evafion, and the fairest Supposition of all other; I reply, That this is gratis dictum, without any Foundation in the Scripture, and fo as eafily denied as afferted; it is introduc'd only to falve the Shortness of Time mention'd in the History, which will be prov'd hereafter to stand in no need of it; and it overthrows all Attempts of accounting for this fix Days Creation in a rational and natural way; for if a miraculous Power be allow'd in a needless case, we shall be ever at a loss how far to extend it, and where mechanical Causes ought to take place. On which Confiderations I take this extraordinary Acceleration of natural Causes to be, tho' not impossible, nor (were there any intimation or necessity of its Interpolition from the facred History) very improbable neither, yet in the present case, groundless, unneceffary, perplexing of the Caufe, and by no means a fufficient Solution in the present Affair. Which being therefore thus answer'd, the Argument remains in full Force, and the Length of the Days affign'd by the vulgar Hypothesis appears wholly disproportionate to the Works done therein; of which farther Notice will be taken hereafter.

(2.) When the Works of each of the other Days are fingle, distinct, and of a Sort, the third Day has two quite different, nay, incompatible ones assigned to it. This is plain from the History, where the Division of the Waters from the Earth, or the Distinction of the Terraqueous Globe into Seas and dry Land, the first Work on this Day, is succeeded by that of the Production of the entire vegetable Kingdom; contrary to the perpetual Tenor of the other Periods of the Creation. How this comes about, or is accountable in the vulgar Scheme, I know not; and I believe

the Reason thereof is very little enquir'd into, and less understood. But because this whole Difficulty will be urg'd against the Shortness of Days in the vulgar Hypothesis, and clear'd in ours, at their proper Places hereafter, I shall wave the

farther infifting on it here, and proceed:

(3.) But principally, The Earth with its Furniture, how inconsiderable a Body soever it is, takes up four entire days, at least, of those fix which were allotted to the whole Creation; while the Sun, Moon and Stars, those vastly greater and more confiderable Bodies, are crowded into one fingle day together. Now in order to our passing a rational Judgment in this matter, I shall take leave to represent to the Reader's View a short Comparison or Parallel between the Earth on one fide, and the rest of the World on the other; and fee what Refemblance, 'Correspondence and Proportion there is between the former and the latter, either in its feveral Parts, or the whole taken together; and this shall be done on such certain and undoubted Grounds and Principles as the late vast Advancement of natural Knowledge has afforded us; and will be more at large explain'd in the following Pages.

This Earth then, on which we live, though it be in Diameter not much less than 8000 Miles, and so a vast Globe, if compar'd with those Bodies we daily see, imagine, and converse withal; is yet one of the lesser of the primary Planets, and with Jupiter, Mars, and the other her Fellows, revolves round the great Center of our System the Sun, in a Year's time. 'Tis an opake and dark Body, as they all are; and in common with them borrows all its Light and Heat from that glorious Body which we just now observed to obtain the Center of their Orbits; without which it, as

well as the entire Chorus of the other Planets, must be soon reduc'd all to one dark heap of Matter, far beyond the Description of the old caliginous and unprofitable Chaos, and in no capacity of ever emerging out of that horrid and frightful State. In Dignity, if our Earth expect not to come the last, yet is she so exceeded, in all things that might feem Characters thereof, by feveral of the rest, that there can be no manner of Claim to the first place. If she have a secondary Planet, the Moon, for her Attendant; (tho' in truth she is at least as serviceable to that Planet, as that Planet is to her;) Jupiter has certainly four; and our best Glasses have discover'd five about Saturn. The Density and Place of the Earth is pretty near the middle of the Planets; and as she exceeds, and is higher than some, so is she exceeded by, and lower than others in those respects. Her own secondary Planet, the Moon, has an Air much more homogeneous, pure, and transparent, than she at present enjoys; and in all probability free from Winds, Clouds, Storms, Tempests, Thunder, Lightning, and such other irregular and pernicious Effects, which frequently render our Atmosphere so contagious and pestilent to the Inhabitants of the Earth. In which Circumstances the generality of the other Planets imitate the Moon, and render our miferable Condition the more remarkable and fenfible, as appearing thereby almost fingular. Our Days and Nights are longer than those of some, and shorter than those of others of the Planets. The Figure of the Earth is nearly spherical, as is that also of the other Heavenly Bodies; its Surface unequal, with Mountains and Valleys, as well as that of the rest, especially the Moon's, appears to be. Only 'tis obfervable, that the last, tho' much less in Bigness, has her

her Mountains higher than those on the Earth. The Sea and Land, Mountains and Valleys, and other fuch corresponding Phanomena of the Moon, shew, that that small Planet is not nearer our Earth in Place, than in Quality and Disposition also. If we compute the true Magnitude or Quantity of Matter in the Earth, it will appear upon a moderate Estimate, that she is not the 200th Part so big as Jupiter, nor the 90th fo big as Saturn, nor the 220,000th fo big as the Sun. So that she is very inconsiderable, if compar'd with the rest of the Solar System only; but if with the entire Universe, or Systems of the fix'd Stars, in the Elegancy of the Prophetick Expressions, as a drop of a Bucket, as the Ifa. xl. 15, small dust of the Balance, yea less than nothing, and 17. vanity. Infomuch, that to all those remote Systems of the Heavenly Bodies, this Earth, with all its Fellow-Planets, are no more visible than those which, 'tis probable, revolve about any of them, are to us in these our Planetary Regions. And as we usually little think of those invisible Globes, fo any of their Inhabitants, if fuch there be, never perhaps once imagine that there is fuch a Planet as ours, (about which we make fuch a mighty stir) in the World. As to the main Use of this Earth, 'tis to afford Habitation to a finful and lapfed Race of Creatures, of small Abilities or Capacities at present, but of great Vices and Wickedness; and is esteemed, as far as appears, in its prefent Constitution so peculiarly and solely fit for them, that when they are gone, or their Dispositions and Faculties reform'd and improv'd, a better Scene of Nature, (a new Heaven, and a new Earth) is to be introduc'd, for such better and more noble Creatures. The old one, which now obtains, being in its present State, it seems, only a fort of Prison or Confinement, which is to be

our Lot whilst we are sinful and miserable, but

no longer.

And is this the only Darling of Nature, the prime Object of the Creation and Providence of God? Can fuch a Globe's Original, nay, of the external and visible parts of it only, claim four parts of fix of that entire Space, which the Wisdom of God allotted for the Formation of all things in the whole World? while the Origin of the Sun, Moon, and numberless Systems of Stars has only a poor single part allotted to it? Must the expanding the Air between the Earth and the Clouds, be thought to equal the Disposal of all those Celestial Bodies into their feveral Regions? and the producing a few Fish and Fowl be a weightier Concern, and require more time than the replenishing all the other habitable Worlds with Beings fuitable to their feveral Constitutions? Will a wife Builder bestow twice as much time in decking and adorning one By-closet of inferior Use, and that only to some of the meanest Servants too; as of the Royal Palace, with all its stately Rooms and Apartments, intended for the King himfelf, and his Courtiers? Should we hear of fuch strange Actions, and disproportionate Procedure among Men, we should not be able to induce our felves to give credit thereto. But it feems, Suppositions ten thousand times more disproportionate and unaccountable, when afcrib'd to God Almighty, are easily believ'd. So far can Ignorance, Prejudice, and a Misunderstanding of the facred Volumes carry the Faith, nay, the Zeal of Men! and to fuch a mean Opinion of the most glorious and perfect of Beings are we thereby reduc'd, that, as if we were not content to think him fuch a one as our felves, but intended to deprefs him below the very meanest of us, we venture with Confidence and Eagerness to ascribe to him that disproportionate,

tionate, unequal, and unaccountable Disposal of the Works of Creation, which the simplest Arti-

ficer could not bear the Imputation of!

It may here indeed be alledg'd, that the Earth must be of all the rest the most considerable, because to its Inhabitants alone belong'd that stupendous and unparallel'd Method of Divine Providence, I mean the Incarnation of the Only-begotten Son of God. Now in Answer to this, I say, (1.) 'Tis not so certain that the Son of God was alone concern'd with the Inhabitants of this Earth in the mighty defign of his Incarnation and Mediation. St. Paul says, That in the dispensation of the fulness Eph. i. 10. of times, he might gather together in one all things in Christ, both which are in Heaven, and which are on Earth, even in bim. And again, It pleased the Colos. i. Father that in him should all fulness dwell: And (ha- 19, 20. ving made peace thro' the blood of his cross) by him to reconcile all things unto himself; by him, I say, whether they be things on Earth or things in Heaven. I fay, (2.) That tho' the Advantages of our Saviour's Incarnation and Mediation, should be wholly confin'd to the Inhabitants of this Earth, that does not shew that the other parts of God's Creation are not equally regarded by him: but only that the peculiar Circumstances of that fallen Race of Creatures which belong'd to this Earth, and of that alone, did require so wonderful a method of Recovery as that by the Only-begotten Son of God in our Flesh. If a King should send his Eldest Son into a particular Province to quiet a Rebellion, and use peculiar Means to reduce that Province to its ancient Obedience, and into no other Part of his Kingdom; this would only prove that the Circumstances of that Province, and of that only, requir'd fo extraordinary a Treatment; and not that the King had a less Care and Concern for those other Provinces

Provinces which were all along obedient to him. Tho' the Prodigal Son had an extraordinary and peculiar Reception and Entertainment, yet fure the ever Dutiful Son had not the smaller Interest in his Father's constant Approbation and Love. The Application of both the Parallels is too easy

to be more largely infifted on.

It must here be confess'd, That such Notions of the Mosaick Creation, as I now oppose, having begun, or at least been chiefly established and propagated when the Aristotelean Philosophy, and Ptolemaick Astronomy were believ'd; those who have embrac'd them till this Age were less abfurd, and nearer to fome tolerable degree of probability. For fo long as the Earth, with its adjoining Elements, was suppos'd the Center and Basis of all the World; while the Distance of the Heavenly Bodies was believ'd to be, comparatively to what we now find, very small and inconsiderable; and all their Motions perform'd about us their proper and immovable Center; while the whole Series of Spheres above (tho' the feveral distinct ones mov'd the contrary way by their own peculiar Motions) was fuppos'd in twenty four hours to be constantly hurry'd from East to West by the Primum Mobile, on purpose to cause Day and Night to us below; while Comets were esteem'd Exhalations from the Stars or our Atmosphere, and fent only at certain seasons to affright Mankind with their fiery tails, and then to be diffipated and vanish into Vapours again; while the Sun and Stars, in the opinion of the Philosophers themfelves, were nourish'd by Steams from our Earth; and while the last nam'd were either suppos'd to be stuck in one spherical Superficies as the fix'd Stars, or fasten'd in their folid Orbs, like a Nail in a Cartwheel, as the Planets, and no other use imagin'd but to twinkle to us in Winter Evenings, and by their

their Aspects to forbode what little Changes of Weather, or other Accidents were to be expected below; while no other habitable World was dream'd of than this Globe of Earth; no other Animals once conjectur'd at, besides those on the Face thereof; while Mankind was look'd on as the fole Lord of the Creation, and Him for whose Sake all other Creatures in the World were made; and while 'twas commonly granted that, as all things, the visible Heavens and Earth, with their entire Furniture began with him; So at the conclusion of his Succession, or the period of human Generations here, must they for ever cease and be annihilated; while all this, I say, was the current Philosophy, 'tis not very furprizing that the Mosaick History we are now upon was understood in the vulgar Sense, and feem'd not wholly difagreeable to the prefumed Frame of Nature; and 'twas not hard to believe, that this Earth and its Inhabitants, in the general Opinion, the main and principal Concern of all, and that to whose Uses every thing else entirely ferv'd, had the principal Care bestow'd upon it, both in its original Creation, and its fubfequent Changes and Revolutions.

But tho' fuch a Scheme, and fuch an Apprehension were passable enough in the Days of our Forefathers, 'tis by no means so now. Those greater degrees of Knowledge which the Providence of God has in this Age afforded us, make such Opinions intolerable in the present, which were not so in the past Centuries. 'Tis now evident, That every one of the Planets, as well as that on which we live, must have a Right in its Proportion to share in the Care of Heaven, and had therefore in all probability a suitable space or number of Days allow'd to its proper Forma-

tion;

tion; much what the same Separations of Parts, Digestions, and Collections, being no doubt to be supposed in the original Formation of any other, as in that particular Planet, with which Moses was concerned. And if one or two on account of their Smallness, might be finished in less; the rest on account of their Bigness, from a parity of Reason, would take up much more than that six Days Time which was spent in our Earth's Formation.

And let the Reader judge, if it be so impossible to reduce the Planets alone within the fourth Day's Work, how much more fo will it be (in case we allow Degrees of Impossibilities) to reduce thither that vast, noble, and useful Body, the Fountain of our Light and Heat, the Sun; and still in a prodigious degree more fo, to include the immense and numberless Systems of the fix'd Stars; among whom when the Sun is but one, and perhaps no bigger than the rest; (and confequently to have in Reason but an equal Portion of Time with them allotted for its Origination;) it must, tho' probably above 220,000 times as big as the Earth, while the Earth takes up four entire ones, be thrust into the Corner of a single Day; Corner, did I fay? rather Minute, nay, Moment of a Day; and 'tis uncertain whether even that Pittance of Time can fairly and separately be allow'd to it. So that one need not fear to affert, That he who should affirm the Divine Power to have fpent four entire Days in the Formation of a Fly or Worm, nay, of a fingle Plant or Herb; and but one in the Formation of the Terraqueous Globe with all its Parts, Regions, and Furniture, would be less unreasonable than some Expositors now are, and more observe Decorum, Fitness, Agreement and Proportion, than they do in the vulgar

vulgar Interpretations of the Mosaick Creation. And I need not be afraid to call all that are Mafters of Astronomy and Philosophy, to attest the Fairness of such a Comparison. And can any one who is sensible of this, and entertains no other than great and worthy Thoughts of his All wise Creator, embrace so fond and so strange an Opinion?

And if the Reader will pardon a short Digresfion, and give me leave to speak a great Truth on this occasion, I cannot but observe, That 'tis not the genuine Contents of the holy Books themfelves, but fuch unwary Interpretations of them as these, which have mainly contributed to their Contempt, and been but too instrumental to make them appear abfurd and irrational to the free Reason of Mankind. For when Men found that the Scriptures, according to the universal Sense of Expositors, ascribed such things to God, as their plainest Reason could not think compatible to a wife Man, much less to the All-wife God; they were under a shrewd Temptation of thinking very meanly of the Bible it felf, and by degrees of rejecting it, and therewith all Divine Revelation to the Sons of Men. How fatally this Malady hath spread, of late especially, I need not fay; and tho' I fully believe the main Stroke or Step, as to the generality, be vicious Dispositions, and a debauched Temper; yet how far fuch ill-contriv'd, unskilful, unphilosophical Interpretations, or rather Misrepresentations of Scripture, particularly those relating to the material World of which we are now speaking, may have contributed to so fatal and pernicious an Effect, deserves the most ferious and fober Confideration.

This Mischief is not to be remedied, nor the Veneration due to the Sacred Volumes retriev'd by an obstinate maintaining such strange opinions

as those here referr'd to, by patronizing the fame with Divine Authority, and then making vehement Invectives against such (as many unskilful, yet good Men are ready to do,) whose only Fault is this, that they can no more be induc'd to believe what is plainly unworthy of, and unfuitable to the Divine Perfections, than what is evidently contradictory to Divine Revelation. Wife Men would rather fet themselves carefully to compare Nature with Scripture, and make a free Enquiry into the certain Phanomena of the one, and the genuine Sense of the other; which if Expositors would do, 'twere not hard to demonstrate in several such Cases, that the latter is fo far from opposing the Truths deducible from the former, or the common Notions of Mankind, that 'tis in the greatest Harmony therewith; and in those Cases (where the Thing mention'd is within the Sphere of human Knowledge) no less accountable to the Reason, than enforc'd on the Belief of Mankind. And I perfuade my felf, if there were a careful Collection made of the ancient Knots and Difficulties in the feveral Parts of the Bible, with relation to fuch Points as we are upon, or any others of a different Nature; and how very many of them, as Preludes and Pledges of the rest, are now entirely clear'd, or might eafily be fo; it would more contribute to the Recovery of the ancient Honour, and due Esteem of the sacred Scriptures, than all the most zealous and general Harangues from some popular Topicks, either for them, or against their Contemners, the loofe Deists and pretended Socinians of this Age. For my own Part, I cannot but profess, that tho' I be very nice and tender in the Reasonableness of my Faith, and defirous to admit nothing but what agrees to the Divine Attributes, the common Notions

tions of our Souls, and the Phanomena of Nature; yet upon an impartial Enquiry into some of the most perplexing Difficulties occurring there, I have obtain'd so great a Measure of Satisfaction about them, that my Scruples now cease, and I cannot doubt either of the Truth or Divine Authority of the Scriptures. I do not mean, that all the Difficulties are in particular vanish'd and perfectly clear'd to me; that is what is scarce to be hoped for in this World: But I have so frequently met with fewer Difficulties in the Confideration of the Books themselves, than in the common Interpretations, and those very Comments which ought to affoil them; and in fo many, and those most remarkable Points of all, have met with fuch clear and plenary, tho' unexpected Satisfaction, that I have great reason to believe the rest equally capable of the same; and to remain constant in this Assurance, that 'tis the ignorant or foolish Expositions of Men, not the natural and genuine Sense of the Words themselves, that makes us imagine, Scripture, Reason, and the Nature of things irreconcileable or contradictory to one another. And I hope the Instances he will meet with in the following Theory, will go a great way to persuade the unbiass'd Reader of the same Truth; and to convince him, that greater Satisfaction is to be look'd for from the View of God's own Books of Nature and Scripture, than those of any Men whatfoever. Whatever incompetent Judges may fay, nothing will fo much tend to the Vindication and Honour of reveal'd Religion, as free Enquiries into, and a folid Acquaintance with, (not ingenious and precarious Hypotheses, but) true and demonstrable Principles of Philosophy, with the History of Nature, and with such ancient Traditions as in all Probability were deriv'd from Noah,

Noah, and by him from the more ancient Fathers of the World. From which Mediums what furprizing and unhop'd for Light may be given to fome famous Portions of the Holy Scriptures, the following Pages will, 'tis hoped, afford fome convincing Inflances, and prove fufficient to take away Men's ungrounded Fears and Apprehenfions in fuch Matters; and, by the Divine Bleffing, appear a feafonable Attestation to the Certainty and Authority of those lively Oracles on which our Happiness in this and the next World does so vastly depend. But I must leave this Digression, and proceed.

VI. The vulgar Scheme of the Mosaick Creation, besides the Disproportion as to Time, represents all things from first to last so disorderly, confusedly, and unphilosophically, that 'tis entirely disagreeable to the Wisdom and Perfections of God.

And here I might juftly appeal to the Conscience of every careful Reader, even though his Knowledge of the true System of the World were not great, whether the vulgar Account has not ever feem'd strange and surprizing to him? But if he were once philosophically dispos'd, and allow'd himfelf a free Confideration of it; whether it has not ever been the most perplexing thing to his Thoughts that could be imagin'd? 'Tis well known how far this Matter has been carried by wife and good Men; even to the taking away the literal, and the refolving the whole into a popular, moral, or parabolick Senfe. And under what Notion this History on the fame Account has appear'd to others, of no less free, but less religious Dispositions and Thoughts, I need not fay: what is indeed Matter of Doubt and

DEDVA.

and Perplexity to pious Men, being unquestionably to the loose and profane, the Subject of Mirth and Drollery, and the sure Encouragement to Atheism and Impiety. But I shall not content my self with this general Resection; but instead of prosecuting such a Discourse any farther, shall assign such particular Instances of the irregular and unbecoming Procedure in the vulgar Scheme of the Creation, as seem plainly disagreeable to the Divine Wisdom, and unsuitable to the Nature of Things.

(1.) Bodies alike in Nature have here an un-

like Original.

(2.) Bodies unlike in Nature have a like Ori-

ginal.

(3.) Bodies most considerable in themselves, have the most inconsiderable Accounts given of them.

(4.) No Bodies but the Earth have either Time for, or Particulars of, the Formation of the feveral Parts affign'd.

(5.) The Light appears before its Cause and

Fountain the Sun was made.

- (6.) The Excavation of the Channel of the Ocean, and the Elevation of the Mountains is unnatural and indecent. Of each of which I shall fay but a Word or two, and then as briefly argue from them.
- (1.) Bodies alike in Nature, have an unlike Original. Our Earth is one of the Planets, and in all reason belonging to their Formation; yet is she the subject of the Second, Third, Fifth, and Sixth Days Works, while the rest are included in the Fourth Day.

Original. The Sun, a glorious Body of Light,

with his Fellows the fix'd Stars, are join'd in the fourth Day with the opake and dark Globes the Planets.

(3.) Bodies most considerable in themselves, have the most inconsiderable Accounts given of them. This is very obvious in that mighty ado about our poor Earth, while the vastly greater and nobler Bodies of the Sun and Stars are scarce taken any notice of. And how disproportionate such a Procedure is, the Comparison already made of the Earth on one side, with the rest of the World on the other, does more than suffi-

ciently demonstrate.

(4.) No Bodies but the Earth have either Time for, or Particulars of, the Formation of the feveral Parts affign'd. For when four Days are wholly taken up with the Particulars relating to our Earth; the Division of its aerial from its earthly Waters; the distinguishing the latter from the dry Land, and draining them into the Channels of the Seas; the Growth of Plants; Generation of Fish, Fowl, and terrestrial Animals; and at last the Creation of Man, with several Circumstances relating to him, and the other Creatures; not a Syllable as to the Particulars of the rest of the World. Light is only commanded to shine on the first Day; and the heavenly Bodies made on the fourth, and there's all, as to themselves, which occurs here.

(5.) The Light appears before the Creation of the Sun, from whence it is deriv'd; that being the Work of the first, this of the fourth Day. Which how philosophical and accountable it is,

let the Reader judge.

(6.) The Evacuation of the Channel of the Ocean, and the Elevation of the Mountains, is unnatural and indecent. For when the Earth

was at first even, and cover'd with Waters, Expositors imagine, that God, as it were, digg'd a vast Channel for the Ocean, and heav'd away the Earth, and plac'd it on all Parts of the Globe, to make the Mountains. Which how indecent it is, I had rather leave to the Judgment of the Reader, than to stand here to exaggerate; especially where the naked Representation of the thing it self is a sufficient exposing thereof to free Thinkers.

These obvious Remarks on the vulgar Scheme of the Mosaick Creation, (to omit the passing by of the entire invisible World, whether within or without the Surface of the Earth, whether corporeal or spiritual) are, I think, sufficient Demonstrations, that 'tis a very distant one from the true Nature of Things; and fuch as is both unworthy of the Writer and Author of the facred Hiftory. Whoever will take the Pains carefully to confider the System of Nature, and compare it with these Remarks, and the common Opinion of the proper Creation of all Things in the fix Days Work, will not, I believe, be at a loss for Arguments to over-turn the old, and to prove that a New Theory is to be enquir'd after, and a narrower World to be expected in the First Chapter of Genesis, than has generally been.

But before I conclude this Head, I must here observe, that the Consideration of these Matters has had so great Insluence on our late most excellent Commentator on Genesis, that the he keeps Bishop more strictly to the Letter of Moses than others, Patrick, yet he finds Occasion and Room for these four great Concessions, no less contrary to the vulgar, than approaching to the present Account of the

History of the Creation.

(1.) He is willing to allow that Moses meddles

F 3 not

not with the entire Universe, but with the Planetary System only.

(2.) He allows the *Creation* of the World to have been over *before* the fix Days Work begins.

(3.) He grants the same six Days Work to be the regular and orderly Reduction of a confused Chaos into an habitable World, without any

strange Miracles in every Part.

(4.) He supposes, that for a considerable Time before the six Days Work began, there were such preparatory Agitations, Fermentations, and Separations or Conjunctions of Parts, as disposed the whole to fall into the succeeding Method, and introduce the six Days Productions following.

Which Concessions of so great a Man and excellent a Commentator, as they argue his Sense of the Necessity of receding from the vulgar Hypothesis, so they, I confess, lessen and diminish the Dissiculties in this History. Lessen, I say, and diminish; not take them away. For besides the Want of any Foundation in Scripture, as far as I see, for the Distinction between the fix'd Stars and Planets; the Arguments I have all along urged, reach, and are fram'd with regard to this limited Hypothesis also; and, with those yet to come, are, I think, abundantly sufficient to my purpose still, and will demonstrate the unaccountableness of the History of the Creation even on this, tho much more on the common Interpretation.

VII. The Mofaick Creation does not extend beyond this Earth, because the alone final Cause of all therein contained, is the Advantage of Mankind, the Inhabitant thereof.

Now that the final Cause of all the Particulars mention'd in the History before us, is here rightly assign'd, is not only visible in almost

every

every Verse of it, and in the Places of Scripture afterwards referring to the fame thing; but commonly acknowledg'd, nay, contended for, by the Patrons of the vulgar Account; fo that I shall here take it for granted. But then as to the consequence, that therefore the Creation is no farther to be extended, or at least not so far as here it must otherwise be, to the Sun and Planets; nay, with the most, to the innumerable Systems of the fix'd Stars; 'tis to me so natural and necessary, that methinks 'tis perfectly needless to go about the Proof of it. That so vast and noble a System, consisting of so many, so remote, fo different, and fo glorious Bodies, should be made only for the Use of Man, is so wild a Fancy, that it deferves any other Treatment fooner than a ferious Confutation; and one may better think filently with one's felf, than with due deference and decency speak, what naturally arises in one's Mind on this occasion.

If 'tis an Instance of, or consistent with the Divine Wifdom, to make thousands of glorious Bodies for the fole Use of a few fallen and rebellious Creatures, which were to live for a little while upon one of the most inconsiderable of them! To create an innumerable Multitude of Suns and Planets, and place them at prodigious Distances from us and from one another (the greatest part of which were never feen till the late Invention of the Telescope; and of such as are visible, the Sun excepted, the fingle Moon, as despicable a Body as it is in comparison to the most of the others, is much more beneficial to us than they all put together;) for the mere Convenience of one little Earth! If 'tis wife and rational to make the Sun more than 220,000 times as big as that Globe it was to ferve, only F 4

that it might be plac'd above 80 Millions of Miles off: (for in a nearer Position it would have fcorch'd and burnt, instead of warm'd and invigorated the Earth) when a small fiery Ball plac'd near us would have done as well! To make a vast Number of Planets, (every way as capable of Creatures of their own) only for the Sake of us on Earth; that we might in the Nighttime view and calculate their Positions and Motions! To place five fecondary Planets about Saturn, and four about Jupiter, that after for more than fix thousand years no one had dream'd of their Existence, a few Astronomers might, with their Glasses, peep at them, and observe their Periods! To appoint the Orbit of one of the primary Planets (Mercury) fo near the Sun, that not one in a hundred ever gets a distinct View of him all his Life! To move the Comets in Orbits fo extremely large and elliptical or oblong, that by their Distance from the Planetary Regions most part of each Revolution, they should be so little observable, that the World were just ending before they could be known to be other than Masses of Vapours soon conjoin'd, and as foon diffipated again, and now not visible the hundredth or perhaps thousandth Part of their Periods! To make all this immense Frame of the heavenly Systems, so glorious, august and magnificent, and fo deferving of our Contemplation; and yet withal to frame our Eyes and Sensations in that manner, as to be uncapable to difcern or imagine any thing thereof in comparison! so that had not Astronomical Observation rectify'd our Mistakes, we must have thought the whole World not near fo big as one of its leaft Bodies really is; and all this without any farther Prospect, or nobler Design, than the single Ufe

of

Use and Advantage of Mankind! If, I say, all this be the effect of inestable Wisdom and Contrivance, and worthy to be believed of the All-wise God; 'tis scarce possible to suppose, in the material World at least, what will not be equally so. And such strange and astonishing Incongruities, which among poor Mortals would unquestionably argue the most extravagant degree of Folly; in the Deity, Blessed for evermore, must be Arguments of unbounded Perfection, and Essues of infinite Reason, Wisdom, and Prudence. Certainly one ought to be very well ascertain'd of the Sense of Scripture, before from thence one venture to assert such unreasonable Opinions.

Nay even tho' the Sense of Scripture seem'd exceeding favourable to any Scheme of this Nature, yet in that case, a considering Person would chuse rather honestly to own his Ignorance, and confess he did not understand the Matter, than be positive in that which is so plainly repugnant to

the Divine Perfections.

197

And this (to digress a little) is methinks the only fafe and rational way of Procedure in those cafes, where we cannot reconcile the Divine Attributes, the Phanomena of the World, or the Reason of our own Minds, to the revealed Word of God, viz. In the first place carefully to consider the Texts concern'd, and whether they are not misapply'd; if on such a Consideration we cannot find them to be so, and that, except a forc'd, unnatural and violent Sense be put upon plain Words, the Difficulties still appear insuperable; 'tis then our Duty and our Wisdom to imitate the Jews in that admirable and pious Proverb in these cases, Cum Elias venerit folvet Nodos: To fit down and rest satisfied with this Expectation, That when the Divine Wisdom sees it a fit time, all will be affoil'd; and every one

of the Knots of Scripture and of Providence untyed. To stay with Patience for those idioi naugol, peculiar Seafons, which with regard both to the Improvement of Knowledge, and unveiling of Mysteries, no less than the fulfilling Decrees, the Acts i. 7. Father has put in his own power. And as the old Fews should in vain have attempted the entire understanding of their own Ceremonial Law till the Mi naugos, the Coming of Christ; so I believe we must not expect the clearing of every Text of Scripture, and of every fecret of Providence, till the idio naueds, the time appointed of the Father. Till then we ought not, where infuperable Difficulties occur, by a bold Determination to run counter to God, either in his Word, whether engraven on our Minds, or written in the Bible, or his Works visible in the World.

> 'Tis hard to fay, whether those dishonour God most who embrace Doctrines, suppos'd deducible from Scripture, tho' plainly abfurd and unreasonable in themselves; or those who venture to deny or at least wrest and prevaricate with the obvious Meaning of fuch Texts whence those Doctrines us'd to be inferr'd. Both these Methods of Procedure are bold and dangerous; Effects of our own Pride, and too high an Opinion of our proper Apprehenfions and Abilities; and of fad Confequence to our felves, to others, and to Divine Revelation. There is a third or middle way, which, tho' an instance of real Self-denial, we both may and ought to take. Let God be true, and every man a liar. Our Understandings are finite, our Capacities small, our Sphere of Knowledge not great. We depend on God Almighty as to what we know, as well as what we bave, or what we are. 'Tis poffible it may not yet be the proper Season for unravelling the Mystery, and so the requisite Helps not

Rom. iii.

yet afforded: Our own Unskilfulness or Prejudices; some false Notions or precarious Hypotheses we have embrac'd; our misunderstanding the Nature of the Scripture Style; a Mistake of a Copy; the Ignorance of the various Stages and Periods of the World to which the particulars belong; with many other fuch Circumstances, may justly be supposed the occasions of our Difficulties, without calling in question either the Truth of our human Faculties, the Attributes of God, the Phænomena of Nature, or the genuine Sense of the holy Scriptures. And truly were I asked in fuch a Case, how I could satisfy my self, or refolve the Point; I could not more properly anfwer than by alluding to the Jewish Proverb before-mention'd; and alledging that, Cum Messias venerit solvet Nodum; till which time I might

desire leave to defer my farther Answer.

And here, from a general View of what has been faid on these three last Arguments, we cannot but observe into what erroneous Extremes good Men have been betray'd, with relation to several main Difficulties occurring in the facred Writings: while from a profound respect to the revealed Word of God, the most were willing to lay aside the use of their own Reason; and others from a no less veneration for the Divine Attributes, and regard to those common Notions which God had implanted in their Souls, were willing to indulge too great a Liberty in the Interpretation of Scripture. The former, being generally pious and devout Souls, but little vers'd in Contemplation, or the Improvements of natural Knowledge, were dispos'd to receive all that a vulgar and religious, tho' less wary and prudent Exposition, should recommend to their Affent. The latter having added to their Piety and Virtue, a careful Enquiry into Nature, and a freer Exercise of their human Faculties, and observing how heavy Imputations some common Interpretations laid on the Divine Majesty, how disagreeable they were to external Nature, as well as the Reason of Mankind, were carried too far on the other hand; and whilst the latter were secur'd, were not proportionably solicitous about the former: I mean, so that nothing but what Reason, the Attributes of God, and the System of the World allow'd, were admitted, these did not take a proportionable Care that the natural sense of Scripture were equally provided for.

What I would here farther observe, is, the equal Condition and Deferts, but the unequal Reputation and Fate these two sorts of Men have generally met with in the Christian World. Their Characters to me feem fo correspondent, and their contrary Mistakes so equally wide from Truth, equally derogatory to the Honour of God, and yet equally proceeding from a religious Principle, a defire to secure the Interest of Divine Revelation; that to me they feem to deferve the fame Respect and Commendation for their fincere Endeavours and pious Intentions; the fame Pity and Pardon for their Errors and Mistakes. But it has happen'd much otherwise: for by reason of the little Leifure and Abilities of the generality of Teachers to cultivate their own Reason, or make any fuccessful Enquiries into the natural World; the former fort being in themselves most numerous, and, as must needs happen, having the most part of Christian People on their side, did with Zeal and Earnestness condemn the latter; and tho' themfelves on one fide did as highly dishonour the facred Oracles, as the other on the opposite, yet they vehemently laid that Imputation on the latter, and decry'd them as fecret Underminers of that Word

Word of God they pretended more rationally to explain. 'Twere easy to give Examples in this case; but I shall content my self with one concerning those very Histories of the Creation and Deluge, which I am to explain in the following

Theory.

'Tis well known what great, and hitherto insuperable Difficulties these Histories have involved in them, to the general View of Mankind; and how much still greater, and still more infuperable those Difficulties appear'd to philosophick Enquirers, who came more nicely to confider them, and compare what was afferted in the holy Scriptures, with the true Frame and System of external Nature. The Confideration of these Things so affected a great and good Man, that he resolv'd Dr. Tho. on a noble Attempt, and undertook to clear those Points; and shew that the Temporary Origin of the World from a Chaos, and an Universal Deluge, were rational and accountable Theorems, and thereby take away that blot and obstacle, which the feeming Impossibility of these things laid in the way of ill-disposed Persons. In which Matters, he employ'd his utmost Skill in the best System of Philosophy then known in the World; his most diligent Refearches into the facred and prophane Accounts relating to those anciently more known Phænomena of Nature, together with fuch other Helps as his own excellent Abilities could afford him; and that as to feveral main and principal Strokes, to very great Satisfaction, and to the very remarkable Illustration of the holy Scriptures. But in the Profecution of this Scheme, being fo vaft, so noble, so uniform, so coherent, and withal fo new and furprizing, it at last appear'd that fuch his Theory would not in feveral Particulars accord with the Letter of Scripture. This unhappy

happy Dissonancy the Theorist was soon sensible of, and no doubt not a little concern'd about. In which Streight, feeing no possible way of fecuring the main Points without fo unpleasing a Concession; instead of resolving to rest satisfied in the natural fense of Scripture, and acquiescing in the Divine Revelation, till farther Means of clearing the whole should offer themselves, which I think is a good Man's Duty in fuch cases, he ventur'd to suppose that the facred Books were not always to be so literally and naturally understood, as was generally believ'd hitherto. He alledg'd, That confidering the mean Capacities of the Jews, which were not capable of fuch Points of philosophick Truths; considering the most ancient way of conveying (or rather of concealing) fublime Theorems, by Parables, Fables, and Hieroglyphicks; confidering the Scripture Style in some other cases, very much different from the present plain and explicit way of Discourse, and nearer akin to that most ancient Method; confidering the main End of the holy Writings, the Benefit of the moral World, feem'd not to require a strict adherence to Truth, in every circumstance relating to the natural; nay, rather enforc'd a receding from it in some cases; considering, lastly, that all Ages had in vain endeavour'd to clear these points according to the strictness of the most obvious Sense, and that the greater Improvements in Philosophy feem'd but to render them still more unaccountable; confidering, I say, all these things, he supposed that the holy Writers only secur'd the fundamental and general Verities; involving the rest under, and explaining the whole by a way of fpeaking, which was mystical and mythological; rather popular than true; and fitted more to the needs

needs of Men, than to the reality of Things. This is, I think, a fair and full Account of the Opinion, and a genuine Explication of the Occasion of this unhappy slip of our late excellent Theorist; and such an one I acknowledge 'tis, as in it self, has no no solid or necessary Foundation; is of ill Consequence to the Authority of the holy Scriptures, and dishonourable both to their Penmen, and chiefly to their principal Inditer, the blessed Spirit of God.

In which censure, if the learned Author think me too free, or too fevere, he will, I hope, fee Reason to excuse, and not be displeas'd with me, when I have own'd, as I must ingenuously do, that in accusing bim, I condemn my self; for I my self, in great measure, have thought the same things. For I cannot but with the Theorist confess, that the Difficulties in the vulgar Expositions were so great; fuch abfurd Incongruities ascrib'd to God by them; the true System of the World did so disagree, and increase the Scruples; the main Histories themfelves appear'd fo impossible to be any other way fecur'd; feveral of the Accounts given by the Theorist were in the main so ingenious, so probable, and fo agreeable to ancient Tradition, upon a curfory Consideration; and the Arguments beforemention'd feem'd to me so considerable, that 'twas not eafy for me to deny all Affent to that very Conclusion, which yet on farther Enquiries and Discoveries, I think not unworthy of the foregoing Censure. And I should esteem it a very signal Happiness, if, as that Theory was so instrumental in drawing me into the fore-mention'd Mistake; so this might be fortunate enough to persuade the Author of that, of the opposite Verity; in which the Discoveries it contains have fully fettled my own Mind; and are, I think, fufficient

cient in themselves to settle the Minds of others. But to wave these too ambitious Expectations, I cannot but fay fo much in Behalf of that Learned Theorist, That as he justly deserves the highest Commendations for so generous and worthy an Attempt; for the great Illustration he has given those Histories from the most ancient traditionary Learning; and the Light afforded to the holy Scriptures in feveral, and those very confiderable Points; fo he has, I think, Reafon to expect an eafy Pardon where he was not able to do the fame; especially, when not only Pardon, but the freest Praises are bestow'd on those, who, as I before observ'd, equally have expos'd the Honour of God, and equally derogated from the Reputation of the facred Writings by their unwary and unskilful Interpretations. Man, who to the highest Veneration for the Perfections of the Divine Nature, has join'd a careful Enquiry into the Frame of the World, and a free, but modest Use of those Faculties God has given him; and has withal exactly confider'd the undoubted Evidence for the Divine Authority of the Scripture; ought to be, and will be as tender of believing a Sense which is contrary to his innate Notions, to the Perfections of God, and the certain Observations of Nature, as of that which puts a force upon the Words themselves, and renders them meerly popular and mythological. And by consequence either those who so frequently and zealoufly do the former, are to be condemn'd, which yet the Christian World has been far from doing; or those who have been forc'd upon the latter, ought to escape any greater Severity. For my own Part, as in fuch difficult cases, I easily pass over the Mistakes, and value the Truths discover'd by any well-difpos'd Perfons; which is but a due

a due Debt owing from one fallible Creature to another: So I humbly blefs God, the Author and Giver of all good things, for that Light he has afforded me (and which, by the Divine Bleffing, I hope the following Pages will afford the Reader) in these Matters; by which I am convinc'd of the no-necessity of opposing the Literal to the True; the Obvious and Natural, to the Rational and Philosophick Interpretations of the Holy Scriptures; and shall chearfully wait for that happy time, when all doubts being remov'd, and all objections prevented by the Improvement of our Knowledge, and the Conduct of the Divine Providence, Reason and Revelation shall reciprocally bear witness to, and embrace each other; when no one shall be able to pretend to the one, but he who is equally acquainted and fatisfied with the other: and the whole reasonable Creation shall unite their Hearts and Tongues in Hymns to God, faying, All thy Pfal. cxix. Commandments are faithful. Thy Statutes are right, 86. rejoicing the Heart. Thy Judgments, O Lord, are Pfal. xix. true and righteous altogether. Righteous art thou, Pfal. cxix. O Lord, and just are thy Judgments. Great and mar-137. vellous are thy Works, O Lord God Almighty! Just Apoc. xv. and true are thy Ways, O King of Saints! But to 3. return from this Digression, and to proceed.

VIII. I prove that the Mosaick Creation extends no farther than our Earth, and is of no other Nature than is assign'd here; because neither the Intentions of the Author require, nor the Capacities of the People could bear either a strictly philosophical, or a truly universal Account of

the Origin of Things.

The Design of Moses, the inspired Penman, or rather of that blessed Spirit which inspir'd him, in this History of the Creation, were, not the gratifying the Curiosity, or satisfying the philo-

28.

philosophical Enquiries of a few elevated Minds, but of a more general and useful Nature; namely, to inform the Jews, and the rest of the World, that all the visible Frame of Heaven and Earth was neither existent from all Eternity, nor the refult of blind Chance, fatal Necessity, nor unaccountable Accidents, but the Workmanship of God Almighty. To make them fenfible that every Being they had any Knowledge of, was deriv'd from, and subject to that Jebovah whom they worshipp'd; and that in him themselves, with all their Fellow-Creatures in the open Air, on the Acts xvii. wide Earth, and in the deep Seas, liv'd, mov'd, and bad their Being; who therefore must needs be the Governor and Ruler of them all. fect their Minds, by this Means, with the awfullest Veneration for the God of Israel, and inspire them with a just Gratitude to him for all their Enjoyments; who had not only created this Earth for Mankind, and furnish'd it with various Creatures for their Use; but beside these terrestrial, had made the very celestial Bodies subservient to their Necessities. To demonstrate the original Goodness and Perfection of things, and that therefore whatever was Evil must have been the consequent of Man's Fall, and not of God's primary Introduction; and thereby to teach Men Humility, and raise their abhorrence of Sin, the cause of all their Miseries. To shew them the unreasonableness of all forts of Idolatry, or of the Worship of any visible Beings, tho' never fo useful or glorious, by affuring them they were all in common the Creatures of God, and all their Influences, of what kind foever, entirely deriv'd from him, and under his disposal. In short, the main defign was to fecure Obedience to those Laws he was about to deliver from God to them, by giving them

them the greatest and justest Ideas of their Legislator, the Almighty Maker of Heaven and Earth.

These were, I suppose, the principal Reasons of thus recording the Creation of the World, and these Reasons made a particular Account of the visible Parts of this Earth, with all its Furniture, that was observable and expos'd to their daily View, necessary and expedient; nay, they enforc'd some kind of mention of the Heavenly Bodies, fo far as they were concern'd with us below, and fo far as to shew, that God originally created them, as well as the more ordinary Bodies on the Face of the Earth. All this was but proper and necessary in order to the foremention'd Purposes. But why a natural and philosophical Account should be given of the primary Formation of such remote and different Systems of Bodies, whose real Bigness, Distances, Natures, and Uses, abstractedly consider'd, never came into Mens Thoughts, nor were once imagin'd by them, I cannot fo eafily tell.

Especially, if it be consider'd, that the Capacities of the Jews, to whom Moses peculiarly wrote, were very low and mean, and their Improvements very small, or rather none at all in philosophick Matters. 'Tis not to be imagin'd that an entire Account of the Origin of the whole Frame of Nature, (the noblest and most sublime Theory the highest Philosopher could exercise his Thoughts upon,) should be within the reach of the Jewish Apprehensions. We do not find in our learned and inquisitive Age, such a ready Comprehension and Reception of Truths in Philosophy among the generality of Men; and 'tis fo lately, that an easy Proposition of the Earth's Motions diurnal and annual, rais'd a mighty Dust, and was very difficultly embrac'd by even those who called themselves Philosophers, that from

twen

fuch an Instance we may easily imagine how any natural Notions relating to the Constitution and Original of all the Bodies in the Universe must have been entertain'd among the rude and illiterate Jews, newly come from the Egyptian Bondage, and destitute of the very first Elements of natural Knowledge. Every one in the History of the Bible may with Ease observe, That the Abilities and Studies of the Israelites (as indeed 'tis true of most of them to this Day) were of another Nature and Size, than must here be suppos'd, if we bring in all the World into the Mosaick Creation. If an indifferent Stander-by, who had never read the first of Genesis, were to judge what a fort of Koomonoita were to be given to fo ignorant and unskilful a Nation; he could not, with common Prudence, suppose either that it ought to be perfectly philosophical, or include any more than the Senses and Capacities of the Jews could arrive at, the Earth with its Appurtenances, and the Heavens, fo far as they were plainly therewith concern'd. Indeed, not only the Jews, but the generality of Mankind's Apprehensions always were, and still are much too narrow for any noble Discoveries relating to universal Nature; and a Chapter about Algebra might almost as suitably to Reason be recommended to them, as an Account of the true Origination of all the World. de facto, it appears, that Moses was so far from deeming his People capable of Understanding the entire System of Bodies remote and distant; that 'tis clear, he esteem'd it improper to fay a word about the internal Constitution and Parts of our own Earth; contenting himself with what the Surface afforded, and what unavoidably came under the Notice of their Senses, as is too plain to be deny'd in the History before us.

And.

And shall we after all this believe or imagine that 'twas fit and proper, nay, or barely possible, for Moses to give a full Account of the Beginning of the World, and impress a just, true and adequate Idea thereof on the Minds of the People! I believe 'twas fo far from it, that still after all the Accommodation to the Senses and Capacities of Men, which he and the other holy Writers use on such Occasions; yet the mere Observation of the Truth of things forc'd them fometimes to speak what the others were not able rightly to comprehend; and they feem rather, in natural Truths, to have gone too high, than descended too low; considering the gross Ignorance of their Readers, in those Matters.

Those Expressions of Scripture concerning the roundness of the World; the Earth's being founded on the Seas, and established on the Floods; a Compass or Orb being set on the Face of the Deep; the stretching out of the Earth above the Waters, and its confifting out of the Water and in the Water; of most of which we shall take Vid. Phenotice hereafter: Those Expressions, I say, are infra. 13, exactly accommodate to the real Constitution of the Earth, as will appear in due place; but were, 'tis plain, very much mistaken afterward. Men generally took the Earth to be round, not as a Sphere, but a Circle; and suppos'd the Abyss, on which 'twas founded, to be the Ocean or great Sea, on whose Surface, in their opinion, it swam; and which on every fide encompass'd it as far as the very Firmament gave leave, and the Ends of the Heaven would permit. That Continent we inhabit, was taken for the whole World; and its Middle or Center, imagin'd by most Men to be near the Place where they themselves dwelt. The Horizon G 3

Horizon or Sea, and the Firmament, were believ'd to bound and terminate each other. The
Sun, Moon, and Stars, were suppos'd at their descending below the Horizon, to be immers'd in
the Sea; and at their ascending above it, to
emerge out of it again. How ridiculous these
Conceits are, every one will easily judge, who
has but a small Insight into the System of the
World; and how little they are countenanc'd by
the Texts before referr'd to, 'twere easy to shew;
but 'tis plain, they were so apply'd, and the Particulars pretty handsomely adjusted to Mens own

Fancies on these Hypotheses.

When therefore we observe the Expressions of Scripture about the Constitution of our own Earth to have been fo miserably misunderstood and misapply'd, we may eafily collect what Fate any Notions of a fublimer Nature, concerning the Heavens, and the whole System of Beings, must have undergone amongst them. If the Apostles, in a more learned Age had begun their Preaching with the requiring Mens Belief to the Motion of the Earth, the Being of Antipodes, or any other fuch Paradox in Philosophy, nay, or given them a true and rational Scheme of the Origin of the Universe in all its Parts, we may foon guess at the Reception they would have met with, and at the Success of their Ministry. This Procedure could contribute nothing to their Defign, neither could the People be made to understand and believe fuch strange Notions. And as in this case, every one will allow the absurdity of such a Method, and never imagine it probable that the Apostles could make use of it; so ought we, by only changing the Scene, to conclude, à priori, that 'tis highly unlikely that Moses would take such a Course; and that, unless the Words of the History were too express

express and plain to be deny'd, 'tis extremely improbable so great a Lawgiver (to go no farther) would extend his Cosmogony beyond the Ends of his writing it, and the Abilities of those who should read it; or in other words, 'tis extremely improbable that the Mosaick Creation should be of any other Nature or Extent than the Proposition we are upon does affert.

IX. Lastly, I prove the Mosaick Creation extends no farther than this Earth and its Appendages, because the Deluge and Conflagration, whose Boundaries are the same with that of the

Mosaick Creation extend no farther.

I shall here take it for granted, that the Limits here affign'd to the Deluge and Conflagration, are just; it being certain as to the former, and I think more than probable as to the latter; and only quote a place or two to prove the fix Days Work to be of the very fame, and no larger Extent than those are, and leave the whole to the Judgment of the Reader. There shall come in the 2 Pet. iii. last days scoffers, walking after their own lusts, and 3: &c. saying, Where is the promise of his coming? for since the fathers fell asleep, all things continue as they were from the beginning of the creation. For this they willingly are ignorant of, that by the word of God the beavens were of old, and the earth standing out of the water and in the water, whereby the world that then was, being overflowed with water, perished: But the beavens and the earth which are now, by the same word are kept in store, reserved unto fire against the day of judgment, and perdition of ungodly men. The day of the Lord will come y 10. as a thief in the night, in the which the heavens Shall pass away with a great noise, and the elements shall melt with fervent heat; the earth aljos

also, and the works that are therein, shall be burnt in 12,13. up. In the day of God the heavens being on fire shall be dissolved, and the elements shall melt with fervent heat. Nevertheless we, according to his promise, look for a new heaven, and a new earth, wherein dwelleth righteousness.

Heb.i.10, Thou, Lord, in the beginning hast laid the foun-11, 12. dation of the earth, and the heavens are the works of thine hands: They shall perish, but thou remainest; and they all shall wax old as doth a garment; and as a vesture shalt thou fold them up, and they

shall be changed.

I have now finish'd all those Arguments which to me are sully satisfactory, and I think prove beyond rational contradiction, that not the vast Universe, but the Earth alone, with its Dependencies, are the proper Subject of the six Days Creation: And that the Mosaick History is not a nice, exact, and philosophick Account of the several Steps and Operations of the whole; but such an historical Relation of each Mutation of the Chaos, each successive Day, as the Journal of a Person on the Face of the Earth all that while would naturally have contained. The Sum of all is this:

(1.) The very Words and Coherence of Moses

himself require such a Construction.

(2.) The Words Creating, Making, or Framing things here used, are commonly of no larger Im-

portance than this Proposition allows.

(3.) The World, or Heaven and Earth, the Objects of this Creation, are alike frequently restrain'd to the sublunary World, the Air and Earth.

(4.) The Chaos, that known Fund and Seminary of the fix Days Creation, extended no farther.

(5.) On the contrary Supposition, the Time of the Creation of each Body is extremely disproportionate to the Work it felf.

(6.) On the same Supposition there is an intolerable Disorder, Disproportion, and Consussion

in the Works themselves.

(7.) The final Cause of the six Days Creation is the sole Advantage of Mankind, the Inhabitant of the Earth.

(8.) Neither the Intention of the Author, nor the Capacity of the Readers require or could bear any other Account of the Origin of Things.

(9.) Lastly, Neither the Deluge nor Conflagration, whose Extent appears commensurate to that of this Creation, are of any larger Compass

than is here affign'd.

Upon this View of the whole Matter give me Leave to fay, that to make the universal Frame of Nature concern'd in the particular Fates and Revolutions of our Earth, is, at this time of day, to demonstrate either very mean Thoughts of the Ends of the Divine Workmanship, and of the Effects thereof in the World; or else very proud and extravagant Conceits of our own Worth and Dignity; and at best argues a narrow, ignoble and unphilosophical Soul. 'Tis much such another wife and rational Notion, as it would be to suppose that the whole terraqueous Globe, with all its Parts and Dependencies, all its Furniture and Productions, was alike concern'd in the Fates and Revolutions (pardon the Expressions) of one fingle Fly or Worm belonging to it. And we may e'en as fairly allow the entire Dependance of this fublunary World on the Fortune of fuch a fingle animalculum; that on its peeping into the World, the whole Earth must arise out of nothing to afford it a resting Place; while it was growing, and continued in its prime, all things below must spring and slourish, rejoice and look gay; on its decay, all things must put on a mournful Countenance; and on its destruction, univerfal Nature here beneath must expire together, and return to its primitive Nothing. This Representation will, I imagine, seem bold and extravagant; but 'twill be hard to prove it And I may appeal to Astronomy whether the Earth can be shewn to bear as considerable a proportion to the Universe, as such a poor ani-

malculum does certainly bear to it.

I would not by this, or any thing else I have heretofore said in this Discourse, be so far mistaken, as to be believ'd prone to depreciate and debase Mankind; or to put a slight on all those Works of Nature and Providence which are subservient to it. Neither do I deny that in some fense all the visible World, Heaven and Earth, are ordain'd for our Use and Advantage; I fully believe that we are the Creatures of God, of whom he has a tender Regard, and over whom he exercifes a constant, a special Care and Providence. As I look upon the Souls of Men, in their proper and primitive Perfection, when they came out of their Maker's Hand, to be noble, to be glorious, to be exalted Beings, and perhaps in Capacities or Faculties, in Dignity or Happiness, not inferior to the Angelick Order; fo I also most undoubtedly believe what our Saviour affirms of good Mens Luke xx. State hereafter, that they shall be Iraspeno equal to the Angels; and You TE OEE Children of God himself. While I am perfuaded that the Creation of Man was not effected without the Concurrence and joint Confultation of the Father and Son; nor his Redemption without the Acceptance of the Father, the Sacrifice and Death of the Son incarnate; and

36.

and the Sanctification and Operation of the Holy Spirit: while I am perfuaded that the Divine Λόγ @ Θεάνθεωπ has ever fince the Fall of Adam been folicitous about our Reconciliation to God his Father, and made it his constant Business. even before as well as fince his Incarnation, to mediate for us, and take care of our eternal Happiness: while I believe that by the new Covenant good Men, even in this imperfect State, are esteem'd Heirs of God, joint-beirs with Christ, and denominated the Brethren and Friends of their glorious Redeemer: while I do not doubt but our human Nature is now, in some sense, in the Person of our Bleffed Saviour, in Heaven; and there on account of the Union with the Divine Novo, and as a Reward of that Obedience and Suffering he underwent for us on Earth, advanc'd above the most exalted intellectual Orders, at the right Hand of the Majesty on high: while I expect the same Person in the Glory of the Father, coming to judge the World in Righteoufness; and Mankind, after that final Doom, to be Partaker of everlafting Joy or Mifery according to their Behaviour here on Earth. While, I fay, I believe all this, as I most fincerely do, I can be under no Temptation of looking with Contempt upon, or of entertaining a mean Opinion of Mankind, or of those Systems of Nature and Providence relating to it. Yet, all this notwithstanding, I think that Opinion I am now exposing, deserves no other Character than I have before given of it.

Tho' I look upon Mankind as one Species of very noble and glorious Creatures, yet I suppose it but One; and that there may be Millions of others at the least not inferior to him. Tho' I believe human Nature, when innocent and perfect, at that height of Purity and Felicity which

it once had, and by the Christian Dispensation may be again advanc'd to, as fo confiderable and exalted a Species of Beings; yet withal I look upon it at present as under a very different Character. We are all now in a deprav'd, a finful, and fo in a low, a miserable State. We have by our own wilful Rebellion and Disobedience, made it necessary for God to place us in a short, a vicious, in an uneafy and vexatious World; where at prefent we are under a fort of Confinement, in a Place of Trial and Probation; and through a doleful Wilderness must make our way to the Land of Canaan. Quisque suos patimur manes. We here feel the fad Effects and Punishments of former Sins. We are left to struggle with great Difficulties, abide many Affaults, and undergo severe Agonies, e'er we must expect to recover our native Dignity, to retrieve our ancient Felicity again; Exinde per amplum Mittimur Elysium, & reduces læta arva tenemus. I Cor. xv. As flesh and blood cannot inherit the kingdom of God, fo that Kingdom is not of this World. I fee no Rea-

36.

Joh. xviii. fon to esteem the present Condition of Mortality as at all confiderable in it felf, (tho' in its Confequences it extremely be fo) in comparison of the future Periods of our Beings; and therefore without believing the Earth one of the greatest or noblest Globes in the World, I can suppose it a very proper and fuitable Habitation for us at present: most wifely contriv'd, (as it certainly is;) and its Furniture peculiarly and wonderfully adapted to our Needs, Capacities and Operations. I acknowledge that Providence has fo constituted our Earth that we receive some Advantages from all, and very great ones from fome other Parts of the external and visible World. were in the original Creation of things both forefeen and foredefign'd by God, and fo may not improperly

properly be so far said to have been made for our Use, and appointed to serve our Necessities. I do not think that those Systems of the Universe we here speak of, are ever a whit the less useful to us, or the Benefits we reap from them ever the less in themselves, or unworthy of our Notice and Observation, our Admiration and Gratitude to God, because they also are subservient to other noble Purposes, and are by Divine Providence made use of in several great Designs over and above those Advantages we are able to take notice of, or can our felves enjoy from them. I cannot imagine that God is peculiarly fond of any particular Parts of the material Creation, or any more a Respecter of some Inanimate Bodies, than of Perfons. He no doubt equally makes use of them all, according to their feveral Kinds and Capacities, in the Service of the various Species of intelligent Creatures, and in the bringing about the great Periods of Nature, and the Decrees of Heaven; which as they are in great measure unknown to us, fo may they regard rational Beings very different and remote from us and our Concerns.

If we duly reflect on the infinite Nature, and unlimited Perfections of the Divine Being, the Creator and Original of all Things; as well as on the Number, Vaftnefs, and Glory of those his Works which are within our View, we shall see Reason to confess, there may be Millions of nobler intellectual Beings interposed between Man and God; and the whole World might be more reasonably supposed made at the Creation, and for the sole Use of any one Species of those, than of Mankind. If therefore we be unwilling to be our selves excluded from a Share in the Intentions and Designs of Heaven, let us not exclude any other rational Creatures from the same; but be willing to sup-

the site.

pose that as this Earth was form'd in six Days for the Sake of Man, so were the rest of the heavenly Bodies, form'd at other proper Times, for the Sake of other of God's Creatures; for whom Providence ought to be allow'd to have taken a proportionable Care, and made a suitable Provision, as we our selves find has been done with regard to us and our Affairs. Let us learn humble and modest Sentiments of our selves, from the Contemplation of the Immensity of the Works of God in the World. Which useful Lesson the holy Psalmist would, by his own Example, teach us; with whose natural and pious Resection in this very case, I shall conclude this whole Dif-

Pfal. viii. course. When I consider thy Heavens, the work of thy singers, the Moon and the Stars which thou hast ordained; Lord! what is Man, that thou art mindful of him! And the Son of Man, that thou

thy name in all the Earth!



POSTULATA.

- I. THE Obvious or Literal Sense of Scripture is the True and Real one, where no evident Reason can be given to the contrary.
- II. That which is clearly accountable in a natural way, is not, without Reason, to be ascrib'd to a Miraculous Power.
- III. What Ancient Tradition afferts of the Constitution of Nature, or of the Origin and Primitive States of the World, is to be allow'd for True, where 'tis fully agreeable to Scripture, Reason, and Philosophy.

POSTULATA

I. THE Obvious or Liferal Senfe

of Scripcare is the True and

Real one, where no crident Realon

can be given to the contents.

II. That which is clearly accountable in a natural way, is not, without Reafon, to be aforild to a Minart culous Power.

III. What Ancient Tradition afferts of
the Conflitution of Nature, or of
the Origin and Primitive Stares of
the World, is to be allow'd for
True, where its fells allow'd for
Scripture, where its fells allow agreeable to
phy.



A

NEW THEORY

OF THE

EARTH.

BOOK I.

LEMMATA.

LL Bodies will persevere for ever in that State, whether of Rest or Motion, in which they once are, if no other Force or Impediment act upon them, or suffer by them.

II. All Motion is of it felf rectilinear, and with the same constant uniform Celerity, if no other external Cause disturb it.

Corollary 1. 'Tis evident from these two Propositions, that Matter is entirely a passive Substance.

Coroll. 2. No Spontaneous Motion or Action can

be the Effect of mere Matter.

Coroll. 3. The Soul of Man, whose least Power seems to be that of Spontaneous Motion, is incorporeal: Which is also a necessary Consequence of the first Co-H rollary;

rollary; for if Matter be perfectly a passive Thing, the Soul, which is so active a Being, cannot be material.

Coroll. 4. The Brute Creatures giving all possible Demonstrations of Spontaneous Motion, and of a Principle of Action, cannot reasonably be supposed

merely Corporeal Machines.

SALCTIONS.

Scholium. These two last Corollaries are only demonstrative to those, who with me own the Motions and Actions of the Body, properly produc'd and caus'd by the Soul. But as for those Metaphyfical and Abstract Reasoners, who think God the immediate Author of all those Motions, and the Soul only the occasional Cause with Malbranch, and his Followers; 'tis not eafy upon any Subject, but purely Mathematical ones, to produce any thing which they will own for a Demonstration: And therefore I shall not attempt to demonstrate these Corollaries to them. And indeed I think I need not, for if I be not mistaken they all own the Immateriality of the Soul of Man, whatever fome of them may dream of the Brutes being nothing but Corporeal Machines, and without any Senfation at all.

III. All those single Corpuscles of which Bodies are compos'd, do attract other single Corpuscles of which other Bodies are compos'd, and are alike mutually attracted by them. If this Assection of the Parts of Bodies be consider'd with respect to those towards which the Motion is, 'tis call'd Attraction, and they are said to draw all others. But if it be consider'd with respect to those which are mov'd, 'tis call'd Gravitation, or a Tendency in them towards others. Thus in Magnetism we imagine a Power of Attraction belonging to the Loadstone; and in the Iron a Tendency, or (as I may call it, tho' somewhat improperly)

Gravitation towards it. Tho' indeed, by the way, the Force or Affection being found to be mutual and equal on both Sides, the Terms might justly be so too; and a Loadstone might as properly be said to tend or gravitate towards the Iron, or Iron to attract the Loadstone, as the contrary; just as 'tis in the Point before us. This however will ferve for an Illustration, and explain our Meaning in the present Case, where all the Parts of Bodies are endued with such a mutual Gravitation and Attraction with respect to all others.

Scholium. That no Prejudice nor Misunderstanding may arise, 'tis to be observ'd, That when we use the Terms of Attraction or Gravitation, we do not thereby determine the Physical Cause or Seat of any Effects, as if some innate Power or occult Quality were to be suppos'd in Bodies, (as will appear prefently;) but only use such familiar Terms, whereby our Meaning may be eafily understood, and the Effects of Nature explain'd, even where the last and proper efficient Cause is not mechanically affignable. Thus we do and may fay, as before, that the Loadstone attracts the Iron, or the Iron tends or gravitates to the Loadstone: not ascribing thereby any proper or positive Quality or Power to these Bodies, but for Ease of Expression, and for supplying what we cannot otherwise readily explain relating to them. Thus also we commonly say, that Stones are heavy, and tend towards the Centre of the Earth; and the Expressions, rightly understood, are true and natural: Tho' perhaps in both Cafes the real Cause of those Effects which we ascribe to fuch an Attraction, Tendency, or Gravitation, is external, and some continual Impulse from without, not any inherent Power really existent within, is the Original of all. But in such Ca-H 2

fes, where the true Agent is invisible or unknown, we must have Leave to use those Terms which the Matter will bear, or Custom has render'd familiar; without which, uneasy and troublesome Circumlocutions will be unavoidable; especially, seeing that no Error can hereby creep into our Reasonings, because 'tis evident, that all the Essects of Nature are exactly the very same in the World, and not otherwise; which they certainly would and must be, if Bodies did really and properly, by their own inherent Virtue or Quality, attract, and were attracted by all others.

IV. This Affection of mutual Attraction or Gravitation is universal in Extent; all Bodies in the whole World, as far as we have any Means of knowing, wheresoever they are plac'd, being in common subject thereto, and concern'd

therein.

V. This Affection is also universal as to the Kinds of its Objects; it belonging equally to all the Parts of Matter, of what Sort or Form, in what Figure or Condition soever they are: The Difference of Bodies as to Texture and Composition, Fluidity and Firmness, Motion and Rest, Bigness and Subtilty, or any other such mutable Qualities, not in the least diminishing the Influence thereof.

VI. This Affection is also universal and equable as to Time, without all manner of Intermission; without any Increase or Diminution in dis-

ferent Ages.

VII. The Quantity of the Force of Attraction at equal Distances is exactly proportionable to the Quantity of Matter in the attracting Body; being in reality nothing but the Result or Sum of the united Forces of all those single Particles of which 'tis compos'd. Thus, if A be double to,

i. e. has twice as much matter as B; A will have a double Force of Attraction also, at equal Distances from their Centres respectively. If A represent the Earth, B the Moon; if B contain but the fortieth Part of the Matter in A, (as it Lem. 36. really does contain little more;) and a Globe or infra. Ball were plac'd at the same Distance from the Centre of B, at which another equal to it were from that of A, it would be but the fortieth Part so heavy towards B, as the other were towards A.

VIII. This mutual Tendency of Bodies is greater or less, according as the Bodies themselves are nearer to, or farther from each other. The fame Body more forcibly attracting those which are near, than those which are farther off. So that Stone or Pillar which is with us very heavy, would be comparatively very light, if it were as

far distant from us as the Moon.

IX. The Proportion of the Increase and Decrease of this Gravity of Bodies in their Approach to, or Recess from each other, is neither that of fimilar Lines nor Solids, but of Superficies or Plains: The Force of Attraction in feveral Distances being reciprocally in a duplicate Proportion thereof. Thus when the same Body, without the Surface of the Earth, is twice as near its Centre as it was before, 'tis four times as heavy; when thrice as near, 'tis nine times as heavy; when four times as near, 'tis fixteen times as heavy as before. In like manner, the fame Strength which were able to fustain a Body of one hundred Weight here, would at twice our Distance from the Earth's Centre, be equally able to sustain four hundred Weight; at three times our Distance, nine hundred Weight; at four times our Distance, fixteen hundred Weight,

H 3

and

and so, in infinitum, at all other Distances. For as the Squares of the Diftances increase, so does the Power of Attraction decrease; and as the Squares of the Distances decrease, so does the Power of Attraction at the same time increase proportionably; as will be prov'd prefently from the known Phanomena of Astronomy.

7. p. 26, egoc.

vid. Best- Corollary 1. From the Comparison of the two ley, Seim first Propositions with the seven last, 'tis evident, That this universal Force of mutual Attraction or Gravitation of Bodies is not a Refult from the Nature of Matter, which being circumscrib'd within its own Bounds, being incapable of acting at a Distance, and besides being entirely passive in its very Essence, cannot possibly draw others, or tend towards them of it self.

> Coroll. 2. This universal Force of Gravitation being so plainly above, besides, and contrary to the Nature of Matter; on the foremention'd Accounts must be the Effect of a Divine Power and Efficacy, which governs the whole World, and which is abso-

lutely necessary to its Preservation.

Coroll. 3. Since the Divine Power is inseparable from the Divine Essence, 'tis evident, the latter is Omnipresent as well as the former; and every where equally diffus'd through the Universe; and that therefore in God we properly, live, move, and have our Being.

Coroll. 4. The Divine Nature is Incorporeal and Spiritual, as being equally present, and equally powerful in the midst of the material World, and its most solid Parts, as in those immense Spaces which every where distinguish the Parts, and surround the

Limits of it.

Coroll. 5. The Providence of God in the Natural: World is not merely a Conservation of its Being, or a Non-

Non-annihilation thereof; but a constant, uniform, active Influence or Energy in all the Operations done in it; the very same which was exerted in the original Impression of those Laws of Motion on which it depends. The two first Propositions, 'tis true, seem to require only a Continuation of Existence, without any new or continual Action; but the seven last plainly require more; and no less than I am here pleading for. So that if we should suppose God Almighty to withdraw or suspend this his actual Efficacy and Influence on all the Bodies in the World, tho' be preserv'd their Being; the whole would immediately be dissolv'd; and each of the Heavenly Bodies be crumbled into Dust; the single Atoms commencing their several Motions in such several strait Lines, according to which the Projectile Motion chanc'd to be at the Instant when the Divine Influence, (the Cause of Gravitation, and all such other Affections of Matter) was suspended or withdrawn.

Coroll. 6. Mechanical Philosophy, which relies chiefly on the Power of Gravity, is, if rightly understood, so far from leading to Atheism, that it solely depends on, supposes, and demonstrates the Being and Providence of God; and its Study by Consequence is the most serviceable to Religion of all others.

Coroll. 7. The Epicureans, who endeavour'd to cast the Belief of a Providence at least, if not of a Deity, out of the World by their Atomical or Mechanical Philosophy, very foolishly misunderstood and abus'd their own Principles; which in reality, when rightly comprehended, do with the greatest Evidence and Conviction establish them both, beyond all other whatsoever.

or Subtil Matter, pervading the Pores of Bodies, which being it self free from the Law of Gravity, or endu'd with a less Proportion thereof, might be ima-

H 4 gin'd

gin'd to be the Cause of it in other Bodies, or the

Means of any other Effects in the World.

Coroll. 9. A Vacuum, or Space distinct from Matter, is necessary to be admitted. For were the World equally full every where, fince all Matter is equally heavy in Proportion to its Quantity, there could not pessibly be any Difference in the Specifick Gravity of Bodies; it being on the Hypothesis of a Plenum impossible that a Cube of Gold should be heavier than an equal Cube of Air, and its contained subtil Matter together; and by Consequence equally impossible that the former should over-balance or descend in the latter, which yet all Experience shews it really does. So that a Plenum is so far from accounting for the Phænomenon of Gravity, as some would have it, that it utterly subverts the Possibility of it; and while the last is evident, the first must needs be indefensible.

X. From the uniform Projectile Motion of Bodies in straight Lines, and the Universal Power of Attraction or Gravitation, the curvilinear Motion of all the Heavenly Bodies does arise. If a Body, as B, be moving uniformly along the Line DC, from D to C; and another Body A be present, this latter Body A must draw the former B from its straight Line DC, and by doing so continually, while at the same time the Body B retains its Projectile Force along a straight Line in every Point

of its Course, must make the Line

The β Αμαξαγόρων εί σεν of its real Motion a bent one,

ως όλων ὁ ἐρχνὸς ἐν λίθων and change its rectilinear into a

συνείωτος τη σφοδος β σε
εκδινίσο συνεκώνων, κὰ ἀνε
εκδινίσο συνεκώνων, κὰ ἀνε-

Siela narevez livoral. Dixit Anaxagoras Coelum omne ex lapidibus esse compositum, ac vehementi circuitu constare, alias remissione lapsurum. Laertius, Lib. II. Segm. 12.

Coroll. Hence we may learn what is that conatus recedendi a centro motus in revolving Bodies, and

and in what Sense 'tis to be understood. For fince, - as we have already seen, all Bodies have a Vis centripeta, or Propension towards one another, 'tis impossible they should of themselves, in as proper a manner, bave a contrary Propension, or Vis centrifuga, an Endeavour of avoiding one another, (if these iviproper Terms will be allow'd me.) The true Meaning therefore of this Attempt or Endeavour to get farther off the Centre of Motion is only this, That all Bodies being purely Passive, and so incapable of altering their uniform Motion along those strait Lines, or Tangents to their Curves, in which they are every Moment, still tend onwards in the same Lines, and retain their Propension or Effort towards that restilinear Motion all the Time they are obliged to move in Curves; and consequently at every Point of their Course, endeavour to fly off by their Tangents. Now the Parts of the Tangent to which this Endeavour is, being farther from the Centre than those of the Curves to which the Bodies are actually forc'd, an Attempt to go on in the Tangent may be, and is styl'd an Attempt to go farther off or recede from that Centre; tho' from no other Affection than that of Inactivity, or of persevering in a rectilinear Motion. So that the Vis centripeta, or Power of Gravitation be an active and positive Force, continually renew'd and impress'd on Bodies; the Vis centrifuga, or conatus recedendi à centro motûs, is not se, but the mere Consequent and Result from their Ina-Etivity. This is evident in Bodies revolving in Ellipses about one of the Foci, in their Descent towards it; where the Tangent being oblique to the Radius, or Line, from the Point of Contact to the Focus, this very conatus recedendi à centro motûs, by urging it along the Tangent, will for some Time make it approach nearer to the Focus; (tho' not so much nearer as by its revolving in the Ellipsis it self;) as may be feen Schem. 1. Seen in the Scheme, if a Body at B were moving to-Fig. 6. wards L about the Focus H. And this Explication is confirm'd by all Experience. For let a Stone be let loose from the Sling, or any revolving Body be disengag'd from the Force which retain'd it in its Curve, and it will not properly go from the Center, but only pass along the Tangent in which it was moving, as if

there were no such Centre near it at all.

XI. A Rectilinear or Projectile Motion of the Planets along the Tangents to their Orbits, (which when once begun, always uniformly continues,) join'd or compounded with their Gravitation to the Sun, in the common Centre, or rather Focus of our System, is the Original of all the Planetary Revolutions about him. Thus if Jupiter, for Instance, represented by B, were moving uniformly along the Line DC, from D towards C; if the Sun A were absent, the Planet would pass on straight from B to C, with the same Velocity with which it had come from D to B. But if upon its Arrival at the Point B, the Sun in the Centre or Focus A begin to affect it, the Planet, by the Sun's Attraction, must be drawn from a rectilinear to a curvilinear Course; and be oblig'd, if the Sun's Power be great enough, compar'd with the Planet's Velocity to revolve about him, and that, the attractive Force always continuing, for ever after. The Case is just the same as if B were a Stone in a Sling, A the Hand of the Slinger, (by the Help of the Strings united together, and represented by the Line A B,) whirling it round continually. For as the Stone at its coming to the Point B, were it let loofe and left to it felf, would fly off in the straight Line or Tangent BC, yet by Force is still retain'd at an equal Distance from the Hand of the Slinger, and compell'd to revolve in a kind of Circle; fo 'tis here. The

Fig. 3.

The Attraction of the Sun in the common Centre or Focus compels all the Planets, which of themselves would pass along their several Tangents, to revolve about it self, and describe their several curvilinear Orbits. And the Case is the same in the secondary Planets with respect to their primary ones, about which they revolve in the same manner as they all both primary and secondary revolve about the Sun, in the common Cendary revolve about the Sun and the Case and the Case and the Case are the common Cendary revolve about the Sun and the Case are the case and the Case are the case

tre or Focus of the entire System.

Coroll. 1. Hence 'tis manifest, that the Law of universal Attraction once establish'd, unless the Divine Power had put the Planets into a suitable Motion in right Lines, they must soon have been drawn downwards, and fallen into the Sun: And still, if their Motions should be entirely stopp'd and cease, the same must happen; and they must not only be uncapable of those noble Uses to which they are now subservient, but utterly perish in the Violence of the Sun's scorching Heat. The preventing of which therefore ought justly to be attributed to the Wisdom and Power of

God in the Constitution of the World.

Coroll. 2. If the World be limited and finite in its Extent, 'tis so in its Time also; and so vice versa, if Eternal in its Time, 'tis Infinite also in its Extent. For since all Matter (as far as we have any Means of knowing, and so in Reason all Matter whatsoever) is endu'd alike with a Power of Attraction; and must all thereby, without proper Motions along strait Lines, at last meet in the common Centre of Gravity of the whole; and since withal the other Systems of six'd Stars, suppos'd here finite, retain their Site and Distance from each other, and thence appear not to have any projectile Motion along strait Lines to prevent the same; had the Frame of the World been Eternal, the Effect abovemention'd must have, innumerable Ages ago, really come to pass; and all the Matter

of the entire Universe compos'd one single dull and unmoveable Heap or Mass, in the common Centre of Gravity of the whole; which not having happen'd, demonstrates the Impossibility of the Eternity of the World, and the Necessity of admitting its Production in Time by the Power of God. Since therefore 'tis unreasonable to suppose the Material World truly unlimited in Extent, 'tis necessary to suppose it no more unlimited in Duration also. And this Reasoning is unavoidable, unless we allow the most invariable and constant Property of Matter in our System to be peculiar to it, and so to be a voluntary Constitution of God Almighty; or at least that a miraculous Providence does binder the foremention'd Effect continually. So that upon the whole, as the very Learned Dr. Bentley has observed, either the Di-

Serm. 7 Learned Dr. Bentley has observed, either the Di-\$\overline{V}\$. 37, 38. vine Power in Creating, or peculiar Providence in Governing the Frame of Nature, is on these un-

doubted Principles for ever establish'd.

XII. When the Projectile Motion of the Planets is in its Direction perpendicular to a Line from the Sun, and in its Degree of Velocity, fo nicely adapted and contemper'd to the Quantity of the Sun's Attraction there, that neither can overcome the other, (the Force of Gravitation towards the Sun, and the Celerity of the Planets proper Motions being properly in Equilibrio,) the Orbits of fuch revolving Planets will be compleat Circles; themselves neither approaching to, nor receding from the Sun, the Centre of their Motions. And the Case is the same in the secondary Planets about their primary ones. Thus 'tis supposable, that the Velocity of all the Planets about the Sun, was exactly accommodate originally to his Power of Attraction, and that their primitive Orbits were perfect Circles; from which at this Day they do not mightily differ. Thus, however, Jupiter's four

four Satellites or little Moons have their Motions fo exactly proportion'd to their Gravitation to him, that their Orbits, as far as the most nice Observations can judge, are perfect Circles; they keeping at an equal Distance from his Centre in all their Points of their Courses about him.

XIII. When the Projectile Motion is not adapted to, but is either too swift or too slow for the Attraction towards the Central Body, the Orbits describ'd will be Ellipses; and in the former Case, when the Projectile Motion is too swift, the Orbit will be bigger than the Circle before-mention'd; and the nearer Focus of the Ellipsis will be coincident with the Central Body; and in the latter Cafe, the Orbit will be less than the Circle, and the farther Focus of the Ellipsis will be coincident with that Central Body. Thus if the Celerity of Fig. 3. B, be exactly correspondent to the attractive Force of the Central Body A, neither will prevail, and the Body, preferving an equal Distance from the Centre, will describe the Circle Be Eb. If the Celerity be greater, it will overcome the Attraction, and cast it self farther off the Centre for fome Time, and fo revolve about it in the larger Ellipsis BHFG; the Central Body, possessing that Focus A, which is nearest the Point B, where the Attraction began. But if the Celerity be smaller, the Attraction of the Central Body A, will be too hard for it, will force it for some Time to come nearer, and to describe the lesser Ellipsis BKLI; the Central Body possessing that Focus A which is farthest from the Point B, where the Attraction began; as will be very plain from the Consideration of the Figure relating hereto.

Scholium. 'Tis indeed possible that the Celerity of Bodies may be so great, compar'd with the Force of Attraction to the Central Body, as to cast them

off with fuch Violence, that the Attraction will never be able to break them round, or make them revolve about it: In which Case, the Orbits describ'd will be one of the other Conick Sections, either Parabola's or Hyperbola's; according to the less or greater Violence with which the Bodies are thrown; and the Central Body will possess the Focus of such a Figure. But no Phanomena of Nature persuading us that de facto any of the heavenly Bodies do describe either of those Lines, (tho' Comets Ellipses come near to Parabola's, of which hereafter;) I shall not farther insist upon them here. For if what has been said of Ellipses has been well understood, the rest can have no great Difficulty in it.

XIV. Several Bodies moving about the fame Central one, tho' their primitive Velocity were equal, and Direction alike; yet if they be at different Distances from it, they will describe Figures of different Species about it. For fince that determinate Degree of Velocity, which at one Distance were just commensurate to the Central Bodies Attraction, and fo would produce a circular Orbit, must at a farther Distance be too hard for it, by reason of the Diminution of the Attraction there; an Elliptical Orbit must be describ'd; whose nearer Focus would be coincident with the Central Body. In like manner, if the fame determinate Degree of Velocity were at a nearer Distance, where the Central Attraction is augmented, it would be too little for the same; and an Elliptical Orbit must be describ'd, whose farther Focus would This canbe coincident with the Central Body. not be difficult, if what has been hitherto faid have been rightly apprehended. For fince the Species of the Planetary Orbits depend folely on the Proportion between the Attraction towards the Central Body, and the Velocity of the Projectile Motion; as that Proportion remaining at any Distance whatsoever, the Bigness of the Orbits will be various, but
the Species the same; so when that Proportion is
chang'd, the Species of the Figures must be chang'd
also: Which being done, in a given Velocity, by
the various Force of Attraction in several Distances
from the Centre, as well as by the various Velocity, at a given Distance, of which before; 'tis evident the Species of the Orbits will be different in
this, as well as in the former Case.

Coroll. The greater Disproportion there is between the Quantity of Attraction, and the Velocity of the revolving Bodies, in the Circumstances mention'd in the two last Propositions, the farther from a Circular, and the more Oblong and Eccentrical will the Orbits describ'd be. And the greater Approach to Correspondence there is, the nearer to Circular, and the less Oblong and Eccentrical will the same Orbits be.

XV. The circular Orbits of Planets depend not only on the exact Adjustment of the Projectile Velocity to the attractive Power of the Sun, but upon the Direction of the same Projectile Motion, at the original Commencing of the Attraction. Thus where the Planet is in its own Tangent, neither Afcending nor Descending, and the Angle preceding Fig. 3. CBA is a right one; which we have hitherto suppos'd; from the Correspondence of the Velocity to the Attraction, the Orbits will be perfect Circles. Otherwise, when the Direction of the Motion is oblique, in any measure ascending from, or descending to the Central Body, and the preceding Angle CBA obtuse or acute, the Planet, tho' its Velocity were exactly adapted to the Attraction of the Central Body, would revolve in an Ellipsis; and the Point B, where the Attraction began, would be the End of the leffer Axis thereof. All which will become easier by what we fhall

shall presently come to explain of that Figure. Coroll. From these four last Propositions, compar'd

with the present System of the Planetary World, 'tis obvious to take notice of the wife and careful Provivid. Bent- dence of God, and his most accurate Contrivance in the ley, Ser. 8. Disposal and Regulation of the whole: Whereby the primary Velocity of the Planets, their several Distances from the Central Bodies, and the original Dire-Etion of their Motions, have been each so nicely adjusted and adapted to the Force of Attraction every where, that all the Orbits of the Planets became thereby either truly circular, or not very much different from the same. Which Remark will appear the more just, and considerable, if we reflect on the infinitely different Degrees of Velocity, and oblique Direction; with the immensly various Distances from the Central Bodies; equally possible with those which were so fitly pitch'd upon; and observe to what noble and valuable Uses these Bodies are now subservient, which, without the foremention'd Exactness of Contrivance in each Particular, could not have been provided for. All which demonstrate the great Necessity of interesting the Divine Providence; and the Worthiness of its so careful Interposition in such Cases.

Scholium. In order to the easier Apprehension of the Motions of the Celestial Bodies, and of those Things already said, or to be said hereafter, relating to them, 'twill not be improper in this Place to give some Account of the Generation, Nature, and easy Properties of Ellipses; in which, (including the Circle, as is commonly done) all the Heavenly Bodies, (as far as we have hitherto Reason to believe) revolve perpetually; so far at least as will be directly subservient to our present Purpose, and give any Light to the following Theory. Take therefore, from the samous Des Cartes, this natural and obvious Description

Cartef. Dioptr. c. 8, &c. or Delineation of an Oval or Ellipsis; which tho' familiar to the Gardiner and Joyner, is a very good one; and gives as just and compleat an Idea

of it as any other whatfoever.

Take a small Cord or Packthread, which is ve-Fig. 6. ry pliable, and yet not easily stretch'd beyond its natural Length; tye the two Ends together, by which means it will be a fort of round or circular Circumference mutable into all Figures. Let two Pins or Nails, H and I, be driven into a plain Board or Table; put the Cord or Packthread round the two Pins or Nails H and I, and with a Pencil or any fuch thing, (which, as it is drawn along, will make a fmall Stroke,) in your Hand, turn it round about the two Pins or Nails, as about a double Centre, till you return to the Point from whence you began. Thus if B be the Point where you begin the Delineation, continue it either way, along OFMKNEPD, or DPENKMFO, till Fig. 6. you return to B again. By this means the Point Schem. 1. of your Pencil will describe such a Curve as is here represented, and is call'd an Ellipsis. The Nature and Properties whereof, as far as at prefent we shall consider the same, are as follow.

Proportion there is between the length of the Cord, and the distance of the two Centres H and I: And consequently, wherever that determinate Proportion is given, the Species is given also, tho' the Bigness and Capacity be chang'd; but where that Proportion is not given, as, the length of the Cord remaining, where the Distance of the Centres is chang'd; or, that Distance remaining, the length of the Cord is chang'd; or both are chang'd, but not in the same Proportion; in all these Cases the Species of the Ellipsis is different. Thus in particular, where the Distance of the Centres, or the

1

Line HI, is greater in proportion to the length of the Cord, there the *Ellipsis* is farther from; and where 'tis less, the *Ellipsis* is nearer to a Circle. All which is so obvious on a very little consideration of the Delineation, and Figure, as 'tis represented in the two different Schemes, that no more words need be us'd about it.

- (2.) If in a considerable large Figure the two Points H and I be very near together, it will be scarce distinguishable from a Circle; and in any Figure if they be supposed to unite, and be coincident, the eccentrical Curve will become concentrical; and the Ellipsis degenerate into a Circle; as perfect an one, as any drawn with a Pair of Compasses. Whence we see why a Circle is reckon'd among the Ellipses; and how it may be generated by a way very like that made use of in their Delineation.
- (3.) As when the Points H and I are coincident, the Ellipsis loses its Eccentricity, and Denomination, and commences a Circle; fo, on the other hand, if the Distance HI be indefinitely lengthened, while the difference between that distance and the length of the Cord, (equal to DH and IK, or double to one DH; as, the Pencil at D, is easily perceiv'd,) remains the same, the Ellipsis will go thro' all Species; and at last become indefinitely oblong and eccentrical; and one half of it, as FDE, will degenerate into the very fame Figure we call a Parabola. For as all Degrees of Eccentricity make Ellipses of all Species; so no Degree of Eccentricity makes a Circle; and an indefinite or infinite Degree of it make a Parabola: which, tho' we have no necessity to consider it so distinctly in this place; (none of the heavenly Bodies, as far as we yet know, describing truly fuch a Line, as has been already observ'd;) yet

on account of the Comets Orbits, which are near-Fig. 1. ly Parabolical, at least deserv'd our Notice; and

the first Figure will shew an Example of it.

(4.) An Ellipsis being describ'd about two Points, as a Circle about one, or those two united; hence may appear in some measure the Nature of these Points. They are indeed called the Foci or Umbilici of the Figure, but might not unfitly be nam'd the Centres thereof. And how naturally each of them bears much the same respect to the Elliptick Periphery, that the Centre does to the circular one, is partly obvious from the foregoing Delineation; and of this those who are acquainted with the Conick Sections cannot be ignorant. And accordingly, if the Name Centre had not by Custom in the Ellipsis been borrowed from the Circle on account of its Position, rather than some other Properties of it, and thence apply'd to the middle Point in the Ellipsis; it might very fitly, as has been before faid, have been given to the two Points H and I, now styl'd the Foci or Umbilici thereof. And by the same reason, the corresponding fingle Points, going under the fame Names in the Parabola and Hyperbola, would deferve and challenge the same Denomination. And this is so agreeable to the true System of the Planetary World, that in the new Astronomy, (and thence in these Papers) the Style is sometimes continued; and 'tis not unufual, I may add, not very improper, to say, that the Sun, the common Focus or Umbilicus of all the Celestial Elliptick Orbits, is in the Centre of our System, or possesses the Centre of the Planetary World.

(5.) Tho' all the Lines passing through the Centre in a Circle, being equal, are equally confiderable; yet 'tis otherwise in the Conick Sections; where that Line through the Focus alone, which

cuts the principal Axis at right Angles, is remarkable above all the rest; and in very many Cases peculiarly considerable. This Line is styl'd the Latus Rectum or Parameter, and in the Ellipsis is, after the longer and shorter Axis, the third Proportional. Thus in the Figure before us, as DK is to EF, so is the same EF to OP or MN, the Latus Rectum or Parameter thereof, so samous with the Writers on the Conick Sections.

(6.) The Subtense of the Angle of Contact bd, parallel to the Distance from the Focus BH, at an equal perpendicular Distance from the Point of Contact B, if that Distance be supposed infinitely small, is in all Parts of the same Ellipsis, or other Conick Section, equal to it self. The Truth and Use of which Property is not yet sufficiently

known.

(7.) If from any Point in the Circumference of an Ellipsis as B, Lines be drawn to each Focus, BH, BI; these two Lines taken together are always equal to themselves, and to the longer Axis KD: As the bare Delineation of the Figure does

plainly manifest.

(8.) If the Angle made by the Lines to the Foci from any certain Point, HBI, be divided in the midst by the Line BA; the said Line BA will be perpendicular to the Tangent, or Curve at the Point of Contact; and so the Angles ABL, ABG, will be right ones, and equal to each other, as consequently will equal Parts of them, LBH, IBG.

(9.) A Line drawn from either Focus to the End of the lesser Axis, HE or IE, is equal to half the longer Axis CD or CK; as is evident by the last Particular but one. And the same Line is Arithmetically the middle Proportional between the greatest and least Distance from the said Focus.

Thus

Thus HE, for instance, is just so much longer than HD, as'tis shorter than HK; the Difference in both cases being the Eccentricity HC or CI.

(10.) The Tangent of an Ellipsis L G is never Fig. 6. perpendicular to a Line drawn from the Focus, Schem. 1. except at the two Points which terminate the longer Axis D and K. And if you imagine the Point of Contact B, with the Radius BH, and the Tangent LG, to move round the Ellipsis together, from B towards D; the preceding Angle, HBL, will, in the Descent from K by F to D, be an acute one; (its Acuteness increasing from K to F, and as much decreasing from F to D;) and in the Ascent from D by E to K an obtufe one; (its Obtufeness increasing from D to E; and as much decreasing from E to K:) In both Semi-revolutions arriving at Rightness at the Points D and K, the Ends of the longer Axis alone; as was here to be observ'd.

(11.) The Area of an Ellipsis is to that of a circumscrib'd Circle, (whose Diameter is equal to the others longer Axis,) as the shorter Axis of the Ellipsis is to the same longer Axis or Diameter.

(12.) If the Circumferences of a Circle, and of an Ellipsis, be equal; the Area of the Circle is the greater. It being known, that of all Figures, whose Perimeters are equal, the Circle is the most capacious.

(13.) If an Ellipsis, by becoming infinitely Eccentrical, degenerate into a Parabola; the Latus Rectum or Parameter will be four times as long as the nearest Distance to the Focus thereof. Thus Fig. 1. rs is four times as long as Ht.

XVI. All Bodies which, together with a Projectile or uniform Motion along right Lines, are continually attracted or impell'd towards one certain Point or Centre, let the Attraction or Impulse be

be of what Nature or Quantity foever, will always, (no other Force interpoling) by a Line drawn from that Center to themselves, describe equal Area's in equal Times; and so proportionable Area's in proportionable Times; thro' all Parts of their Courfes. Thus if the Area describ'd the first Minute were equal to a thousand square Feet; whether the Bodies came nearer, or went farther off, it would always in a Minute be equal to the same thousand fquare Feet; in two Minutes double, or two thoufand; in three Minutes treble, or three thousand; in four Minutes quadruple, or four thousand; and fo for ever proportionably. The Demonstration of this noble and exceeding useful Theorem, is both easy and pleasant: But that not being my present Bufiness, I shall, as in the rest, refer the Reader Nat. Prin- to the Great Author himself for Satisfaction.

Sir Isaac Newton's cip. Math. P. 37, 38, 39.

XVII. All Bodies, vice versa, which revolve in Curves; and by a Line drawn from themselves to a certain Point or Centre, describe Area's proportionable to the Times of Description, are attracted or impell'd continually towards that Point or

Centre.

Corollary. Since therefore Lines drawn from every one of the Planets to the Sun, describe perpetually Area's proportionable to the Times of Description; as is orgn'd by all Astronomers; 'tis certain that, besides their several projectile Motions, they are every one continually attracted or impell'd towards the Sun; and from such compounded Forces revolve about him. And the Case being the same in the Moon about the Earth; the Circumjovials about Jupiter; and the Circumsaturnals about Saturn; this Corollary equally belongs to them also.

XVIII. If Bodies from a projectile Motion, and an Attraction or Impulse to a Point or Centre, move about the fame in a regular Spiral Line,

which

which interfects every Radius in the same Angle; the Force of the Attraction or Impulse, at disserent Distances from that Centre is reciprocally as the Cubes of such Distances: And vice versa, if the Force of Attraction or Impulse to any Centre be as the Cubes of the Distances reciprocally; Bodies revolving about the same, unless they move in Circles, must describe Spiral Lines, intersecting Radii in the same Angle.

XIX. If Bodies from a projectile Motion and an Attraction or Impulse to a Point, move about it, being the Center of an Ellipsis, in the Periphery of the same Ellipsis; the Force of Attraction is directly as the Distance from such a Centre: and vice versa, if the Force of Attraction or Impulse to any Point be as the Distance from the same directly, Bodies revolving about it must describe an Elliptick Figure; with whose Centre the

fore-mention'd Point will be coincident.

XX. If Bodies from a projectile Motion, and an Attraction or Impulse to a Point, describe an Ellipsis about that Point, coincident with one of its Foci; the Force of Attraction towards that Focus is reciprocally in a duplicate Proportion, or as the Squares of the Distances from the same. And vice versa, if the Force or Attraction to any Point be in a duplicate Proportion, or as the Squares of the Distances from the same reciprocally; Bodies revolving about the same must describe Ellipses about it, coincident with one of the Foci thereof.

Corollary 1. Where Bodies revolve about any Point or Central Body, from the Figure describ'd, and the Situation of the Point or Central Body, the Law of Attraction or Impulse tending towards the same is discovered. And vice versa, where the Law of Attraction or Impulse is known, the Figure to be describ'd by revolving Bodies, and the Situation of

14

the

the Point or Central Body, towards which the Attraction or Impulse is, with respect to such Figures,

is a priori discover'd also.

Coroll. 2. None of the heavenly Bodies descrihing either Spiral Lines, or Ellipses about their Centres, 'tis certain no Law of Gravitation in a triplicate reciprocal, or direct simple Proportion of the Distance from the Central Body, obtains in

the Planetary World.

Coroll. prius.

Coroll. 3. * All the Planets Revolutions arising Lem. 17. from the Composition of their projectile Motion and Gravitation towards the Sun; and they all describing Ellipses about him, in the common Focus of all their Orbit, as is evident from Astronomy; "tis bence certain, that the Force of their Attraction or Impulse towards the Sun, is in a duplicate Proportion of their Distances reciprocally.

> Coroll. 4. The Case being the same as to the Moon about the Earth, and the Circumfaturnals about Saturn; this last Corollary belongs equally to them also. But Jupiter's Satellites revolving in compleat Circles, are incapable of affording Evidence in his Cafe.

XXI. If feveral Bodies revolve about the fame central attractive Body at several Distances; and the periodical Times in which they revolve be to each other, as the Squares of their Distances from the fame; the Force of Attraction or Impulse to that central Body is in a triplicate Proportion, or as the Cubes of fuch Distances reciprocally; and vice versa, if the Force of Attraction or Impulse be in a triplicate Proportion, or as the Cubes of their Distances reciprocally, the periodical Times of Revolution will be to each other, as the Squares of their Distances from the same central Body.

XXII. If feveral Bodies revolve about the fame central attractive Body, at feveral Distances, in Circular or Elliptick Orbits; and the periodical Times of revolving be all equal; the Force of Attraction or Impulse towards the central Body is directly,

as the Distances from the same.

XXIII. If feveral Bodies revolve about the fame central Body, in Circular or Elliptick Orbits, at several Distances; and the Velocities be in balf the Proportion, or in a subduplicate Proportion of their Distances reciprocally; or, which is all one, the Squares of the periodical Times of revolving be to each other as the Cubes of the middle Distances from the same central Body; the Force of Attraction or Impulse towards the same is in a duplicate Proportion of the Distances from the fame reciprocally.

Corollary 1. Where several Bodies, from a projestile Motion, compounded with a Gravitation towards a central Body, revolve about the same at several Distances; from the Proportion there is between the periodical Times of revolving, compar'd with the Distances from the central Body, the Law of Gravitation tending towards the same is discover'd; and, vice versa, where the Law of Gravitation is known, the Proportion between the periodical Times compar'd with the Distances from the

central Body is, à priori, discover'd also.

Coroll. 2. None of the heavenly Bodies periodical Times of revolving being to each other as the Squares of their Distances from the central Body, nor equal to one another; 'tis certain, as before, that no Law of Gravitation in a triplicate reciprocal, or direct simple Proportion of the Distances from the central Body, obtains in the Planetary World.

Coroll. 3. * All the Planets Revolutions arising * Coroll. from the Composition of their projectile Motion and Lem. 17. Gravitation towards the Sun; and the Squares of Prius. their periodical Times of revolving being to each other as the Cubes of their middle Distances from bim;

him; 'tis hence certain, as before, that the Force of their Attraction or Impulse towards the Sun, is in a duplicate Proportion of their Distances reciprocally.

Coroll. 4. The Case being the same as to the Circumsovials about Jupiter, and the Circumsaturnals about Saturn; this last Corollary belongs equally to them also. But the Moon being a single Planet revolving about the Earth, is incapable of giving Evi-

dence in ber Case.

Coroll. 5. As before, the Law of Gravitation being demonstrated from the Planets revolving in Ellipses about the central Bodies in one of the Foci; the Proportion between the periodical Times, compar'd with the Distances from the central Bodies, was deducible à priori; so vice versa, the periodical Times compar'd with the Distances demonstrating the Law of Gravitation, thence the Necessity of the Planets Revolution in Ellipses, about the central Bodies in one

of the Foci is à priori demonstrated also.

Coroll. 6. 'Tis certain, That the Annual Motion belongs to the Earth about the Sun, not to the Sun about the Earth. For since from the Moon's Orbit, and the Planets Orbits and periodical Times, 'tis certain, that the Law of Gravitation towards the Earth, and towards the Sun is the same; and by consequence, all the periodical Times of Bodies revolving about each of them in the same Proportion to one another, compar'd with their several Distances from each of them: On which Hypothesis, this Proposition suits the Phænomena of Nature, the same must be the true one, and to be fully acquiesc'd in. Now 'tis known, that on the Hypothesis of the Earth's Annual Motion, her periodical Time exactly suits, and is so between that of Venus and Mars, as the Proportion observ'd through the whole System, and demonstrable à priori, withal, exactly requires; but on the other Hypothesis 'tis enormously different. For since the Moon undoubtedly, and

>3

and on this Hypothesis the Sun also, revolves about our Earth; and since the Distance of the Sun is to that of the Moon as about 81000000 to 240000 or as about 337 to 1; and the Moon's periodical Time less than 28 Days; the periodical Time of the Sun is by the Rule of Three discoverable thus: As the Cube of the Moon's Distance, 1 equal to 1, to the Cube of the Sun's 337 equal to 38272753, so must the Square of the Moon's periodical Time 28 Days equal to 784, be to the Square of the Sun's periodical Time, 30005838352; whose Square Root, 173510, are Days also, being some Days more than 475 Julian Years: So that on the Hypothesis of the Sun's Revolution about the Earth, its periodical Time must undoubtedly be 475 Years, which all Experience attests to be but a single one, So that at length the Controversy between the Ptolemaick and Pythagorean Systems of the World is determin'd; and the Earth's Annual Motion for ever unquestionably establish'd.

Coroll, 7. 'Tis certain that those Opake Masses which sometimes appear at the Sun, are not Planets, revolving at any the least Distance from him, but Spots or Maculæ adhering to him; for whereas they revolve but once in a little above twenty five Days; on a like Calculation it will appear, that a Planet near the Surface, as these must be, cannot have three Hours allow'd for its periodical Revolution; which being so different from the foremention'd Space of twenty five Days, quite decides that Controversy, and demonstrates those Masses to be real Maculæ adhering to the Body of the Sun; as is here asserted.

XXIV. If a Planet describe an Ellipsis about its central Body in the Focus thereof, it will move fastest when it is nearest to, and slowest when 'tis farthest from the said central Body or Focus; and agreeably in the intermediate Places. For seeing whereso-

wherefoever the revolving Body is, the Area is still proportionable to the Time, as was before shew'd; and so in equal Times always equal; 'tis evident by how much the Distance is less, and the Line from the Focus is shorter, by so much must the Bodies perpendicular Motion be the fwifter to compensate the same; and, vice versa, by how much the former is longer, by fo much

must the latter be slower to allow for it.

Coroll. Hence we may obviate that Difficulty which is so commonly made about the Ascent and Descent of Planets or Comets in their Ellipses; especially when they are very eccentrical; and so may understand how a Planet or Comet which descends towards the Sun, and at last arrives at bis Peribelion, is able so to overcome the Sun's Attraction again, even there where it is greatest, as to throw it self farther off, and to ascend from it by the same Steps, and in the same Line by which it before descended. For since the natural Velocity corresponding to the Sun's Attraction every where, is only in a subduplicate Proportion of the Lem. 23. Distance reciprocally; but the Velocity in any Orbit whatsoever will necessarily be in a full Proportion of that Distance reciprocally, as we have just now observ'd, 'tis plain that all the while any Planet or Comet is descending, its Velocity gains upon the Sun attracting Power; and so after the Body is past the End of the shorter Axis, (where both are in Æquilibrio) and in the Parabola in the whole Descent it overcomes it, and throws it self off perpetually; the the oblique descending Position of the Tangent does not permit it to go really farther off till it comes to its Perihelion. Tis alike plain that therefore all the while any Planet or Comet is afcending, its Velocity is gain'd upon by the Sun's attracting Power, and so after the Body is past the other

prius.

other End of the shorter Axis it is overcome by it, and is attracted more and more to it perpetually; tho' the oblique ascending Position of the Tangent does not permit it to approach really nearer till it comes to its Aphelion. And as to the two other Quarters of the Motion, 'tis eafily stated from what has been said. For the Ascent from the Perihelion till the End of the lesser Axis, arises from the superabundant Velocity acquir'd in the Descent from the other End of the lesser Axis just before; and the Descent from the Aphelion till the said End of the lesser Axis arises from the prevailing Attraction, and Velocity too little to balance it from the other End of the lesser Axis just before. In short, while the revolving Body is in the remote Half of the Elliptick Periphery, the Attraction is too bard for the Velocity, and while 'tis in the nearer Half, the Velocity is too bard for the Attraction; and when the Attraction in part conspires with the Tangent or Direction of the projectile Motion, as in the Descent, the Velocity thence increases continually; and when it is partly opposite to the same, as in the Ascent, the Velocity thence diminishes continually; and thence such Correspondence and mutual Superabundance and Deficience of Velocity must happen in the several Parts of the Orbit perpetually.

XXV. If the Planet B describe an Ellipsis about Fig. 6. the central Body in the Focus H; as the Area describ'd by the Line BH, will be exactly uniform and proportional to the Time of Description; so the Angular Motion, or Velocity of the Line from the other Focus BI, will be proportional to the Time, and uniform also; tho' not so exactly and

geometrically.

XXVI. The Law of Gravitation already explain'd being supposed; if one Planet describe Fig. 6. an Ellipsis about the central Body in the Focus H, and

and another describe a Circle about the same in its Centre: If the Semidiameter of the Circle be equal to HE, the middle Distance in the Ellipsis from the same Centre or Focus, their periodical Times of revolving will be the fame; and when the Distances are equal, their Velocity will be fo too.

Corollary. The therefore the Planets revolve in Ellipses of several Species, yet their periodical Times may be as well compar'd with one another, and with their Distances from the central Bodies, as if they all revolv'd in compleat Circles; as was above done: For 'tis but taking the middle Distance in the Ellipsis for the Radius of a Circle, and the same periodical Time, and the Computation will hold as well as if the Orbit had been a perfett Circle.

XXVII. If a Body revolve about a central Body, as about A in a Circle, as Be Eb; and another revolve about the fame in the Focus of its Ellipsis, BHFG, fo that the Semidiameter of the Circle were equal to the nearest Distance in the Ellipsis AB; the Velocity of the Body at the nearest Point of the Ellipsis will be greater than the Velocity of the Body in the Circle; and will be to it in half the Proportion of the Latus rectum of the Ellipsis pq, to the Diameter of the Circle eb; or as that Line pq, to a Middle proportional between it self and eb.

XXVIII. If one Body revolve round a central Body in a Circle, and another about the fame in its Focus describe so very Eccentrical an Ellipsis, that it may pass for a Parabola; the Velocity of the Body moving along the Ellipsis, will be to that of the Body moving in a Circle, (the Point in the Ellipsis being as far from the central Body as the Circumference of the Circle) as the Square Root of two to an unit, that is very nearly as ten to feven.

XXIX.

Fig. 3.

XXIX. If a central Body have many Bodies revolving about it; 'tis perfectly indifferent in it felf, and with regard to that central Body, in what Planes foever, or which way in those Planes foever, they all or any of them move; supposing that all the Planes pass through the Centre of that Body about which they revolve.

Corollary. Hence arises a convincing Argument of the Interposition of Council and Providence in the Constitution of our System; in which all the Planets revolve the same way, from West to East; and that in Planes almost coincident with one another, and with that of the Ecliptick, as Dr. Bentley bath Serm. 8.

also observ'd.

p. 13. XXX. The Order of the heavenly Bodies in the Solar System is as follows: First of all, the vast glorious Body of the Sun is plac'd in the middle, very near the Centre of Gravity of the entire System, in the common Focus of every one of the Planetary Orbits. Next to him Mercury describes his Ellipsis, and that so near, that we on Earth rarely obtain a distinct View of him. Next to Mercury is the Elliptick Orbit of Venus, our glorious Morning and Evening Star. Next to Venus our Earth, with its Attendant the Moon, perform a joint Course, and measure out the Annual Period. Next to the Earth the fiery Star Mars alone, without any visible Guard accompanying him, revolves about the same Centre. Next to Mars, tho' at a mighty Distance from him, the largest of the Planets, Jupiter; with his four remarkable Satellites; and lastly, Saturn with his five little Moons about him, describe the farthest and most remote Orbits, and compleat the entire Planetary Chorus, as the Frontispiece of the Book represents them to the Contemplation of the Reader.

Scholium 1. Besides the Planets, whose Orbits are not very different from Circles, there are another Species of Bodies revolving about the Sun in such Ellipses, as may pass for Parabola's, they are so exceeding Eccentrical; but as far as appears, as regularly retaining their several Periods and Orbits, as the Planets now mention'd. But because these Bodies will be more distinctly consider'd hereafter, I shall wave their farther

Confideration at prefent, and proceed.

Scholium 2. But as to the fix'd Stars, which are not represented in the Figure, they are still so vaftly more remote from the Sun, that, till very lately, they were thought subject to no Parallax at all, even not to that of the annual Orbit it felf. The great Hugenius by a new, and not improbable Method of conjecturing their Distance, in his Cosmotheorus, p. 137. computes that the nearest of them can't well be at a less Distance from the Sun, or from us, than 27664 Semidiameters of the Magnus Orbis; each of which Semidiameters contains by the best Observations no less than 81 Millions of English Statute Miles, as we shall see presently: so that by this Computation, the nearest of the fix'd Stars must be about 2240784 Millions of Miles from us. And tho' fince the noble Discovery of the annual Parallax of the fix'd Stars by Mr. Flamflead, agreeing with the same before made by Dr. Hook, the Distance of those Stars which have been measur'd is not quite so vast and enormous, yet is it still in it felf exceeding great, no less than 8000 Semidiameters of the Magnus Orbis, or about 648000 Millions of English Miles. And what is in these Observations most remarkable and surprizing is this, that those three Stars, of very different apparent Magnitude, and very different Places, whose Distances have been thus accurate-

ly measured, do not appear to be of very different Distances, but almost all pretty equally remote from us; contrary to the general Opinion hitherto; which has suppos'd the fix'd Stars at all manner of various Distances from us, and those which appear'd the smallest to have therefore been at the most remote, and the largest at the nearest Places. If on farther Observations this prove to be the case of the rest of the fix'd Stars, we must be forc'd to alter our Opinion, and to believe that they are all pretty nearly in a fpherical Surface from us, and that our Sun, with its System is, as it were, plac'd in the Centre of the rest of the Systems, and of the visible World. For as to the learned Dr. Gregory's Objections against the Force of Mr. Flamsteed's Reasoning Astronom. for the annual Parallax of the fixed Stars, and P. 275, the annual Motion of the Earth consequent 276. thereupon, they are too inconfiderable, and too much built on Mistakes to be at all regarded in this Matter, as I have shew'd in another place. Philof. Ma-But then as to the Nature of the fix'd Stars, 'tis themat. in all probability the same with the Sun's; and Corol. 5. fo each of them may have their respective Systems of Planets and Comets as well as he has. Which things, considering that the Number of them is continually found to be greater, according as the Telescopes we use are longer and more perfect, do vastly aggrandize the Idea of the visible Universe; and ought proportionably to raise our Admiration of the great Author of the whole to the highest degree imaginable.

XXXI. The periodical Times of each Planet's fydereal Revolution about the Sun, are as fol-

	CONTRACTOR OF THE PARTY OF THE	days	n	10000
Mercury)	87	23	16
Venus	revolves a-	224	16	49
The Earth	bout the	365	6	09
Mars	Sun in the	686	23	27
Fupiter	Space of	4332	12	20
Saturn) (10759	6	36

XXXII. The middle Distances of the Planets from the Sun are as follow.

Mercury) (32,000,000	Statute
Venus	is distant	59,000,000	/ Miles;
The Earth	from	81,000,000	each 5280
Mars -	the Sun	123,000,000	
Jupiter	about /	424,000,000	4943 Gal-
Saturn		777,000,000	lick Feet.

Scholium. The Proportions of these Numbers are unquestionable: But the Numbers themselves only within a certain Latitude under or over. The Reason of such Uncertainty is, that the Sun's Parallax, or Angle, which the Semidiameter of the Earth would fubtend to an Eye at the Sun, on which the whole depends, is not yet accurately determin'd by Astronomers; so that no exact Number can be certainly pitch'd upon, till farther Observations put an end to our Doubts. On which Account I have put in this Caution to prevent Mistakes, and in my Computation have followed our most exact Observer Mr. Flamsteed, as Sir Isaac Newton also does in his latest Writing of this Nature, I mean his Theory of the Moon publish'd by Dr. Gregory, and have suppos'd the Sun's Parallax 10 Seconds, and from this Hypothesis made these and the following Calculations; which therefore cannot be very far from Truth,

Astron. p. 336.

Truth, and are certainly from the best Observations which have yet been made, and so the exactest Numbers that can at present be set down.

XXXIII. The Periodical Times of the Circumjovials Revolutions about Jupiter are as fol-

lows.

-h- 1-		da.	ho.	1	"
The Innermost) revolves a-					
-i and Jupi-	2	3	13	13	52
TO THE LINE	_	7	3	43	00
The Fourth) Space of	(16	16	32	00

Of the Circumsaturnals.

```
      The Innermost
      revolves a- bout Saturn
      1 21 18 26\frac{r}{z}

      The Second
      bout Saturn
      2 17 41 10\frac{r}{z}

      The Fourth
      in the Space of
      4 12 25 10

      The Fifth
      of
      15 22 41 28

      79 7 46 00
      79 7 46 00
```

XXXIV. The Distances of the Circumjovials from Jupiter are as follow.

```
The Innermost is di-

The Second stant from \frac{1\frac{5}{6}}{4\frac{1}{2}} Diameters of The Fourth \frac{1}{5} Tupiter. \frac{1}{6} Tupiter.
```

Of the Circumfaturnals.

```
The Innermost is di-

The Second flant of \frac{3}{4} is di-

The Third from \frac{1}{4} Diameters of his An-

The Fourth \frac{3}{4} of his An-

The Fifth \frac{3}{4} on nulus.
```

XXXV. The Time of the diurnal Revolutions of fuch of the heavenly Bodies as are already known to turn about their own Axes is as follows.

- 200 0 0 000	The same of the sa	128VI	
The Sun -	revolves a- (25	6	00
The Earth (bout its \00	23	50
Mars -	own Axis <01	0	40
Fupiter	in the)00	9	50
The Moon -) Space of (27	7	43

XXXVI. The Quantity of Matter in such of the heavenly Bodies as afford us means of determining the same, is, according to the foremention'd Observations, in the Proportions following.

The Sun's -	227500
Jupiter's	220
Saturn's	94
The Earth's	
The Moon's between —	i and i

Corollary. The Weight of Bodies at equal Distances from the Sun and Planets, being in the same Proportion with the Quantity of their Matter, as priùs. has been already said; the same Numbers assign'd in the last Lemma, which explain the latter, serve equally to explain the former also.

XXXVII. The Diameters of the Sun and Planets.

Saturn's 61000	
Jupiter's 81000	
Mars's 4440 Statute Miles	
The Earth's 7970	
The Moon's 2170	
Venus's 7900	
Mercury's 4240}	

Hugenius's Numbers are, to the Sun's Diameter, the Diameter of

Saturn's Ring as II	to	37
Saturn as 5	to	37
Jupiter as 2	to	II
Mars as I	to	166
Earth as I	to	III
Venus as I	to	84
Mercury as 1	to	290
motheor. p. 14, 15.		7999

Coff

XXXVIII. The Weight of Bodies on the Surface of the Sun, and those Planets mention'd in the 36th Lemma before, is as follows. On the Surface of

The Sun	24	.40
The Earth -	I	.00
Jupiter	2	.00
The Moon	0	.34
Saturn -	I	.28

XXXIX. The Denfities of the same, (whatever be the Sun's Parallax) are as the Numbers following.

The Moon's	123 7
The Earth's -	100
The Sun's	025 1
Jupiter's	- 019
Saturn's -	15.0

XL. As the Weight of Bodies without the Superficies of the heavenly Bodies increases in a duplicate Proportion of their Nearness to their Centres; fo within the same Superficies, if their Denfity to the Centre be uniform, does it decrease in a fim-

Lem. 9. priùs. a simple Proportion thereof; and is consequently greatest upon the Superficies themselves. Thus, as we have already seen, a Body at 10000 Miles Distance from the Earth's Centre, is four times so heavy as it would be at 20000. But within the Earth, if a Body were twice as near its Centre as 'tis on the Surface, it would be but half so heavy as 'tis here; if thrice as near, it would be but a third part so heavy; if sour times as near, it would be but a quarter so heavy; and so for ever proportionably. Gravity therefore is most considerable on the Surface, decreasing both ways, upward in a duplicate Proportion of the reciprocal Distance; and downward in a simple direct Proportion thereof.

XLI. If the central Regions of a Globe contain a spherical Cavity within the same; Bodies plac'd therein, from the Equality of Attraction on every side, will not tend any way, or gravitate at all, but be as perfectly at Liberty, as if they were not affected by any such Power of Attracti-

on or Gravitation.

XLII. The Moon revolves about the Earth from West to East in 27 Days, 7 Hours, 43 Minutes; and in the very same Space of Time, by a strange Correspondence and Harmony of the two Motions, revolves the same way about its own Axis; whereby, (one Motion as much converting it to, as the other turns it from the Earth) the same side is always expos'd to our Sight.

XLIII. The Librations of the Moon's Body, which cause that 'tis not exactly the same Hemisphere thereof which is perpetually expos'd to our Sight, arise from the Eccentricity of the Moon's Orbit, from the Perturbations by the Sun's Attraction, and from the Obliquity of the Axis of her diurnal Rotation to the Moon's own Orbit,

without

without the Knowledge of which Circumstances her Phanomena were inexplicable, but by the Confideration of them are eafily demonstrable.

XLIV. In the 2365th Year of the Julian Period, or the 2349th before the Christian Æra, the Autumnal Equinox was on the 12th Day of October. 'Tis evident from the Astronomical Tables of the Anticipation of the Equinox, that in 4068 Years (the Time fince the before-mention'd Year till A. D. 1720.) the Equinoxes have anticipated about 31 Days. 'Tis also evident, that at this time the Vernal Equinox is on the 9th of March, and the Autumnal on the 12th of September. 'Tis farther evident, that whereas now the Space from the Vernal to the Autumnal Equinox is eight or nine Days longer than from the Autumnal to the Vernal, by reason of the Position of the Peribelion, of the Earth's Orbit near the Winter Solftice; at the time before-mention'd it was not above five or fix Days fo. By the Anticipation therefore of the Equinoxes alone, if the Polition of the Peribelion had been always the fame, the Equinoxes at the time affigned had been on the 9th of April, and on the 13th of October; and, the equaller Division of the Year allow'd for, the Vernal Equinox was on the 10th of April, and the Autumnal on the 12th of October, as was to be prov'd.

Coroll. Since 577 Years still more backward, the Equinox must have been full four Days later, in the 1788th Year of the Julian Period, which is the 2926th Year before the Christian Æra, the Autumnal Equinon must have been on the 16th Day of October.

XLV. Comets are a Species of Planets, or Bodies revolving about the Sun, and moving in one of the Conick Sections, (which in all probability is an Ellipsis,) whose Motions, and, if they have Elliptical Orbits, whose periodical Times are as con-

stant.

stant, certain, and regular as those of the Planets, tho'till very lately generally unknown to the World.

XLVI. These Elliptical Orbits of Comets, if they be such, are so very oblong and eccentrical, that while they come within our Observation, they are but little different from Parabola's, and may accordingly be consider'd as such.

XLVII. The Planes in which various Comets move, are themselves exceeding various, and at all imaginable Angles of Inclination with one another, and with that of the Ecliptick; they all still passing through the Centre of the Sun.

XLVIII. The Course of Comets in their Orbits is not determin'd one way, (as is that of the Planets from West to East;) but indifferently some of them move one way, and some another.

Corollary 1. From these two last Lemmata 'tis evident that Comets move sometimes from East to West, other times from West to East; sometimes from North to South, other times from South to North; or obliquely between any of these ways, according as the Situation of the Planes of their Orbits, and the Directions of their Courses together determine them.

Coroll. 2. Hence 'tis certain, That the heavenly Motions are not perform'd in corporeal Vortices; feeing the Comets exactly observe the same Laws and Velocity of Motion, whether they revolve with, or against, or cross to the Planets, and the suppos'd fluid Matter of the Vortices.

XLIX. Comets in their Descent to, and Ascent from the Sun, pass quite through the Planetary System; as may be seen in the Frontispiece.

Corollary. Hence we may observe a new possible Cause of vast Changes in the Planetary World, by the Access and Approach of these vast, and hitherto little known Bodies to any of the Planets.

L. If a Comet in its Descent to, or Ascent from the Sun, approach near to a Planet as it passes by, and its Plane be different from that in which the Planet moves; by its attractive Power it will, agreeably to the universal Law of Gravitation of Bodies, draw it from the Plane in which it before mov'd, and so cause it afterward to move in a new one, inclin'd to the former, but passing thro' the Sun, as the former did.

Corollary. Hence 'tis supposable, that tho' the Planets originally revolv'd in the same common Plane, yet by the subsequent Attraction of Comets, their Planes may now be inclin'd to one another, and different;

as 'tis certain de facto they now are.

Scholium. Seeing the Law of Gravitation is universal and mutual, 'tis evident the Planet would draw the Comet from its Plane, as well as the Comet would draw the Planet; and so generally, what Effects soever the Comets could have on the Planets, the latter would have correspondent ones on the former. But as this Indication once given for all, there is no Necessity of taking notice of the Changes in the Comets; so accordingly, in what sollows, I shall wholly omit the same; and confine my felf to such Things as will be immediately useful in the following Theory.

LI. If a Comet revolving in the same Plane with a Planet, whose Orbit is a perfect Circle, as it passes by, approach near it, by accelerating or retarding the Velocity of the Planet, it will render its Orbit Elliptical. Thus if B were a Planet revolving about the Sun at the Center A, in the circular Orbit Be Eb; and a Comet either in its Descent towards, or Ascent from the Sun should pass near it, it would, agreeably to the universal Law of Gravitation of Bodies, accelerate it, if its Attraction concurr'd with, or retard it, if its At-

traction

traction contradicted the Planet's own annual Motion along the Periphery of its Circle. Whereupon the concentrical Orbit would become eccentrical, and the Planet would afterwards revolve in an Ellipsis; which on an Acceleration would be bigger. and on a Retardation less than the Circle which it had till then describ'd; the former represented by BHFG, the latter by BKLI. For when the original Velocity of B was exactly adjusted to the Sun's Power of Attraction, and its Orbit thereupon a perfect Circle, this new Acceleration or Retardation must render it afterward incommenfurate, and too great, or too little for the same; and accordingly the Orbit to be afterward, agreeably to what has been formerly explain'd, describ'd by the Planet, must be an Ellipsis; and bigger or leffer than the former Circle, as the Force was directed for, or against, the Planets own Motion.

Lem. 11, 12, 13. priùs.

Corollary 1. In this Case, the Sun would no longer be in the Centre of the Figure, but in one of the Foci, viz. in the nearer Focus of the larger, and

the farther of the smaller Ellipsis.

Coroll. 2. If B were the Earth moving circularly about the Sun from West to East, i. e. from B by e E b to B again; and a Comet h in its Descent towards the Sun should pass by before it, or on the East-side; the annual Motion of the Earth would be accelerated, and its circular Orbit degenerate into the larger Ellipsis, BHFG, about the Sun in its nearer Focus A.

LII. If a Comet in passing by as before, accelerate the Planet's Motion, and so enlarge the Orbit, the Planet's periodical Time of revolving will be enlarg'd, and become longer thereby. In like manner, if the Comet retard the Planet's Motion, and so diminish the Orbit, the periodical Time of revolving will be lessen'd, and become shorter. And still the more considerable the Acceleration or Re-

tardation

of the Planet, the greater will be the Eccentricity, and the greater Difference between the former and latter Orbits, and the former and latter

periodical Times of revolving also.

Corollary 1. If in the foregoing Case the Semidiameter of the ancient Circle, with the middle Distance
in the Ellipsis afterward describ'd be given, as also the
periodical Time of revolving in the latter, the periodical Time of revolving in the former is at the same
time determin'd. For as the Cube of the middle
Distance in the Ellipsis, to the Cube of the Semidiameter of the Circle, so is the Square of the Periodical Time in the Ellipsis, to the Square of the
Periodical Time in the Circle. So that three of those
Terms being known, which is here suppos'd; the fourth,
by the Golden Rule, is known also; whose Square
Root answers the Demand of this Corollary.

Coroll. 2. Since therefore the three Postulata now mention'd are given in the Case of the Earth (supposing that it anciently revolv'd in a circular Orbit) as will bereafter appear; the Time of its annual Revolution in that original and circular Orbit may

easily be at this Day discover'd.

LIII. If a Planet moving in a circular Orbit, were accelerated by an Attraction directly along its Tangent or Periphery; the preceding Angle made by the Tangent and Radius C B A, would Fig. 3. Itill remain a right one, and the Point B, where the Acceleration happen'd, would afterward be the nearest to the Focus, or the Peribelion in the Ellipsis afterward to be describ'd. So if it were alike directly retarded along its Tangent or Periphery, the Angle would still be a right one; and the Point B, where the Retardation happen'd, would be the farthest from the Focus, or the Aphelion in the Ellipsis to be afterward describ'd.

LIV.

LIV. If therefore such Acceleration or Retardation were caus'd by a Body moving uniformly along its Trajectory on each side of the Planets circular Periphery, the oblique Acceleration above, would take off the nearly equal oblique Retardation below, or the contrary; and thereby the Effect afterward remaining, would be all one, as if the prevailing Force, whether of Acceleration or Retardation, were only along the Tangent or Periphery; all one, as if the whole Attraction were caus'd while the attracting Body was at or near that Tangent or Periphery it self; and by consequence the Point B would be, as above, the Peribelion or Aphelion of the Ellipsis afterward describ'd.

Scholium. Altho' fome small Inequality would arise by a Comet's moving slower above than below the Periphery of a Planet's Orbit, and so attracting longer above than below on the one side; and by the Comet's attracting only downward when just passing by, and at the nearest Position on the other side; yet because, as appears on Computation, this matter is generally not considerable, unless the Comet be vastly great, or approach vastly near, it may be wholly wav'd, and the Point B still suppos'd either just at, or very near to the Peribelion or Aphelion of the Ellipsis afterward describ'd.

Coroll. If therefore, in a given Year, a Comet, in its Descent towards the Sun, accelerated the Earth's Annual Motion, and chang'd its Orbit from a Circle to an Ellipsis; the Degree of the Ecliptick, and Day of the Year, when the same Attraction happen'd, may be pretty nearly determin'd by the Place of the Perihelion at the same Time, from the Astronomical Tables of its Place and Motion.

LV. If the nearest Distance of a Comet to a Planet be given, the Time of Attraction to be consider'd is from thence determinable. Thus if a

Comet

Comet in its Descent towards the Sun, as from E Fig. 5. to H, pass'd by a Planet moving in the Circumference of its circular Orbit from A to D, and fo accelerated the same: Let CG be the Line defcrib'd by the Comet while the Planet passes along from B to C, at which last Point C the Comet is suppos'd to have been at its nearest Distance, when the Planet is at B; and let CF be equal to CG. In this Cafe, the Acceleration by the Comet between E and F, being nearly taken off by the Retardation between G and H; (and the like is to be suppos'd of the Acceleration beyond E, and the Retardation beyond H, not to be contain'd in the Figure) 'tis evident that all the Attraction which is to be confider'd, is that accelerating the Planet while the Comet passes from F to G, and the Planet from Q to C: As the fole View and Confideration of the Figure it felf will give fufficient Evidence. Which from the Velocity of the Motion of Comets and Planets, eafily calculated, might be foon determin'd; if the nearest Distance CB were once ascertain'd.

Coroll. 1. If therefore the nearest Distance CB were known, and the Bigness or Quantity of Matter in the Comet it self; seeing the Time of Acceleration is withal known; the Quantity of Acceleration, the increas'd Velocity of the Planet; and by consequence the Magnitude of the Elliptick Orbit to be afterwards describ'd; and the periodical Time of revolving answerably thereto, might all be à priori determin'd.

Coroll. 2. Vice versa, If the nearest Distance BC, with the Eccentricity of the subsequent Elliptick Orbit, or its periodical Time be given; the Bigness of the Comet may, on the same Grounds, be determined also.

LVI. If a Comet descending towards the Sun pass'd near a Planet which had a secondary one revolving about it; unless their Situation were so accurately and nicely adjustly, that it approach'd equally near to them both, these two Planets would no longer revolve together, but being for ever separated, must describe different Orbits about the Sun. This is easily demonstrable; since any Diversity of Attraction must change each of their annual Orbits, and periodical Times, in proportionably different Degrees. The least of which were more than sufficient to such a Purpose as we here are speaking of.

Coroll. If therefore the Planetary Orbits were all or any of them originally Circles; and by AttraEtion of Comets passing by, were chang'd into Ellipses;
The Position of their several Satellites, which they
still retain, must have been most wisely and wonderfully adjusted, by the Divine Providence, with their
Fellows; with their primary Planets; and with the
Orbits and Periods of the Comets; without which
Correspondence, the present System of the World must
have been vastly alter'd; and the primary Planets

bave lost their Attendants for ever.

LVII. Seeing therefore the Earth still retains its fecondary Planet the Moon, which at its original Formation belong'd to it; if its present Elliptick Orbit be the Effect of the paffing by of a Comet, the Time of fuch passing must have been about three Days after the New or Full Moon. Let og represent a Section of the Ecliptick Periphery; in which the Earth a is performing its annual Course, from West to East, or from o towards g; Let c be the Moon, performing in like manner, (besides her menstrual Revolution the same way, from t by c towards s, about the Earth) her annual Course, with the same Velocity as the Earth, from u towards w, along her Periphery uw, equidistant from the Ecliptick og: Let nm reprefent the Trajectory of the Comet intersecting the Line

Fig. 2.

Line passing thro' the Sun Ii, in the Angle mbi of 12, 14, or 16 Degrees more or less: Let b be the Comet descending from n towards m in its Approach towards its Peribelion: From the Earth's Centre, from d and x, (the Line ax being drawn parallel to the Comet's Trajectory n m,) let fall Perpendiculars to the Trajectory af, de, xy. Now if while the Comet were paffing from f to y, the Moon stood still, and did not proceed in her annual Course along her Periphery uw, she must have been at that Point x, that is, not above one Day past the New at t; and so the nearest Distances af, xy being equal, the Attractions of the Earth by the Comet at f, and of the Moon by the Comet at y, would have been equal also; and by consequence, this Position would have secur'd the future Agreement and Company of these two Planets, and the Time of the passing by of the Comet fix'd to a single Day after the New Moon. But by reason of the Moon's progressive annual Motion along her Periphery uw, while the Comet descends from f towards y; she must have been in that Point of her menstrual Orbit c, where cd is to eq or da, as her Velocity to the Comet's, or as 7 to 10; that so the Comet descending from its nearest Distance to the Earth at f, to its nearest Distance to the Moon at e; and the Moon arriving, at the same time, by her annual Motion, at the Point d, the nearest Distances af, de may still be equal; and the Acceleration of the Earth and the Moon may still be the same. Now this being the Case; the Place of the Moon c must be about 43 Degrees more or less past the Point t, in its menstrual Orbit, or the Conjunction with the Sun; that is, about three Days past the New Moon. And the like will be demonstrated of three Days past the Full Moon, by the same Figure and Reasoning;

if we do but shift the Scene, and let c represent the Earth, and u we the Ecliptick Periphery; a the Moon, and o g its Periphery. For all the rest remaining as above; the Angle d d d which the Moon d must have pass'd after the Full at d, being equal to the alternate d d d would require equal Time to be described; and so the Time proper for the Situation of the Earth and Moon, (which is equally necessary in this as in the former Case) as the Figure represents it, will be about three Days after the Full; as this Corollary asserts.

Coroll. If therefore in a given Year a Comet, in its Descent towards the Sun, accelerated the Earth's and Moon's annual Motions, and thereby chang'd their Orbit from a Circle to an Ellipsis; when the Day of the Year, from the Place of the Perihelion, were pretty nearly determin'd; by this last Lemma, the very Day is determin'd also from the Astronomical Tables of the Conjunction of the Sun and Moon.

LVIII. If our Earth once revolv'd about the Sun in a circular Orbit, whose Semidiameter were equal to the Earth's original Distance from the Sun at its Peribelion, the annual Period was very nearly equal to 12 Synodical or 13 Periodical Months. 'Tis evident, that 12 Synodical or 13 Periodical Months, (equal to each other in the present Case,) are 355 Days, 4 Hours, 20 1 Minutes. 'Tis also evident, that the Eccentricity of the Earth's Orbit, or the Distance between the Focus and Centre of its Ellipsis, was, according to the ancient Astronomers, Hipparchus and Ptolemy, of the entire middle Distance. By the Moderns 'tis found somewhat less, (and those who know Sir !faac Newton's Philosophy, will easily allow of some Diversity in different Ages;) by Tycho'twas determin'd to be near -18; by Cassini fince 12; and last of all by our most accurate Obferver

server Mr. Flamsteed, (as he was pleas'd by Letter with great Freedom to affure me) -1692, or near 17, as Cassini had before determin'd. All which consider'd, we may very justly take a kind of middle between the ancient and the modern Eccentricity for the true original one; that is, about $\frac{185}{10000}$ or more nicely $\frac{184\frac{3}{4}}{10000}$ that is, $\frac{18475}{1000000}$ the Difference between the ancient Semidiameter of the circular Orbit, and the middle Distance in the present Elliptick one; then by the Golden Rule, as the Cube of 1000000, (the middle Distance in the Ellipsis) to the Cube of 981525, (the Semidiameter of the ancient Circle;) fo is the Square of 525969, (the Number of Minutes in our present sidereal Solar Year,) to the Square of the Number of Minutes in the ancient sidereal Solar Year, whose Root being 511460 Minutes, or 355 Days, 4 Hours, 201 Minutes, appears to be exactly and furprizingly equal to the Lunar Year before-mention'd.

Coroll. Upon this Hypothesis the ancient Solar and Lunar Year were exactly commensurate and equal; and 10 Days, 1 Hour, 28½ Minutes, shorter than the present Solar Year. Which last Number, tho' it be not equal to the Lunar Epact at present, is yet rightly assign'd; each Synodical Month being (by the quicker angular Revolution of the Earth then) so much longer, as upon the whole adjusted, the Periods as is above stated: Which on Calcula-

tion will easily appear.

LIX. If a Planet which has a diurnal Revolution on its own Axis, have a new Addition of Matter laid upon its Surface, which no way partakes of that Motion before, its diurnal Motion will be retarded in a fesquialteral Proportion of the Quantity that additional Matter bears to the entire

entire Quantity of Matter in the Planet. For if this additional Quantity of Matter were equally spread over the inward Parts of the Planet, it would then only increase it uniformly in Density, and fo retard its Motion in the exact Proportion of its Quantity of Matter, compar'd with the former Quantity in the Planet. And this would also be the Case, if instead of an equal Dispersion of the Matter, that of each Circle parallel to the Planet's Equator, of which the Planet may be conceiv'd to be compos'd, were plac'd at that Distance from its Axis which the Centre of Oscillation or Percussion of each revolving Radius obtains in it; that is, at two thirds of each Radius's Distance from its Axis, or Centre of Motion. But because the additional Matter is suppos'd to be plac'd on the Surface of the Sphere, and fo at the Circumference of every Circle, its Velocity is fesquialteral to that it would have had at the Centre of Oscillation or Percusfion, and fo its retarding Power will be increas'd in the same sesquialteral Proportion. Q. E. D.

Coroll. If therefore the Quantity of additional Matter be known, the Quantity of Retardation is

known also, and vice versa.

LX. As Comets agree with Planets in a regular Motion about the Sun, the common Centre or Focus of our System, so do they as to their Bulk and Magnitude; being, generally speaking, about the Bigness of Planets, as the Observations of Astronomers demonstrate.

LXI. Besides the Bodies of the Comets themfelves, which are solid, compact, and durable; there is round about the generality of them a vastly large, thin, pellucid Fluid; containing withal great Quantities of opake or earthy Particles, most of them in probability towards the central Solid, while the lightest and rarest, as Vapours, Vapours, are most of them towards the Circumference or Parts remotest from the central Solid, yet constituting together a very consused, irregular, unequally dispos'd, and uncertainly agitated Mass of Bodies; whose Diameter is generally 10, if not 15 times as long as that of the Body it self; and this Mass is called the Atmosphere thereof.

LXII. By reason of the mutual Access and Recess of the Comets, to and from the Sun, their Atmospheres are uncapable of attaining, or at least of long retaining any regular and orderly Situation and Disposition of Parts, according to the Law of specifick Gravity. In short, while they are mov'd in so exceeding eccentrical Orbits, they cannot acquire, or at least not long preserve, such a permanent Constitution as the Planets have, and as the Conservation of Plants and Animals do necessarily require, and are therefore to be look'd upon, in their present State, as uninhabitable, unless for a State of Punishment for their Inhabitants.

LXIII. But in case the Orbit of a Comet were chang'd into that of a Planet, i. e. if its eccentrical Ellipsis were turn'd into a concentrical Circle; or an Ellipsis not much differing therefrom; at a fuitable and convenient Distance from the Sun; there is no reason to doubt but the Parts of that confused Atmosphere which now encompass it to fuch a prodigious Distance, might subside and fettle downwards according to their feveral specifick Gravities; and both obtain and preserve as fettled, fix'd, and orderly a Constitution as a Planet has: which Constitution, if the Atmosphere of a Comet were as well predispos'd for the same as the original Chaos of a Planet, would produce a Planet as fit for the Growth of Vegetables and the Habitation of Animals as that on which we live, or any other in the Solar System.

L 2 LXIV.

LXIV. Besides the central Solid, or Body of the Comet, and its vast Atmosphere encompassing it, there is also generally a long lucid Train, which in the Approach to the Sun is by it acquir'd; and appears to be nothing else but the lightest and rarest Parts of its Atmosphere rarised by the Sun's Heat; which becoming thereby, if not specifically lighter than the Æther, or Atmosphere encompassing the Sun, yet at least so rare and light, as to yield to the Sun's Rays, and to be carry'd away by them, and so to rise in a Mist or Steam of Vapours towards the Parts opposite to the Sun; and this is call'd the Tail of it.

LXV. This immense Cylindrical Column of rarify'd Vapour, tho' its Crassitude or Diameter be usually more than 100000 Miles, is so very much expanded, and in so exceeding rare a Condition, that the fix'd Stars may be discern'd quite through the same, as they may also through the thinnest

and remotest Regions of the Atmosphere.

LXVI. This fo rare, fine, expanded Vapour moves regularly with, and accompanies the Comet it felf in its entire Course, any way whatsoever; even through the System of the Planets, and that without any Disturbance.

Coroll. The vast Spaces between, and beyond the Planets, are not full of subtle or Ethereal Matter; but are either perfectly, or at least sensibly a real

Vacuum or void.

LXVII. The Phænomena of Comets Motions suppose and depend on the annual Motion of the Earth, without which they are insoluble. Thus they sometimes seem to move with greater, sometimes with lesser Velocity, than the Rules of their own, or indeed any other regular Motion require or permit: nay, sometimes they appear to us Stationary and Retrograde: all which, as in the Planets,

Planets, will naturally arise from the Motion of the Earth, and of the Spectator's Eye therewith, and is thence exactly deducible; but without that Hypothesis, cannot be accounted for. Thus also towards the End of their Appearances, they feem to deflect from that great Circle in which they before were feen to move; the Motion of the Earth then being more confiderable, compar'd with that of the Comets; and fo caufing a more fenfible Parallax, or Diversity of Appearance than before, while their own Motion was fo much swifter: and the same is observable in the other Phanomena.

Corollary. Hence arises a convincing Argument for the annual Motion of the Earth: which, as'twas known to be necessary to account for the Phænomena of Planets before; so now appears no less so in relation to those of the Comets. All the heavenly Motions at last attesting the Truth, and establishing the

Certainty of the same.

LXVIII. Tho' fome Comets never come very near the Sun, even in their Peribelia, nay not quite fo near as the Earth it felf; yet others of them approach in their Peribelia so very near to the Sun, that they must be prodigiously heated and scorch'd thereby; and this to fuch a degree, that they may not be entirely cool'd in very many thousands of Years. Thus the last famous Comet 1680, 1681, at its Peribelion on the 8th of December 1680, fustain'd a degree of Heat 28000 times as great as that we feel with us in Summer; or about 2000 times as intense as is that of a red hot Iron. So that, by Sir Isaac Newton's Calculation, if that Comet were as big as our Earth; as dense and solid as Iron; and were throughout equally heated to the foremention'd degree, 'twould scarce in our Air be fully cool'd in 50000 Years. And by confequence Philof. Nat. in the vastly rarer Atmosphere of the Sun, in which Math. p.

the heavenly Bodies revolve, not under a vaftly

longer time.

Corollary 1. Comets do not wholly consist of Vapours, Exhalations, or such other dissipable Matter, as was formerly supposed: otherwise they must have been utterly uncapable of sustaining any Part of so violent a Heat, (which yet we see they sometimes do) without an entire Dissipation and Dissolution.

Coroll. 2. Whereas the Atmosphere of a Comet is chiefly a Fluid, and yet but a small Part thereof by the utmost Heat capable of Rarefaction (which appears from the but small Diminution of the Atmo-Sphere when the Tail is largest, and the Heat most intense) 'tis evident that its Fluid is a very different one from those we are here acquainted withal. For since the main Bulk thereof retains its Constitution and Situation quite through the Action of the most violent Heat imaginable; which would diffipate and rarefy all the Watery, and perhaps Earthy Parts visible with us; it must, by its mighty Density, Gravity, Compastness, or some other Property not belonging to Fluids here on Earth, be uncapable of greater Expansion than it has of it self; and be a compact, dense, or beavy Fluid, or Mass of Fluids, of which we have no obvious Example; and for which we have no proper Epithet or Name among us.

coroll. 3. Tho' Vapour, or the small Parts of Water, be the soonest subject to Rarefaction; and the Tail of a Comet, before its Approach to the Sun, be therefore perhaps nothing but a Mist or Steam of such Vapours; yet may the same Tail after the Perihelion be in part composed of more gross, heavy and opake Corpuscles. For when the Intenseness of the Heat in the Perihelion is sufficient to dissolve and rarefy not Vapour alone, but Sulphur, Nitre, Coal, or other gross and earthy Steams and Exhalations; whatsoever of such a Nature the Atmosphere of the Comet contains, will sure

be in some sort affected, and elevated with the Vapour in the Tail, upon such an Approach of the Comet to the Sun as we are speaking of. Tho' therefore the Tail should be suppos'd in its Descent towards the Sun to be pure unmixed Vapour, or watery Particles, (as withal the utmost Regions of the Atmosphere it self in probability are;) yet the same Tail after the Perihelion, ought to be esteem'd a more beterogeneous and impure Mixture; especially in the lowest Spaces of it, and those Parts which are nearest to that Atmosphere it self, from whence the whole does proceed.

LXIX. The diurnal Motion of Planets is in it felf perfectly diftinct from, and wholly independent on the annual. This I hope will be univerfally granted without any Necessity of a De-

monstration.

LXX. If a Chaos, i. e. a confused fluid Mass or Congeries of heterogeneous Bodies, (suppose it were a Comet's Atmosphere, or any other such like irregular Compositum of mingled Corpuscles) in its Formation were subject only to an annual Motion about the Sun, without any diurnal Rotation about an Axis of its own; the Figure thereof would be that of a perfect Sphere; as from the uniform Force of Gravity, and confequent Equilibration of Parts on all fides, is eafily demonstrable. But if during its Formation it had a diurnal Rotation about an Axis of its own, the Figure thereof (by reason of the great Velocity and consequent conatus recedendi à centro motus, diminishing the Force of Gravity at the equatorial Parts) would be that of an oblate Sphæroid, fuch as an Ellipsis revolving about its leffer Axis would generate.

LXXI. If a Planet confifted in great measure of an Abyss or dense internal Fluid, and a Crust or Shell of Earth plac'd on its Surface; tho' the diurnal Rotation were not begun at the Formation thereof

L 4

thereof from a Chaos, and so its original Figure were Spherical; yet upon the commencing of the faid diurnal Rotation, it would degenerate immediately into that of an oblate Sphæroid, and retain it afterward, as well as if it had put on the

fame at its primary Formation.

Corollary. Since therefore the greater Quickness of the Vibrations of the same Pendulum, and the greater Gravitation of Bodies near the Poles than the Equator, consequent thereupon, demonstrate the former. Regions of the Earth to be nearer its Centre than the latter; and that consequently the Figure is that of an Oblate Sphæroid; 'tis evident, that either the diurnal Motion commenc'd before the Original of its present Constitution; or that its internal Parts are in some degree Fluid, and so were pliable and alterable on the after-commencing of such diurnal And this Corollary extends equally, if Rotation. not more to Jupiter; whose diurnal Rotation is quicker than our Earth's, and by consequence its Figure farther from Spherical. Thus by Sir Isaac Newton's Calculation the Diameter of the Equator of the Earth is to the Axis thereof only as 231 to 229. But in Jupiter, according to the same Sir Isaac Newton's Calculation in his last Edition, as about 9 to 8. Which is very considerable and sensible; and accordingly attested to by the concurrent Observations of Cassini and Mr. Flamsteed.

LXXII. If such an upper Crust or Shell of Earth on the Face of the Abyss, were fix'd and consolidated before the diurnal Rotation thereof commenc'd, it would remain entire, continued, and united all the time of its spherical Figure, or all the time it had no other than an annual Revolution. But by the Beginning of the diurnal Rotation; which would make the Surface of the Abyss and its sustained Orb of Earth put on the Figure

Figure of the Oblate Spharoid before-mention'd; that Upper Orb must be stretch'd, chap'd, and crack'd; and its Parts divided by perpendicular Fissures. For the Periphery of an Ellipsis being larger than that of a Circle where the Area is equal; and the Superficies of a Sphæroid generated by its Circumvolution, confequently, larger than that of a Sphere generated by the like Circumvolution of a Circle, which is the prefent Cafe; that Orb of Earth, 'tis plain, which exactly fitted, and every way enclos'd the Abyss while it was a Sphere, would be too little and strait for it, when it after became a Sphæroid; and must therefore fuffer fuch Breaches and Fissures as are here express'd. And if it be objected, that fince the first Impetus of the dense Fluid tending to the stretching and breaking of the Orb above, is infinitely less than any succeeding Impetus acquir'd by Motion; and fince there is at first no room for actual Motion, there cannot be Impetus sufficient to break the Crust; I answer, that this Objection might deserve to be consider'd, if the Mechanical Cause which we shall hereafter assign of the diurnal Rotation, viz. the oblique Collision of a Comet, was not sufficient to take away the Foundation of it. It being probable that this prodigious Impulse alone would break the upper Crust in some measure it self, and so make way for that fucceeding Impetus of the diurnal Motion which would then have its Effect, and cause still more of those Breaches and Fissures in the upper Crust, which are taken notice of in this Proposition.

LXXIII. The State of Nature in a Planet, constituted as above, while it had only an annual

Revolution, would be as follows.

(1.) By reason of the same Face of the Planet's respecting continually the same Plaga of the Hea-

vens, or the fame fix'd Stars; and its continual Parallelism to it self; all the apparent Revolution of the Sun must depend on the annual Motion; and A Day and a Year be all one. This is evident, because, as a Year is truly that Space in which the Sun feemingly, and the Earth really performs a fingle Revolution round the Ecliptick; fo a Day is truly that Space in which the Sun passes, or appears to pass from any certain Semi-Meridian to the same again once: which Spaces of Time are here the very fame, and fo the Apellations themfelves Year and Day, may indifferently and promiscuously be apply'd thereto.

(2.) The Course of the Sun and Planets, (for the fix'd Stars were then Fix'd indeed; having neither a real nor feeming Motion) must be contrary to what it has appear'd fince: their Rifing being then in the West, and their Setting in the East; which, from the way of their present diurnal Rotation, has fince, as all know, been

quite different.

(3.) There must be a perpetual Equinox, or Equality of Day and Night, through the whole Planet; by reason of the Sun's describing each Revolution a great Circle about the fame, on

which alone fuch an Equality depends.

(4.) The Ecliptick must supply the Place of an Equator also; and the torrid, temperate, and frigid Zones be almost alike dispos'd with regard to that Circle, as with us they are with regard to

the real Equator.

(5.) To fuch as liv'd under or near the faid Ecliptick, the Poles of the World or Ecliptick, the only ones then in Being, would be at or near the Horizon; and fo not confiderably elevated or depress'd to the Inhabitants there. But upon the commencing of a quicker diurnal Rotation, the fame

fame way with the annual, the Case would be in

all these Particulars quite different. For,

(1.) By reason of the Quickness of the new diurnal, in comparison of the ancient and continued annual Revolution, Days and Years would be entirely distinct Spaces of Time: the Sun returning to the same Meridian very often, while (from one Tropick to another, and so to the same again) he appear'd to have compleated his longer annual Period.

(2.) By the diurnal Rotation of the Planet from West to East, the most sensible Revolution of the Sun, of the other Planets, and of all the heavenly Bodies, would be from East to West; and they would all Rise at the former, and Set at the latter Part of the Horizon.

(3.) The perpetual Equinox would be confin'd to the Equatorial Parts of the Planet; and all other Countries would have longer Days in Summer, and shorter in Winter, as now obtains in the World; when only March 10, and September 12, have Day and Night equal to each other

through the whole Earth.

- (4.) The Ecliptick and Equator would be entirely different; the latter a real Circle, or Line, on the Planet, equally diffant from its own proper Poles; the former confin'd to the Heavens, and not, with respect to the Planet, easily to be taken notice of. The torrid, temperate, and frigid Zones would regard the new Equator, and be from it distinguish'd and dispos'd almost in the same manner as before they were from the Ecliptick, and that with greater Niceness, and more exact Boundaries.
- (5.) The Poles of the World, which before were to the Inhabitants near the ancient Ecliptick, neither confiderably elevated nor depress'd, but fituate

situate near the Horizon, would seem entirely chang'd, and particularly at the Interfection of fuch ancient Ecliptick, and the fucceeding Northern Tropick, the Northern Pole would appear to be elevated above, the Southern depress'd below the Horizon; and the Sun and Planets, whose Motions were before either exactly or nearly over the Vertex, and so at or almost at right Angles, the Horizon would appear inclin'd or bent towards the Southern Parts; and that way become oblique, and at plainly unequal Angles with the Horizon for ever after.

Corollary 1. To the Inhabitants of that Place last mention'd, the Beginning of the Night, and of the Autumn, or Sun-set, and the Autumnal Equinox, would in such a primitive State of a Planet, be either exactly or nearly coincident: And vice versa, the Place to which they were so coincident, was that Intersection just now assign'd, or at least under the

same Meridian therewith. Coroll. 2. Such a Planet would be more equally

babitable in the second, than in the first State. For, from the Spherical Figure of the Planet at first, the Central bot Body, (of which bereafter) would equally reach all the Regions; and the Sun chiefly Hypoth.1. affect the Torrid Zone; and still less the Temperate, but least of all the Frigid ones; as he does at present. So that if any one of these Climates, by reason of the due Proportion of Heat afforded it from the Sun, were habitable, neither of the other could with any fort of Equality be so too. But when the Figure of the Planet became an oblate Sphæroid, (as on the commencing of the diurnal Rotation we have Shew'd it would;) the Proportion of Heat would be upon the whole more equable through the several Climates of the Planet; the greater Vicinity of the Central Hot Body to the Frigid Zones, in some meafure

Vid. Arg. 7. infra.

Sure compensating the greater Directness of the Sun's Position to the Torrid one; and rendring the compleat Surface of the Planet somewhat more univer-

sally babitable on account thereof.

Coroll. 3. Where the States of external Nature are so very different (as on the same Planet before and after its diurnal Rotation begin, they appear to be;) its reasonable to suppose, that the Natures, Constitutions, and Circumstances of Creatures, which were the Inhabitants in such different States, must be suitably and proportionably different from one another.

Coroll. 4. 'Tis therefore, without due Allowance for every thing, very unsafe arguing from one State or its Circumstances to another; and very unjust to conclude Things unaccountable or absurd in one, only because they are strange and unknown to the other State. The like is to be said of Phrases, Descriptions, or Relations concerning one, which may easily be misunderstood in the other, without an exact Consideration and Allowance for the Diversity of Things belonging thereto.

LXXIV. If the Atmosphere of a Comet, or any other such a sluid, confused Chaos, were by a regular and orderly Digestion and Subsidence brought into a consistent and durable State; the universal Law of specifick Gravity must prevail, and each Mass take its Place, generally speaking, according to it, (whether 'twere sluid or solid) from the Centre to the Circumserence of the whole.

LXXV. Fluids are at least as capable of all De-

grees of Density and specifick Gravity, as Solids. Thus the Proportion of the heaviest and lightest Fluids, Quicksilver, and Oil, are nearly as sisteen and one; when yet the Proportion of the heaviest Solid, Gold, and the lightest Earth or Mold which we find here, is not quite as ten to one. On which account, 'tis highly reasonable to allow, that pos-

fibly there may be as much Variety and Diversity in the Fluids belonging to a Planet, as we see there is in the Solids thereof.

Corollary. From these two last Lemmata, it appears as reasonable to suppose a great Part of the internal Constitution of a Planet to be a Fluid, or System of Fluids, as to be a Solid or System of sirm and earthy Strata, which yet is usually supposed; and which of these Hypotheses best suits the Constitution of the Original Chaos, and the Phænomena of Na-

ture afterward, is in reason to be embrac'd.

LXXVI. In the regular Formation of a Planet from a Chaos, it must be much more rare and unusual to lodge very heavy Fluids near the superficiary Regions, among Bodies of a lighter and rarer Texture, than Solids equally fo. For the Corpuscles of very dense and heavy Solids, when they are once entangled among, and mix'd with others tho' of very different Denfity and specifick Gravity, must afterward (let the Place proper for Bodies of their Weight be never fo much nearer the Centre) lye according to their first casual Situation. Thus if you take Dust of Gold, Silver, or Brass, with Sand, Gravel, or Saw-dust, and mix them, or let them subside indifferently together, as they place themselves at first, so, notwithstanding their different Weight, will they be fituate ever after. But in Fluids the Case is quite otherwise, for they will obtain their due Place, not only when mix'd with Fluids, but with any folid Corpufcles whatfoever. Nay, besides that, they will penetrate the Interstices of Bodies heavier than themselves; and unless where those Bodies are firmly consolidated or conjoin'd together, will fettle into, and fill up the same, without any regard to the Situation according to fpecifick Gravity. Fluids are compos'd of moveable, separable Parts, diffusing, subsiding, and

and flowing every where, and thereby will be fo far from resting at Regions too high and remote from the Centre, considering their specifick Gravity, that how light foever they are, unless the earthy Parts under them be either fix'd and consolidated, or their Interstices already entirely fill'd and fatur'd, they will infinuate themselves, and by degrees approach as near as possible to the Centre of that Planet to which they belong.

Corollary 1. Tho' our Earth should contain vast Quantities of dense and heavy Fluids within, as well as like dense and heavy Solids; yet 'tis more strange that we have near the Surface one Specimen of the former, (viz. Quicksilver) than that we have so many Sorts, and so much larger Quantities of the latter (the Mineral and Metallick Bodies) much denser and beavier than that common Earth among

which they are found.

Coroll. 2. No Argument can be drawn from the Variety of dense and heavy Solids, and the single Instance of dense and heavy Fluids, to prove the Improbability of a subterraneous, dense, and heavy Fluid, or System of Fluids, on whose Surface our Orb of Earth may be suppos'd to rely; if the other Phæno-

mena of Nature require such an Hypothesis.

LXXVII. If a Chaos were chiefly compos'd of a dense Fluid, of greater specifick Gravity than its folid, dry, or earthy Parts, the Place of fuch a dense Fluid upon regular Formation, would be nearest the Centre, and the folid or earthy Mass would encompass it round, enclose it within it self, and rest upon its Surface; and vice versa, if an Orb of Earth be situate on the Surface of a Fluid, that Fluid is denser and heavier than the entire Columns of fuch an Orb of Earth confider'd together.

LXXVII. If a Solid be either contain'd in, or fall upon a Fluid of greater specifick Gravity than it self, it will neither sink to the Bottom, subside entirely within, nor emerge quite out of the same; but Part of it remaining immers'd, the other Part will be extant above the Surface of the Fluid; and that in a different Degree, proportionably to the different specifick Gravity of the

Solid, compar'd with that of the Fluid.

LXXIX. Such a Solid will continue to that certain Depth immers'd in the Fluid before-mention'd, that if the Space taken up thereby were fill'd with the Fluid, that Portion of the Fluid were exactly equal in Weight to the whole Solid. Thus, if a Cube of Wood or Brass were immers'd in a Fluid of twice its specifick Gravity, it would one half fubfide within, and the other half be extant above the Surface of the Fluid. If it were immers'd in a Fluid of thrice its specifick Gravity, two thirds of it would be extant, and but a third Part inclos'd within the faid Surface, and fuitably hereto in all other Proportions whatfo-These two Propositions are demonstrated by Archimedes, and are the known Foundations of Hydrostaticks.

LXXX. If therefore folid Bodies, equal in vifible Bulk, or taking up equal Spaces, but of unequal Denfity and specifick Gravity, rest upon the Surface of a Fluid denser and heavier than themfelves, they must remain immers'd in the same in different Degrees; the heaviest sinking deepest, and the lightest being the most extant above the Fluid. Thus, if six several Cubes of equal apparent Magnitude, made of Gold, Lead, Silver, Brass, Iron, and Stone, were laid upon the same Fluid denser and heavier than any of them, every one severally would sink so much deeper as it was heavier, and thereby the upper Surface arising from them all,

become very unequal.

LXXXI.

LXXXI. If upon the first general Digestion and Separation of Parts in a Chaos, the upper Regions are for the most part compos'd of liquid or sluid Bodies, with only a few dry, solid, or earthy Parts intermix'd; the outward Surface, after the Formation is entirely over, will be smooth and even, as the Surface of Liquors constantly of it self is. But if, on the contrary, the Quantity of dry, solid, or earthy Parts be vastly greater than of the liquid or sluid ones, the Surface will be rugged and uneven, by the different Degree of the Immersion of the different Columns thereof, in that dense Fluid

or Abyss upon which the Orb is plac'd.

Corollary 1. In the former Case all the Corpuscles will obtain their proper Place, (the Fluidity freely permitting their Passage) according to their respe-Etive Specifick Gravity. But in the latter they must take their Places rather according as they chanc'd to be before situate, than according as their specifick Gravity would of it self determine them. The Case of that Part of the Lemma, and of this Corollary, being almost the same with that before-mention'd; where the Dust of Gold, Silver, or Brass, with Sand, Gravel, or Saw-dust, are suppos'd to be let fall uncertainly upon a Fluid beavier than the whole mixed Mass taken together; For those Columns where the Gold, and other Metallick Dust were predominant, sinking farthest into the Fluid, and those where Sand, or the other lighter Particles were so, not so far; the upper Surface must be uneven; and withal the several Species of Corpuscles must retain that Place where they chanc'd to be at first dispos'd, without any Possibility of recovering any other which by the Law of specifick Gravity were due to them.

Coroll. 2. If therefore the upper Regions of a Chaos, whose Quantity of Liquid is very small in comparison of its solid Corpuscles, do subside into a Fluid

of greater specifick Gravity than its own Columns taken together are, an Orb of Earth will be compos'd on the Surface of the Fluid; and its different Columns being made up of Bodies of very different Natures and specifick Gravities, (as must bappen in such a confused beterogeneous Mass, as we call a Chaos, particularly the Atmosphere of a Comet;) that Orb will sink into the Fluid in different Degrees; and thereby render its Surface unequal, or distinguished into Mountains, Plains, and Vallies. So that by how much any Column was compos'd of rarer, more porous, and lighter Bodies, by so much would it produce a higher Mountain; and in like manner, by bow much a Column was compos'd of more close, fix'd, dense and solid Bodies, by so much would it produce a lower Valley; and so vice versa, the higher any Mountain, the more rare, porous, and light its Column; and the lower any Valley, the more fix'd, close, dense, and solid its Column must needs be suppos'd.

Coroll. 3. If therefore any Planet be immediately in its first Formation of an unequal Surface, compos'd of Mountains, Plains, and Valleys; and the Order of its internal Strata be disagreeable to the Law of specifick Gravity; it has exactly proper Indications to prove, that the Quantity of Fluids in the upper Regions was originally small in comparison of its earthy Parts, and that such an uneven Orb is situate on a Fluid denser and heavier than it self. [Which Case how exactly it corresponds to the known Circumstances of our Earth, is left to the Consi-

deration of the Reader.]

LXXXII. If any of the heavenly Bodies be plac'd near a Planet, by the Inequality of its Attraction of the Parts at unequal Distances from it, a double Tide, or Elevation of the Fluids thereto belonging, whether they be inclos'd within an Orb of Earth, or whether they be on its Surface above,

above, must certainly arise; and the diurnal Rotation of fuch a Planet being suppos'd, must cause fuch a fucceffive Flux and Reflux of the faid Fluids, as our Ocean is now agitated by. Thus, if adbc be the Earth, and biDb be a Comet, or any of the heavenly Bodies plac'd near the fame, and the upper Orb of the Earth be fituate above a vaftly large fluid Abyfs, the Comet or heavenly Body will confiderably more attract the nearer Parts about b, than it does those about the Line dc, or the middle Parts of the Earth; by which Attraction where-ever the Particles attracted are not folid, fixed, and unmoveable, they will be elevated or raised into a Protuberance dbc. In like manner, the Comet or heavenly Body will confiderably more attract the middle Parts near the Line dc, than those more remote about a, and thereby occasion their slower Motion towards it felf, than that of the forefaid middle Parts; and confequently permit them to remain farther off the Centre; or, which is all one, to elevate themselves into the opposite Protuberance dac. And this Effect not depending on the Situation of the Fluid under the Orb of Earth, is equally evident with respect to the Atmosphere and Ocean upon, as any Abyss beneath the fame, and fo must cause a double Tide or Elevation of the Fluids of the Globe. And this double Tide, by the diurnul Rotation of the Earth from West to East, will shift continually from East to West, and cause the Elevation and Depression of the Ocean twice each Revolution, which we fo wonder at, and take fo much notice of amongst us.

Corollary 1. Since therefore the Vicinity of the Moon, and the Vastness of the Sun's Body, make their Force considerable with regard to the Fluids of

M 2

our Earth, their several Attractions must produce two several double Protuberances, Tides, or Elevations of the Ocean and Atmosphere thereof; whence must arise very remarkable Phænomena relating thereto; of which in the following Corollaries.

Coroll. 2. The sensible Elevation or Tide would be only double, as if it arose from one of the Luminaries, but such as from the Composition of their

attractive Powers were to be expected.

Coroll. 3. When therefore the Sun and Moon's Forces unite, or when they are situate in or near the same Line through the Centre of the Earth, which bappens only at the New and Full Moon, the Tides must be the greatest; and when their Forces contradict each other, or when they are fituate in or near the middle between the New and Full, at the Quadratures; the Tides must be the least. In the former Case, the visible Flux and Reflux arises from the Sum; and in the latter, from the Difference of their Attractions; and fo the Spring-Tides, after the New and Full, are the Refult of the Elevation and Depression of both the Sun and Moon conjointly; but the Nepe-Tides, after the Quadratures, the Refult only of the prevailing Elevation and Depression of the Moon above those of the Sun; and by consequence, exactly agreeable to Experience much less than the other.

Coroll. 4. As, if the Luminaries were situate in the Axis of the Earth, the diurnal Revolution would not more expose any Places to their Force one time than another, and no Reciprocation of Flux and Reflux would arise; so the nearer they are to such a Position, the less must such a Reciprocation be, and the farther from such a Position, the greater. On which account, the Elevation or Tide must be greater after the Equinoctial New and Full Moon, than after the Solstitial; and the highest Spring-Tides be thole

those after March 10. and September 12. as all Experience attests them to be, and the Situation of the Luminaries near the Equator of the Earth, and

farthest from the Poles, does require.

Coroll. 5. Since by the Vicinity of the Moon, the visible Tides follow her Influence; and since withal our Earth in about 243 Hours, recovers the same Situation with regard to her; 'tis evident, That in the said Space, each Part of the Ocean must have twice been elevated, and twice depress'd, or bad a double Flux, and double Reflux of its Waters, as all Observation assures us it really bas.

LXXXIII. The Elevations or Tides caused by two different Bodies at the same Distance, are always proportionable to the Quantity of Matter in the same attractive Bodies; as from the Force Vid. Lem. of Gravitation in general, proportionable to the 7. Priùs.

attracting Body, will eafily be understood.

Thus, if a Comet or Planet, whose Quantity of Matter were ten or twelve times as much as the Moon's, were at an equal Distance with her from the Centre of the Earth, the Tides, whether of the internal Abyss, if such there be, or external Air and Water, would be ten or twelve times as

high as those she is the Cause of with us.

LXXXIV. The Elevations or Tides caused by the same, or an equal Body at various Distances, are reciprocally in a triplicate Proportion of such Distances. Thus, if the Moon should approach as near again to the Earth's Centre, as now she is, the Tides would be eight times as high; if thrice as near, twenty feven times as high; if four times as near, fixty four times as high as those she at her present Distance produces.

Corollary 1. Hence appears (which Dr. Bent- Serm. 8. ley has in part also observed) a signal Instance of P. 14. the Divine Providence respecting the Constitution of the

M 3

the World in placing the heavenly Bodies at so vast a Distance from each other, and the greatest at the greatest Distance, that when we consider it, we cannot but be amazed at it. For had they been situate considerably near to one another, they would have caus'd prodigious Disorders; and in particular such destructive Tides, wherever there were vast Quantities of Fluids, or a great Ocean, that neither Plant nor Animal could have avoided its Force, or sustain'd its Fury; which by the wise placing the heavenly Bodies at so vast a Distance is entirely prevented.

Coroll. 2. The same careful Providence is alike, and on the like accounts, conspicuous in the Smalness of the secondary Planets; whose Nearness otherwise being so great, must have been attended with the foremention'd Inconveniencies; but is now perfectly secure from them. Thus, for Instance, our secondary Planet, the Moon, which is so near to us,

Lem. 36. is withal so small, (scarce the 39th Part so big priùs. as the Earth, scarce the 3700th Part so big as Saturn, or the 8600th as Jupiter, and scarce above the nine millioneth so big as the Sun) that the Tides so caused are but of some sew Feet in height, very moderate, not at all incommodious, nay, in truth, very advantageous to us; which in the other secondary Planets is no less true, and no less remarkable.

LXXXV. Of the two Protuberances produc'd by the Presence of a Comet, or other celestial Body, that which is directly towards that Body, as dbc, is larger and higher than the opposite one, dac. This is à priori demonstrable; and tho' it be too small to be observ'd in the Tides of our Earth, yet will it be very sensible in that Case to which the Lemma is hereaster to be apply'd.

LXXXVI.

Fig. 7.

LXXXVI. If fuch a double Tide were very great, and should on a sudden be produc'd in a fubterraneous Abyss, on whose Surface an Orb of Earth, fix'd and confolidated together, were fituate, it would raise or depress the Regions of that Orb, as it felf was rais'd or depress'd; and by putting on the Figure of an oblong Sphæroid, (fuch as an Ellipsis revolving about its longer Axis would generate) and thereby increasing its Surface fo much, that the Orb of Earth could not fit and inclose it uniformly as before, would strain and stretch the said Orb of Earth, would crack and chap it, and cause Fissures and Breaches quite through the same; or if such there were already, it would afresh open and divide the same. All which is eafily understood from what has been already faid of a Case very agreeable to this we Lem. 72. are now upon; and so can stand in need of no priùs.

Corollary 1. Since in a Comet approaching to a Planet, this Force does increase in a triplicate Proportion of the Distance reciprocally; if the Quantity of the Elevation of the two opposite Tides be known, and the Magnitude of the Comet be known, its nearest Distance will by Calculation be determined: and so if the Elevation be known, and the nearest Distance, the Magnitude of the Comet will

thereby be determined also.

farther Explication here.

Coroll. 2. Since therefore from the Knowledge of the nearest Distance, the Magnitude of the Comet is discoverable, both by the Quantity of the Eccentricity of the Earth's Orbit, as in Coroll. 2. to Lem. 55. and by the Elevation of the two opposite Tides as in this, i. e. by two ways, the former of which implies the Increase of the Force in a single Proportion of the Distance reciprocally, and the latter in a triplicate reciprocally; to find a Comet M 4

which shall comply with both these Methods, is to find one single given Comet of one single Magnitude, and no other. So that by these two ways taken together, the Magnitude of the Comet is exactly determined. For if any other Comet be supposed lesser or greater, it must then be nearer or farther off to produce the same Effects; and if it be so much nearer or farther off, as one Phænomenon requires, it will be too near or too far for the other Phænomenon, and so perpetually: so that none but one single Magnitude and one single Distance will correspond to both Phænomena.



මහත්වෙයවෙයවෙයවෙයට දේ බහ්ධවෙයවෙයවෙයට ම

BOOK II.

HYPOTHESES.

I. THE Antient Chaos, the Origin of our Earth, was the Atmosphere of a Comet.

This Proposition, however new and surprizing, see the Tewill, I hope, appear not improbable, when I shall stimonies have shewn, That the Atmosphere of a Comet about the has those several Properties which are recorded of the at the the ancient Chaos: That it has such peculiar Pro-first Phaperties besides, as lay a rational Foundation for nomenon some of those Phanomena of our Earth, which afterward. can scarce otherwise be philosophically explained.

can scarce otherwise be philosophically explain'd; and that no other Body, or Mass of Bodies now known, or ever heard of in the World, can stand in Competition, or so much as pretend to the same Character, which it so agreeably corresponds to: which will be the Design of, and shall be comprized under the following Arguments.

(1.) The Names of these two Bodies, or Systems of Bodies, are exactly the same, and equally agreeable to the Nature of each of them. The original Chaos, by the ancient Tradition of the Phænicians, was styl'd, 'Ane ζοφώδης η ωνουματώδης, and Πνοη Αέεω ζοφώδης; in English, A dark and stormy Atmosphere. Which Appellation, (the constant Character of that Mass encompassing the Body of a Comet, and at the same time of the old Chaos) if we suppose it to have been as sitly by Antiquity apply'd to the latter, as certainly, Observation being

being Judge, it is to the former; is as proper a one for our present Purpose, as could possibly be

defir'd.

(2.) The main Bulk of the ancient Chaos, and of the Atmosphere of a Comet, is a Fluid, or System of Fluids. As to the former, 'tis both necesfary to be presuppos'd in order to the succeeding Separation, and regular Disposition of the Parts; and is confirm'd by all the Accounts of it. But Moses himself being express, I shall content my felf with his fingle Testimony; who not only Gen. i. z. calls it an Abys, but gives it the Style of Waters. Darkness was upon the face of the deep, and the Spirit of God moved upon the face of the waters. Now, that the main Part of a Comet's Atmosphere is also a Fluid, appears both by its Pellucidness, (a thing unufual in Bodies, but fuch as are, or once were in a fluid Condition) and by those perpetual Changes and Agitations of Parts within the Regions of it, which in any other than a Fluid are plainly impossible; and which indeed, withal, have hitherto feem'd fo visible and re-

(3.) The Chaos is describ'd to have been very stormy and tempestuous; of which some of the ancient Writers take particular notice. To which those frequent and violent Agitations and Changes, those strange, uncertain Hurries of opake Masses hither and thither, which the Phanomena of Comets Atmospheres present us with, most

markable, that thence Men were ready to imagine the whole Mass to be nothing else but a Congeries of Vapours or Clouds, uncertainly jumbled toge-

ther, and as uncertainly diffipated again.

exactly agree.

(4.) The Chaos was a mixed Compound of all forts of Corpuscles, in a most uncertain confus'd and disorderly State; heavy and light, dense and

rare,

rare, fluid and folid Particles were in a great meafure, as it were at a Venture, mingled and jumbled together. The Atoms, or fmall constituent Parts of Air, Water and Earth, (to which, together with Fire, the Name of Element has been peculiarly apply'd) every one were in every Place, and all in a wild diffurb'd Confusion. This is the very Essence, and enters the Definition of a Chaos; in which therefore all both do, and must agree. And if any one carefully confiders the perpetually various Visage of a Comet's Atmosphere, its vast Extent, the no manner of Order or Method of its feveral Appearances, and remembers that in some Comets it has in its near Approach to the Sun, been fcorch'd and burn'd by a Degree of Heat many hundred times as intense as the Sun's is with us in the midst of Summer, he will not wonder that I affert the Parts of this Atmosphere to be in a perfectly confus'd and Chaotick Condition. One might indeed as well, and as reasonably, expect Order and Method in the ruinous Relicks of a City burnt to Ashes, or in the Smoke proceeding from the same, as in several, at least, of those Atmospheres we are speaking of.

(5.) The ancient Chaos, just before the Beginning of the fix Days Creation, was very dark and caliginous. Darkness was upon the face of the Gen. 1.2. deep, fays the facred, and the very same say the prophane Writers. Now, when we every Year see how far that small Company of collected Vapours, of which a Cloud consists, can go towards causing Darkness on the Face of the Earth; we may easily guess how thick the Darkness of the Comet's Atmosphere must needs be, when all those earthy and watery Corpuscles, which slying up and down in the vast Regions thereof, do now so often, and so much obscure the Comet's central Bo-

dy, and are here so very fensible; when all these, I fay, shall rise up, and make a confus'd cloudy Orb on the more confin'd Surface of the Atmosphere of many scores, if not hundreds of Miles thick; as must happen in the Beginning of its Formation. If this be not sufficient to account for this thick Darkness on the Face of the Abyss, I know not what can. So that if we refer the Words of Moses to the proper and peculiar Time only, when they are introduc'd, viz. That just before the Beginning of the fix Days Creation, that Place of the Chaos where afterwards the Earth's Surface and the Air was, had Darkness on its Face; we have fufficiently here already accounted for it. But if we suppose that the Darkness refers also to all the ancient Time prior to this Creation, and thence object, that the Atmosphere of a Comet, which is a transparent Fluid, and illuminated continually, cannot be that dark Chaos in Moses; I answer, That tho' indeed, "All the upper Part of the 44 Atmosphere of a Comet, thro' which we see 66 the fixed Stars, is transparent, yet the lowest Part next the Nucleus, or denfe Body, feems 66 to be opake and dark like a very thick Mist, 46 fo as to hide the Nucleus it felf from our Sight, se and cause Darkness upon the Face of the Deep. " For the Changes which some observe in the Nucleus of Comets are to be suppos'd not in the se folid Body, but in the cloudy Bottom of the "Atmosphere, which next encompasses the Nucleus. And this Darkness upon the Face of the " Deep, might continue till the Comet was grown " cold, and all the denfer Part of the Atmo-" fphere was fubfided; and be greatest while those denser Parts were in a State of coagulating " and subsiding; i. e. at the particular Time di-46 rectly referr'd to in the Mosaick History.

(6.) Our

(6.) Our upper Earth, the Product of the ancient Chaos, being in all Probability founded on a dense Fluid or Abyss, as will appear in the Sequel, the main Part of the Fluid of that ancient Chaos, must, by consequence, have been such a dense and heavy one as is here mention'd. And indeed, 'tis in it felf but very reasonable, if not necessary, to allow the inferior Parts of a fluid Chaos to have been compos'd of much denfer! and heavier Masses than the superior, or than Water, the main visible Fluid of our Globe. For, if we consider the Matter in any fort according to the Law of specifick Gravity, all heavy Fluids must, at least, as certainly be near the Centre, as like heavy Solids; and 'tis but mechanical to allow that in a confus'd Fluid in some measure, as well as exactly in a digested one, the Fluids contain'd in the inner Regions must be much heavier than those at or near the outer Surface thereof. But besides, 'twill be hard to account for the confus'd moving State of the earthy Parts, or, which is much the fame, the Fluidity of the entire Chaos, without allowing a much greater Quantity of Fluids in it, than what we now fee with us, the Waters of our present Earth; and those of a Density and Gravity fit to retain their Posts, as well nearer the central, as the superficiary Parts. And that on this account, (of the Comet's Atmosphere's fix'd and dense Fluid) 'tis peculiarly adapted to the aforefaid Description of the Chaos, is evident by what has been already Coroll. 2. observ'd of the same; to which I refer the Reader Lem. 68. for Satisfaction. prins.

(7.) Whereas very many, and very confiderable Phanomena of Nature, (which Dr. Woodward Essay, has excellently observ'd) as well as ancient Tradi. Part 3. tion, seem to require and suppose a certral Fire, Sect. 1.

or internal Heat diffusing warm and vigorous Steams every way from the Centre to the Circumference of the Earth; and whereas'tis very difficult on the common Hypotheses, or indeed on any hitherto taken notice of, to give a mechanical and philosophical Solution of the same; if we will but allow the Proposition we are now upon, that the Earth, in its Chaotick State, was a Comet, a most easy and mechanical Account thereof is hereby given, and the Phanomena of Nature render'd plain and intelligible. For a Comet, besides its thinner sluid Atmosphere, confifting of a large, dense, folid, spherical Body, [or Vid. Lem. Loadstone; and sometimes approaching so near the 68. priùs. Sun, that the Heat acquir'd then, though sooner failing in the thinner and expos'd Atmosphere, will not do fo in the central folid, under very many thousands of Years; nothing can better suit the Case of our present Earth, than to allow a Comet's Atmosphere to have been her Chaos; and the central Body of the Comet, the Source and Origin of that central Heat, which our Earth appears still to inclose within it.

However, it must here be observed, that althor with some, we should suppose all the Phanomena before hinted at to be accountable without any internal Heat, yet will not this disagree with the present Hypothesis, that the Earth was once a Comet; because some Comets approach so very near the Sun, (as that samous one in 1680, 1681.) that their central Solids must be exceeding hot, and retain the same a long Time; and others (as that in 1664) descend not so low as the Orbis Magnus of the Earth, and so are never heated so much as our Earth is in Summer; and therefore the the Acknowledgment of a vigorous central Heat is a great Argument that the Earth was once a Co-

met,

met, as solving what is otherwise insoluble, yet is not the Denial of the same any Argument against it: because it may as easily be supposed to have been one of those whose central Solids would not be so violently heated, as one of those which would have been so.

(8.) The Bigness of Comets and of their Atmospheres, agrees exactly with the Supposition we are now upon. For tho' the Atmospheres are 10, Lem. 60, or perhaps 15 times in Diameter as big as the 61. priùs. central Bodies, (which yet have been formerly observ'd to be near the Magnitude of the Planets) and thereby of a much larger Capacity than this Argument supposes; yet if, from that thin, rare, expanded State in which they now are, they were suppos'd to subside or settle close together, and immediately rest upon the central Body; as on a Formation they must do; the entire Mass would make much fuch Bodies in Magnitude, as the Planets are: as Astronomers, from the Observations made about them, will readily confess. So that when, to all the other Inducements to believe these Atmospheres to be the same Masses of Bodies we call Chaos's, (from one of which all Antiquity, facred and prophane, derive the Origin of our Earth;) it appears that the Magnitude is also exactly correspondent; I know not what can be alledg'd to take off or weaken the Force of them. Which general Conclusion might be confirm'd by some other Similitudes between them and the Planets, observable in the succeeding Theory, or probably deduc'd from their Phanomena; which I shall not at present insist particularly upon. So that on the whole Matter, upon the Credit of the foregoing Arguments united together, and confpiring to the same Conclusion; I may, I think venture to affirm, That as far as hitherto present Nature

Nature and ancient Traditions are known, 'tis very reasonable to believe, that a Planet is a Comet form'd into a regular and lasting Constitution, and plac'd at a proper Distance from the Sun in a circular Orbit, or one very little eccentrical; and a Comet is a Chaos, i. e. a Planet unform'd, or in its primæval State, plac'd in a very eccentrical one: and I think I may fairly appeal to all that the most ancient History, or solid Philosophy can produce hereto relating, in Attestation to such an Afsertion. Especially consider-

ing withal,

(9.) Lastly, That there is no other Pretender, no other Mass of Bodies now known, or ever related to have been known in the whole System of Nature, which can stand in Competition, or so much as seem to agree to the Description of the ancient Chaos, but that which is here affign'd and pleaded for. Now this I am secure of, and all will and must grant: They cannot but be forc'd to confess, that (the Atmosphere of a Comet set aside) they have no other Idea of the Nature and Properties of that Mais of Bodies call'd a Chaos, but what prophane Tradition, with the Concurrence of the holy Books, afford them; without any visible Instance or Pattern in Nature. Which Acknowledgment, join'd to the remarkable Correspondence of the Particulars before-mention'd; and the no Objection of any Moment, as far as I fee, to be produc'd to the contrary; is, I think, a mighty Advantage in the present Case. All that can reasonably be requir'd farther is, that the Phænomena of the Earth, to be superstructed on this Foundation, and deriv'd fucceffively through the feveral Periods, to the Confummation of all Things, prove Coincidents to this Hypothesis, and confirm the same: which being the Attempt of

of the following Theory, must be by no means here pretended to before-hand; but left to the impartial Judgment of the Reader, when he is arriv'd at the End of his Journey, and digested the whole Scheme. From the entire and conjoint View whereof, and not from any Particulars by the way occasionally reflected on, a prudent and well-grounded Sentence is to be pass'd upon it, and upon feveral of the prior Conclusions themselves also. However, since here is a known and visible Foundation to depend on; and the Reader is referr'd to no other Chaos than what himself has seen, or, 'tis probable, may in a few Years have Opportunity of feeing; it must be at the least allow'd a fair and natural Procedure, and of the Confequences whereof every thinking and inquisitive Person will be a proper Judge. The Reasonings proceeding, without begging any precarious Hypothesis at first, of the Nature of that old Fund and Promptuary whence all was to be deriv'd, or fending the Reader to the utmost Antiquity for his Notion thereof; to which yet, in the most authentick Accounts of the Primitive Chaos now extant, I fear not to appeal, and submit my felf.

If it be objected, that because Comets have no Satellites revolving about them, as the Earth and others of the Planets have, therefore the Planets cannot have proceeded from Comets; I answer, that I am not satisfy'd that no Comets have secondary Comets or Satellites revolving about them. I think the Observations we have yet made about Comets are not nice and numerous enough to determine this Point; nay rather, what the Histories of many Comets relate about the various Shapes and Figures and Positions of many Comets, or their Tails, seems to be hardly accountable, unless we allow lesser Comets to have now and then been

Compa-

Companions to the greater, and by their various Positions and other Circumstances, to have occafion'd fome at least of that Variety and Strangeness in many of their Phanomena above-mention'd. And if it be again objected, that 'tis not probable our Earth should have been once a Comet, because in all past History no other Comet has been observ'd to stop and become a Planet; I answer, That as the Earth is perfectly inconsiderable in comparison not only of the Universe, but also of the Solar System; so I believe is 6000 or 7000 Years, the Period I suppose of its Duration; much more about 2000 Years, the almost utmost Reach of our Astronomical Histories, to the Duration of the whole System. Worlds, 'tis probable, are not form'd every Age, nor perhaps every hundredth, or thousandth Age neither.

II. The Mountainous Columns of the Earth are not so dense or heavy as the other Columns.

This Proposition will also, I imagine, be new and unexpected to very many; but I hope the following Arguments, which I shall very briefly propose, will prove it to be no unreasonable or

precarious one.

(1.) Mountains, so far as we can penetrate into them, [at least if ever we do penetrate into the true Antediluvian Mountains themselves; which is also to be supposed in some other Arguments] are usually stony and rocky, and by consequence lighter than the main Body of the Earth. For tho' Stone be somewhat heavier than the uppermost Stratum or Garden Mould, as some style it; yet'tis considerably lighter than that beneath the same. For if we compare its Weight with that in the

the Bottom of our Mines, which is alone confiderable to our Purpose, (our upper Strata, as will hereafter appear, being generally factitious, or acquir'd at the Universal Deluge) we shall be forc'd to own the Necessity of the Consequence of the present Argument. The specifick Gravity of Stone is to that of Water, as 14 to 51, but the specifick Gravity of the Earth at the Bottom of our Mines is to that of Water as 3 to 1, sometimes as 4 to 1, nay, sometimes Newt. almost as 5 to 1, and therefore to be sure con-p. 417. siderably denser and heavier than Stone: So that were the mountainous Columns of the Earth entirely made up of Stone, they would (without the Consideration of those empty Caverns they enclose) be plainly the lightest Parts of the whole Earth.

(2.) Those very dense and heavy Corpuscles of Gold, Lead, Silver, and other fuch like Metals and Minerals, are mostly, if not only, found in the Bowels of Mountains. Now, fince the Gravity of these Bodies is so great, that in a regular Formation they ought to have feated themfelves, one would think, much nearer the Centre than they now are; to account for fuch their Pofition, it must be suppos'd, that the Columns under them, and the Earth among them, were lighter and rarer than the neighbouring Columns did afford; that upon the whole, the entire Compositum or Masstaken together, may be allow'd to be, if not lighter, yet, at least, not heavier than that of any other Column. So that by a just, tho' a little furprizing way of Reafoning, from the greater specifick Gravity of some Parts of the mountainous Columns, the lefs fpecifick Gravity of the whole is inferr'd.

(3.) Mountains are the principal Source and Origin of Springs and Fountains. Now Dr. Wood-Effay, N 2 ward, from his own Observations, afferts, that these are neither wholly deriv'd from Vapours condens'd in the Air at the Tops of Mountains, nor from mere Rains, or Fall of Moisture, as feveral have differently afferted; but from the Waters in the Bowels of the Earth; and that 'tis a Steam or Vapour rais'd by the subterraneous Heat which affords no small Part of their Waters to them. On which Hypothesis, which I take to be the truest and most rational of all others, the Vapours appear to have a more free and open Vent or Current up the mountainous Columns, than the neighbouring ones; and confequently, they are more rare, lax, and porous, or lefs

dense and weighty than the others.

(4.) All Volcano's, or fubterraneous Fires, are in the Bowels of some Mountain, to which a Plain or a Valley was never known to be liable. Which Observation affords a double Argument for fuch a Levity and Rareness as we are now contending for; the one, from the Temper of an inflammable Earth, fulphurous and bituminous; which being in part made up of oily Particles, the lightest Fluid we have, must in likelihood be the lightest of all Strata whatsoever; the other, from the free Admission of Air into the Bowels of these Mountains; without which no Fire or Flame can be preserv'd; which also infers fuch a Porofity or Laxness as we are now concern'd to prove.

(5.) Mountainous Countries are chiefly subject to Earthquakes, and confequently are as well fulphurous and inflammable, as hollow and cavernous, loofe and spungy in their inward Parts; without which Properties the Phanomena of Earthquakes were difficultly accountable: especially ac-Effay, p. cording to Dr. Woodward's Hypothesis of them; 134, &c. who deriving them from Steams of Subterraneous

Heat

Book II. HYPOTHESES.

Heat ascending from the central Parts, and collected in great Quantities together, must by consequence own that the Bowels of Mountains, so commonly subject to Earthquakes, are most pervious, porous, and cavernous of all other. All which Arguments, especially taken together with some other Coincidents hereafter observable, will, I hope, be esteem'd no inconsiderable Evidence of the Truth of the Proposition we are now upon.

III. Though the Annual Motion of the Earth commenc'd at the Beginning of the Mosaick Creation; yet its Diurnal Rotation did not till after the Fall of Man.

Tho' I cannot but expect that this will appear the greatest Paradox, and most extravagant Assertion of all other, to not a few Readers; yet I hope to give so great Evidence for the same from sacred as well as prophane Authority, that competent and impartial Judges shall see reason to say, that if it be not sufficient to force their Assent, yet 'tis such as they did not expect in fo furprizing, remote, and difficult a Case; the Records relating to which (the facred Ones excepted) are fo few, and fo dubious; and the constant Opinion of the World, within the Memory of History, so fix'd and settled on the contrary side. Let it only be, by way of Preparation, remark'd, that the annual and diurnal Motions are in themselves wholly Lem. 69. independent on each other, as was before ob-prius. ferved; and confequently, that 'tis as rational to suppose the former without the latter, if there be Evidence for the same, in the original State of Nature, as 'tis to believe them capable of being conjoin'd,

conjoin'd, from the known Phanomena of the World, in the present State. Let it also be obferv'd, that there is yet no Evidence that either the central Bodies of any of the Comets, or that even fome of the Planets, which undoubtedly have an annual Motion about the Sun, have yet any diurnal Rotation about Axes of their own. And let it, lastly, be consider'd, that since the diurnal Rotation must have an Original, a Time when it began; that Time may as rationally and naturally be suppos'd after the Fall, as before the Creation, or fix Days Work; and which was the true and real one, must be determin'd by the Testimonies of Antiquity, or other collateral Arguments, to be from thence, or from the Phanomena of Nature, ancient or modern, deriv'd and inferr'd. Which things being suppos'd, I shall thus attempt to prove the present Affertion.

(I.) If the primitive State of Nature before the Fall, had those peculiar Phanomena or Characters which certainly belong to a Planet before its diurnal Rotation begun; and are as certainly impossible in the present State of the Earth revoling about its own Axis; 'tis plain the Assertion before us is true and real: but that those peculiar Phanomena or Characters did belong to that primitive State, the Testimonies of sacred and prophane Antiquity, to be presently produc'd, do make appear; and, by consequence, the Assertion

before us is true and real.

of the Earth do prove that its diurnal Motion did not commence till some time after its annual, and by consequence, in all Probability, not till after the Fall of Man.

(III.) I shall assign the probable mechanical Cause of this Commencement of the diurnal Mo-

tion, after its annual had continued fome Time; and shew, that that Cause also is agreeable to the present *Phænomena* of Nature, and of the Earth.

As to the first way of Proof, the Phanomena or peculiar distinguishing Characters here intended, have been already mention'd; and are these five.

(1.) A Day and a Year were all one. (2.) The Sun Lem. 73. and Planets rose in the West, and set in the East. priùs.

(3.) There was through the whole Earth a perpetual Equinox. (4.) The Ecliptick and Equator were all one; or rather, the latter was not in Being, but all the heavenly Motions were perform'd about the same invariable Axis, that of the former. (5.) To such as liv'd near the Ecliptick, the Poles of the same (or of the World, they being then not different) were neither considerably elevated nor depress'd, but at or near the Horizon. These are the certain and undeniable Characters of such a State: and that they belong'd to the primitive State of our Earth before the Fall, I am now to prove.

(1.) In the primitive State of the World, Days and Years were all one. Which Affertion I endeavour to evince by the following Arguments. (1.) On this Hypothesis, the Letter of Moses is as exactly follow'd as in the contrary one. 'Tis agreed that Moses calls the several Revolutions of the Sun, in which the Creation was perfected, Days, every where in that History. Now as a Year is properly the Succession of the four several Seasons, Spring, Summer, Autumn and Winter, arising from one fingle Revolution of the Earth about the Sun; fo a Day is the Succession of Light and Darkness once; or the Space of one fingle apparent Revolution of the Sun from any certain Semimeridian, above or below the Horizon, till its Return thither again, Now, in the Case before us, both these Periods are

are exactly coincident; and both are perform'd in the same Space of Time: which Space therefore, in equal Propriety of Speech, belongs to either, or both those Names indifferently; and, by consequence, may with the exactest Truth and Propriety be styl'd a Day or a Year. Which Thing duly consider'd, if I had no positive Evidence for the Propofition before us, yet, setting aside Prepossession, I had an equal Right and Pretence to Truth with the common Expositors; I keeping equally close to the Letter of the facred History. (2.) This Hypothesis gives a rational Account of the Scripture Style, wherein a Day, even in after-Ages, very frequently denotes a Year; as is commonly taken notice of by Expositors. Thus by Moses himself, the Word Day is not only, in the very Recapitulation of the Creation, us'd for the entire Six:

Gen. ii. 4, (These are the generations of the beavens and the earth when they were created, in the Day that the Lord God made the earth and the heavens, and every plant of the field before it was in the earth, and every herb of the field before it grew.) But, in other Places, as it seems, for the Space of a Year.

Cap. iv. 3. And at the end of Days, or after some Years, it came to pass that Cain brought of the fruit of the

C.v. 4, 5. ground an offering unto the Lord. The Days of A-dam, after he had begotten Seth, were eight hundred Years. And all the days that Adam lived were nine hundred and thirty years, and he died. And so of the rest of the Genealogies in that Chapter.

Jud. xvii. Thus in others of the holy Writers: I will give thee ten shekels of silver by the days, i. e. per annos, by the years, or every year. The like Phrases we

2 Sam. ii. have of David: The number of days that David was king in Hebron, over the house of Judah, was I Kings seven years and six months. The days that David ii. 11. reigned over Israel, were forty Years. So what was Deut. xiv. in the Law, Bring your tythes after three years, is 28.

in

in the Prophet, Bring your Tithes after three days. Amos iv. Thus, 'tis not a little remarkable, that what in 4. the Hebrew is, It came to pass in process of time, 2 Chron. at the end of two days, Jehoram's bowels fell out, xxi. 19. by reason of bis sickness; appear'd to be so plainly meant of fo many Years, that our Translators not only render it so, but do not so much as put the original Reading into the Margin, as in fuch Cases they usually do. Which ways of speaking, with others that follow, may feem alluded to, and explain'd by these two, tho' themselves somewhat of a different Nature. Your Children, Num. xiv. fays God to the Israelites, shall wander in the wil- 33, 34. derness forty years; after the number of the days in which ye searched the land, even forty days, each day for a year, shall you bear your iniquities, even forty years. Lye thou, fays God to the Prophet Ezek. iv. Ezekiel, on thy left side, and lay the iniquity of 4, 5, 6. the house of Israel upon it; according to the number of the days that thou shalt lye upon it, thou shalt bear their iniquity: For I have laid upon thee the years of their iniquity, according to the number of the days, three hundred and ninety days; so shalt thou bear the iniquity of the house of Israel. And when thou hast accomplished them, lye again on thy right side; and thou shalt bear the iniquity of the bouse of Judah forty days; I have appointed thee a day for a year. But what I mainly and principally intend here, is, that known, frequent, and folemn way in the Prophetick Writings of determining Years by Days; being indeed the constant Method in all the Prophecies belonging to the Christian Church; the Instances of which are very obvious; some whereof I shall here barely quote for the Reader's Satisfaction; (and more in a Cafe so notorious and remarkable, need not here be done.) How long shall be the vision concerning the Dan. viii. daily 13, 14.

daily facrifice, and the transgression of desolation, to give both the sanctuary and the host to be trodden under foot? And he said unto me, Unto two thousand three hundred evening mornings (or such days as were referr'd to in the History of the Creation,)

Chap. xii, then shall the sanctuary be cleansed. From the time 11,12,13 that the daily sacrifice shall be taken away, and the abomination that maketh desolate be set up, there shall be one thousand two bundred and ninety days. Blessed is he that waiteth, and cometh to the one thousand three hundred sive and thirty days. But go thou thy way till the end be; for thou shalt rest,

Apoc. xi. and stand in thy lot at the end of the days. I will give power unto my two witnesses, and they shall prophely one thousand two hundred and sixty days,

Chap. xii. cloathed in sackcloth. The woman fled into the wilderness, where she hath a place prepared her of God, that they should feed her there, one thousand two hundred and sixty days. Agreeably whereto, a Week, consisting of seven Days, denotes seven Years; and a Month, consisting of thirty Days, denotes thirty Years, in the same Prophetick Writings. Thus, in that most famous of all Prophecies, concerning the Death of the Messias:

Dan. ix. Seventy weeks are determined upon thy people, and 24,25,26. upon thy holy city; to finish the transgression, and to make an end of sins, and to make reconciliation for iniquity, and to bring in everlasting righteousness, and to seal up the vision and prophecy, and to anoint the most holy. Know therefore, and understand, that from the going forth of the commandment to restore and build ferusalem, unto the Messiah the Prince, shall be seven weeks, and sixty and two weeks; the street shall be built again, and the wall, even in a straight of times. And after the sixty and two weeks shall Messiah be cut off: but

Apoc. xi. not for himself. The boly city shall they tread under foot

foot forty and two months. Power was given to Chap. xiii. the Beast to continue forty and two months. All 5. which Expressions, with others of the same Nature, are not accountable; I mean, there is no fatisfactory Reason can be given, why a Day should fo frequently denote a Year in the facred Writings, on any other Hypothesis. We usually, indeed, content our felves in these Cases with the bare knowing 'the Meaning of Scripture Expreffions, as if they were chosen at a Venture: and so, for instance, finding a Day to represent a Year in the same Books, we rest satisfied, without enquiring why a Day, rather than an Hour, a Week, or Month, (the two latter of which Terms are yet us'd by these Authors) were pitch'd upon to fignify the before-mention'd Space to us; or why, if the word Day must be made use of, it must mean a determinate just Year, rather than a Week, or a Month, so frequently in the facred, especially in the prophetick Writings. But 'tis very supposable, that 'tis our Ignorance or Unskilfulness in the Style of Scripture, and those Things therein delivered, (not the Inaccuracy of the Writers themselves) which occasions our lax and general Interpretations. It will fure at least be allow'd me, that whereever not only the Meaning of Phrases, but the Original and Foundation of fuch their Meaning, is naturally and eafily affignable, an Account thereof is readily to be embrac'd. And certainly the primitive Years of the World being once suppos'd to have been Days also; and call'd by that Name in the History of the Creation, this Matter will be very eafy; the fucceeding Style of Scripture will appear only a Continuation of the primitive; and fitted to hint to us a Time wherein a Day and a Year were really the fame: and this

this without any Diminution of the true Defigns of the prophetick Numbers; I mean the involving their Predictions in fo much, and no more Obfcurity, as might conceal their Meaning till their Completion, or till fuch Time at least as the Divine Wisdom thought most proper for their Manifestation in succeeding Ages. So that this Argument demonstrates the present Exposition to afford a natural Foundation of accounting for fuch ways of speaking in the holy Scriptures, which otherwife are, as to their Occasion and Original, unaccountable; and confequently, proves it to be as truly agreeable to the Style, as the former did to the Letter of the facred Writings. (3.) The fix Days of Creation, and the seventh of Rest, were, by divine Command, to be in after-Ages commemorated by Years as well as by Days; and fo in Reason answer'd alike to both those Deno-Gen. ii. , minations. 'Tis evident, that the Works of the Creation were compleated in fix Evenings and Mornings, or fix Revolutions of the Sun, call'd Days; and that the feventh was immediately fet apart and fanctified as a Day of Rest, and Memorial of the Creation just before compleated: and 'tis evident that this Sanctification of the feventh, as well as the Operations of the fix foregoing, belong'd to the primitive State of the World before the Fall. Now that we may know what fort of Days these were, 'twill be proper to enquire into the enfuing Times; and observe, after the Distinction of Days and Years undoubtedly obtain'd, what constant Revolutions of fix for Work, and a feventh for Rest there appear; or in what Manner, and by what Spaces, these Original ones were commemorated; which will go a great way to clear the Point we are upon. And here, 'cis evident, that when God gave Laws to

the

1

2, 3.

the Israelites, he allow'd them six ordinary Days of Work, and ordain'd the feventh for a Day of Rest or Sabbath; in Imitation and Memory of his Working the first six, and Resting or keeping a Sabbath on the feventh Day, at the Creation of the World. This the Fourth Commandment fo expresly afferts, that 'tis past Possibility of Question. 'Tis moreover evident, that God, upon the Children of Ifrael's coming into the Land of Canaan, ordained, (with reference, as 'tis reasonable to suppose, to the same primitive State of the World, the fix Days of Creation and the Sabbath,) That Lev. xxv. fix Years they should sow their fields, and fix Years 3, 4. they should prune their vineyards, and gather in the fruits thereof; but in the seventh Year should be a Sabbath of Rest unto the land, a Sabbath for the Lord. They were neither to fow their Field, nor prune their Vineyard. Then was the land to keep a & 2. Sabbath unto the Lord. So that if we can justly vid. Deut. presume that the primary Spaces of the World, xv. here referr'd to, were proper Evenings and Mornings, or Natural Days, because they were reprefented and commemorated by fix proper and natural Days of Work, and the feventh of Rest; I think 'tis not unreasonable to conclude they were proper and natural Years also; considering they appear to have been among the fame People, by the same divine Appointment, represented and commemorated by these six proper and natural Years of Work, and the feventh of Rest also. Nay, if there be any Advantage on the fide of natural Days, from the Expressions of the Reference they had to the Primitive ones, (which the Fourth Commandment forces us to acknowledge,) there will appear in what follows somewhat that may justly be esteem'd favourable on the side of Years. Besides the six Days for Work, and the feventh

feventh for Rest, the Jews were commanded (on the same Account, as we may justly suppose)

Lev. xxiii. to number from the Passover seven times seven Days,

15—21. or seven Weeks of Days, and at the Conclusion of them to observe a solemn Feast, called the Feast of Weeks or of Sabbaths, once every Year. In like manner, besides the Yearly Sabbath, as I may call it, or the seventh Year of Rest and Release after the six Years of Work, the Jews were commanded (on the same Account, as Chap.xxv. we may justly suppose,) to number seven Sabbaths

Chap.xxv. 8—16.

of Years, seven times seven Years; and at the Conclusion thereof to celebrate the great Sabbatical Year, the Year of Jubilee: They were neither to fow, nor reap, nor gather in the grapes; but esteem it boly, and suffer every one to return to his Posseffions again. Where that which is remarkable is this; that the' the Sabbatical Days, and Sabbatical Years, equally return'd by perpetual Revolutions immediately fucceeding one another; yet the Cafe was not the fame as to the Feast of Weeks at the End of seven times seven Days; that following the Paffover, and not returning till the next Paffover again, and fo was but once a Year: Whereas its corresponding Solemnities, the Jubilees or great Sabbatical Years, at the End of feven times feven Years, were as the former, to return by perpetual Revolutions immediately succeeding one another for all future Generations. All which duly confider'd, I think upon the whole, 'tis but reasonable to conclude, That feeing the primitive Spaces, or Periods of Work and Reft, appear by Divine Appointment, to have been commemorated among the Jews by Years as well as by Days, the fame primitive Spaces or Periods were equally Days and Years also. (4.) The Works of the CreaCreation, by the facred History, concurring with ancient Tradition, appear to have been leifurely, regular, and gradual, without any Precipitancy or Acceleration, by a miraculous Hand on every Occasion: Which is impossible to be suppos'd in those Days of twenty four short Hours only; but if they were as long as the present Hypothesis supposes, they were truly agreeable and proportionable to the same Productions. Which Confequence will be fo easily allow'd me, that I may venture to fay, that as certain as is the regular and gentle, the natural and leifurely Procedure of the Works of the Creation, (of which I know no good Reason, from any Warrant sacred or prophane, to make any question;) so certain is the Proposition we are now upon, or so certainly the primitive Days and Years were all one. (5.) Two fuch Works are by Moses ascribed to the Gen. i. third Day, which (if that were not longer than 9-13. one of ours now,) are inconceivable and incompatible. On the former Part of this Day, the Waters of the Globe were to be drain'd off all the dry Lands into the Seas; and on the same Day afterward, all the Plants and Vegetables were to spring out of the Earth. Now the Velocity of running Waters is not fo great, as in a Part of one of our short Days, to descend from the middle Regions of the dry Land into the Seas adjoining to them; nor if it were, could the Land be dry enough in an Instant for the Production of all those Plants and Vegetables, which yet we are affür'd appear'd the same Day upon the Face of it; which Difficulties vanish, if we allow the primitive Days to have been Years also; as will more fully be made appear in due Place. (6.) Whatever might possibly be said of the other Days Works, by recurring to the divine miraculous Power; (which

Gen. i. & ii.

Gen. in

(which yet is here not only unnecessarily, and without Warrant from the facred History it felf, but fometimes very indecently done) yet the numerous Works ascrib'd to the sixth Day plainly fhew, That a Space much longer than what we now call a Day, must have been referr'd to in the sacred History. The Business of the fixth Day includes evidently these following Particulars. (1.) The Production of all the brute dry-land Animals. (2.) The Confultation about, and the actual Creation of the Body, and Infusion of the Soul of Adam. (3.) The Charter or Donation of Dominion over all Creatures, bestow'd on Adam. (4.) The Exercise of Part of that Dominion, or the giving Names to all the dry-land Animals: which fure fuppos'd fome acquir'd Knowledge in Adam, some Consideration of the Nature of each Species, fome Skill in Language, and the Use of Words; and withal, fome proportionable Time for the gathering fo great a Number of Creatures together, and for the distinct Naming of every one. (5.) When on this Review it appear'd, that among all these Creatures there was not a Meet-help, or fuitable Companion for him; God then cast him into a deep Sleep, (which 'tis probable lasted more than a few Minutes, to deferve that Appellation;) took out one of his Ribs, closed up the Flesh instead thereof, and out of that Rib made the Woman. (6.) After this, God brings this Woman to Adam; he owns her Original, gives her an agreeable Name, takes her to Wife, and they together receive that Benediction, Increase and Multiply. (7.) God ap-Vid. Biftop points them, and their Fellow-Animals, the Vege-Patrick on tables for Food and Sustenance. All which (to omit the Jews Tradition of the Fall of Man this Gen. ii. 4, fixth Day, and fuch Things presuppos'd thereto which must belong to it, even by the Mosaick Hi-

ftory

story it felf) put together, is vastly more than is conceivable in the short Space of one single Day, in the vulgar Sense of it. 'Tis true, God Almighty can do all Things in what Portions of Time he pleases. But'tis also true, (as Bishop Patrick well on Gen. observes in a like Case) that Man cannot. He iii. init. must have Time allotted him, in Proportion to the Business to be done, or else 'tis not to be expected of him. And 'tis plain, that Adam and Eve were mainly concern'd in the latter Actions of this Day: So that by a just and necessary Consequence, that Day in which they went through fo many and different Scenes, and perform'd fo many Actions, requiring at least no small Part of a Year; and that after themselves and all the dry-land Animals had been on the same Day produc'd, was certainly fuch a Day as might be proportionate to fuch Operations, and not shorter than a Year, which the present Hypothesis allows in the Case. (7.) If the History of the Fall of Man be either included in the fixth Day, according to the ancient Tradition of the Jews, which I confess to be very improbable; or belong to the feventh, as might, by coming as near as possible to such old Tradition, more probably be allow'd: on either of these Suppositions, there is the greatest Necessity imaginable of supposing such a Day much longer than is commonly done. Which, I think, is of it felf fo plain, that I need not aggravate the Matter, but leave it to the free Confideration of the Reader. (8.) A Day is, I think, no where in the whole Bible express'd by Evening-Mornings [Nux 8 nuses] but in this History of the Mosaick Creation, and in one of the Predictions of Daniel; where a famous Vifion is styl'd the Evening-Morning Vision. Now Essay on the. it having been elsewhere prov'd, that there Revelathe Day or Evening Morning denotes a Year, it tion,

Plut. de

Placit. Philof. 1.5.

c. 18.

will be thence very probable, that in the Mofaick Creation, whose Phrase is imitated and referr'd to there, it must fignify the same Thing, and be in like manner understood of a Year also. (9.) To all these Arguments from Scripture and the Nature of Things, let me add one very furprizing Testimony of Antiquity to the same Purpose, which a Friend of mine fince the first Edition suggested to me; namely, that of Empedocles in Plutarch; which coming unexpectedly fo entirely home to our Point, and fo exactly determining the Time when the Day was of this extraordinary Length, namely, at the first Origination of Mankind; may be look'd upon as decretory in the present Case; and 'tis this: Έμπεδόκλης ότε έγξυνάτο τ άνθεώπων γώσ οπ της γης, τοσαύτιω γωέως τῶ μήκα ξ χεόνε, Δία το βραδυποράν τον ήλιον, τω ημέραν, όπόση νω έςιν ή δεκάμην . 'Twas the Do-Etrine of Empedocles, that when Mankind sprang originally from the Earth, the Length of the Day, by reason of the Slowness of the Sun's Motion, was equal to ten of our present Months. Which if we allow to refer to the Day-time alone, I mean the Space of the Sun's being above the Horizon, which is a common Acceptation of the word Day; accords so exactly with my Hypothesis, as will hereafter appear, that nothing can do more fo; and renders all other additional Reasonings less neceffary. In fine, all these Arguments to me appear very fatisfactory, and evince, that the first diftinguishing and peculiar Character of fuch a primitive State of Nature as was before mention'd, did really belong to our Earth before the Fall, and that then a Day and a Year were exactly one and the same Space of Time.

(2.) In the primitive State of the World, the Sun and Planets rose in the West, and set in the East, contrary to what they have done ever since.

This

This may feem to have been the Foundation of that Story in Herodotus, who tells us, That the Lib. 2. Sun, in the Space of 11,340 Years, four times in-c. 142. verted his Course, and rose in the West. But what I mainly depend on, is that Discourse in Plato, who relating some very ancient Traditions Plat. Polit. (as he expresly says they are, and deliver'd by p. 175. our first Parents to their Posterity) about the priz E. F. mitive State of Things, and what a mighty and remarkable Change was effected by a certain mighty and remarkable Alteration in the heavenly Motions, (which Alteration in general deferves also to be taken notice of, as agreeing so well with the present Hypothesis) the most surprizing, and of the greatest Consequence of all others, and the Cause of suitably surprizing and considerable Effects in the present State of Nature, makes it to be this Change of the Way or Course of the heavenly Bodies, which is the Confequence of the present Assertion. For the grand thing, of which he had spoken so highly, is this; "Es, & go of TET' Plat. Polit. άυτο, Το τίω τε παντος φοράν, τοτε μίν, εφ' άνων κυ- Ρ. 175. Β. una), Φέρεως, τοτε δ' θλί τάνανία. The Motion of the Universe sometimes revolves the same way that it does now, and sometimes the contrary way. And again, Ib. p.174. Αλλά το ωδί τ μεταβολής δύσεως κ άνατολής ήλίε κ = F. άλλων άξρων ώς άρφ όθεν ανατέλλο νων, είς τέτον τότε τ τόπον εδύετο, ανέτελλε δ' όπ τε ένανλίε. Τότε ή δη μετέβαλεν ό Θεος αυτό επί το νωυ χήμα. But I am now about to speak of the Change made in the Rising and Setting of the Sun and the other Stars; namely, how they did formerly set in the same Place where they now rise, and rose where they now set; and how God chang'd their Course for that which they have at pre-Sent. Το β σαν τόδε τοτε με αυτός ο Θεος ξυμποδηγει Ib. G. H. σορδομίνον η συγκυκλεί τοτε δ' ώκηνεν, όταν αι σείοδοι τε πεοσήμον Ο αυτώ μέτεον είλη Φασιν ηδη χεόνε. Τό ή, TO ally

αάλιν άυτόμα ον, είς τανανία εκάγε. For sometimes God himself directs the Motions of the Universe, and at other times, after so many periodical Revolutions as he sees sitting, he leaves it; whereupon it is, as it were, spontaneously carried about by a Motion contrary

P. 175. C. to the former. Ταύτω τη μεταθολίω ήγειος δεί τη τελειοτάτιω τροπήν. And this change ought to be accounted the greatest and most entire of any the heavenly Bodies undergo. These Testimonies are so very plain, and full to our present Purpose, that plainer cannot easily be imagined. And by the other Phænomena of the original State of the World before the Fall, enumerated by Plato in this Place, and to be accounted for in the following Theory, the Time also of this great Change of the heavenly Motions, is determin'd beyond all Contradiction, agreeably to the present Hypothesis.

(3.) In the primitive State of Nature there was a perpetual Equinox, or Equality of Day and Night through the World. This Phænomenon, or fuch Effects as in part suppose it, is usually by the Christian Fathers apply'd to the Paradisiacal State; and by the ancient Heathens to the golden Age, or the Reign of Saturn: (coincident, 'tis probable, at least in part, therewith;) for they all with one Consent deny, that the Sun's Course was oblique from one Tropick to another, or that the Difference and Inequality of Seasons, which must have followed therefrom, did belong to that Theor. 1. 2. first and most happy State of the World; as may

Theor. 1. 2. first and most happy State of the World; as may c. 1. & 10. at large be seen in the Places quoted in the Mar1. 2. c. 5, gin, too long here to transcribe; to which theretore I refer the Reader, and proceed.

(4.) In the primitive State of the World, there was no Equator distinct from the Ecliptick; all Motions were perform'd about one invariable

Axis, that of the latter; (for the Planes of the Planets Orbits, I confider as nearly coincident with that of the Ecliptick,) without the Obliquity of one Circle or Motion to another. Tho' this be somewhat related to the former Particular, yet I shall distinctly quote a Testimony or two directly belonging hereto, and not fo properly reducible to the other. The first is that of Anaxagoras, who fays, Τὰ δ' ἀς ρα κατ ἀς χὰς μξὸ θολοειδῶς ἀνεχ-Laertius, θίῶαι, ὡς ε κτη κος υφίω τ γῆς τ ἀεὶ Φαινόμβουν εἶναι Segm. 9. ωύλον. That the Stars in their primitive State revolv'd in a Tholiform manner, insomuch that the Visible Pole was perpetually at the Vertex of the Earth. Whose Meaning, tho' somewhat obscure, feems to be. That the Motion of the Heavens was originally about one Centre or Axis, that of the Ecliptick, whose Pole was continually overagainst the same Point of the Earth; which on the Hypothesis before us is true, but in the present Frame of Nature impossible. The next Author, whom I shall produce, is Plato; who, in the Plat. Poliforemention'd famous Discourse about the Ancient tic. P.175, and Modern States of the World, fays, That in &c. the former of them, the Motion of the Heavens was uniform; which thing was the Caufe and Original of the golden Age, and of all that Happiness which therein Mankind enjoy'd, or external Nature partook of; which, how well it fuits the present Hypothesis, I need not say. All that exceeding happy State of Nature, which innocent Man enjoy'd, beyond what he does fince the Fall, being therein owing to fuch a Constitution of the World as this Author intimates, and I am now proving. Which, in the last Place, shall be confirm'd from Baptista Mantuanus, who Archael. fays, (relating the Opinion of the old Astrono-p. 273. mers,) All the celestial Spheres were in the Reginning

ginning of the World concentrical and uniform in their Motion; and the Zodiack of the Primum Mobile, and that of the Planets (the Equator and Ecliptick) were united and coincident, by which means, all fublunary Bodies were more vivid and vigorous at that Time, than in the prefent Ages of the World; as the Theorist fums up the Force of his Testimony, very agreeably to the Hypothesis before us, of the Astronomy in the primitive State of the Heavens.

infra.

(5.) To the first Inhabitants of the Earth, (dwelling near the Intersection of the ancient Ecliptick, with the present Northern Tropick; Hytoth. 4. of which hereafter;) the Poles of the World were neither confiderably elevated nor depress'd, but near the Horizon. But some Time after the Formation of Things, they fuddenly chang'd their Situation; the Northern Pole appear'd to be elevated above, and the Southern depress'd below the Horizon; and the Course of the Heavens seem'd bent or inclin'd to the Southern Parts of the World: or, in plain Words, there was a new diurnal Rotation begun about the present Axis of the Earth; which I take to be the true and easy Exposition of the same Phanomena. This Matter is much infifted on by the Ancients, and being fo, will fully confirm our Affertion, and give Light and Strength to some of the former Testimonies, De Placitis Plutarch has a Chapter entituled, Heel Eindiseus

Philof. 1. 3. Tie, Of the Inclination of the Earth; in which he thus recites the Opinion of Leucippus, Паденπεσείν τ γω είς τὰ μεσημβεινά μέρη, کل τ τοῖς μεσημβεινοίς αξαιότητα, ότε δή ωεπηγότων τ βοξέων Σία το πατεψύχθαι τοῖς κευμοῖς, τ ή ἀνλιθέτων τεπυewilliws. That the Earth fell, or was inclin'd towards the Southern Regions, by reason of the Rareness of those Parts; the Northern Regions being

growns

grown rigid and compact, while the Southern were Lib. 9. scorch'd or on fire. Whose Opinion is also recited Segm.33. by Laertius, in almost the same Words: Εκλείπειν ή ήλιον & σελήνων τῶ κεκλίως τ γων ωρός μεσημερίαν, τα ή προς άρκου άρτε νίφεως, η κατάψυχρα είναι ή whyvo S. The Sun and Moon were therefore subject to Eclipses, because the Earth was bent or inclin'd towards the South. But the Northern Regions grew rigid and inflexible, by the snowy and cold Weather which ensued thereon. To the same Purpose is the Opinion of Democritus, recited by Plutarch in the same Chapter. Διὰ τὸ ἀθενές εξον είναι τὸ μεσημβεινον τε σειέχον σ, αὐξομβώην τ γην χ τετο έγκλιθέναι τὰ β βόρεια ἄκρατα, τὰ ή μεσημθεινά κεκρα), όθεν εξ τέπο βεβάρη) όπε πειστή έςι τοῖς καςποῖς में मूं वंग्हेंग्लम. That by reason of the Southern ambient Air's Imbecillity, or smaller Pressure, the Earth in those Parts increas'd in Bulk, and so sunk and bent that way. For the Northern Regions were ill temper'd, but the Southern very well; whereby the latter becoming fruitful, waxed greater, and, by an Over-weight, preponderated and inclin'd the whole that way. As express to the full is the Testimony of Empedocles, related by Plutarch in that Chapter which is entituled, Tis ή αιτία τε τ κόσμον έγκεxxi25, or, Of the Cause of the Inclination of the World, Τέ αέρο લેξανίο τη τε ήλίε όρμη, έγκλι- Plutarch. θηναι τὰς ἀξάθες, τὰ τὰ μθὰ βόξεια ὑψωθηναι, τὰ η Philof. 1. 2. νότια ταπεινωθηναι, καθ' ο τὸ τ ὅλον κόσμον. Τὸς c. 8. North, by reason of the Air's yielding to the Sun's Force, was bent from its former Position; whereupon the Northern Regions were elevated, and the Southern depress'd; as, together with them, was the whole World. To which agrees Anaxagoras in these Words, which immediately follow those that are quoted before, pag. 101. "Tseeon j wohon + έγκλισιν Acceiv. But afterward the Pole receiv'd a Turn, or Incli-

Inclination. These so many and pregnant Testimonies of Antiquity, as to the Matters of Fact foregoing, (for as to the feveral Reasons affign'd by them, they being, I suppose, but the single Conjectures of the Authors, must be uncertain, and need not be farther confider'd or infifted on in the present Case;) seem to me so weighty, that I cannot but build and rely very much upon them. How should such strange and surprizing Paradoxes run fo univerfally through the eldest Antiquity, if there were not fome Ground or Foundation in earnest for them? 'Twould be hard wholly to reject what were fo unanimously vouch'd by the old Sages of Learning and Philosophy, even tho' there were no other Evidence or Reason for our Belief. But when all these Authors, the only competent Witnesses in the Case, do but confirm what, on other Accounts, as we have feen, and shall farther fee, there is so good Reafon to believe; and when fo great Light is thereby afforded to the primitive Constitution of Nature, and the facred History of the State of Innocency; their Attestations are the more credible, and the more valuable, and in the highest degree worthy of our ferious Confideration. What I can foresee of Objection, deserving our notice, against what has been advanc'd from the Testimonies of the old Philosophers, is this; that they feem to favour the perpetual Equinox before the Flood, by the right Position of the present Axis of the Earth, parallel to that of the Ecliptick, (as the Theorist imagines) and its Inclination or oblique Position acquir'd at the Deluge, (as the same Author supposes) rather than the original Absence, and subsequent Commencing of the diurnal Rotation after the Fall of Man, as I here apply them. I answer, (1.) The

(1.) The Parallelism of the Axis of a diurnal, to that of an annual Revolution, is, fo far as I find, a perfect Stranger to the System of the World; there being, I think, not one of the heavenly Bodies, Sun or Planet, but has its own Axis oblique to the Orbit in which it moves. (2.) It will be farther evinc'd hereafter, that, Phanom. de facto, before the Flood, the Axis of the Earth 32. infra. was oblique to its annual Orbit, the Plane of the Ecliptick; and the Year diftinguish'd into the prefent Seafons, Spring, Summer, Autumn, and Winter. (3.) That equable and healthful Temper of the Air, which the Theorist chiefly relied upon, as necessary to the Longevity of the Antediluvians, and fully prov'd by Authority, shall be accounted for without fuch an Hypothesis. (4.) The Testimonies before alledg'd do not, if rightly confider'd, fuit this Hypothesis; nay, in truth, they fully confute it. Of the five Characters before-mention'd, under which we have reduc'd the main Testimonies, there are two which are common to this, and to the Theorist's Hypothesis. (1.) The perpetual and univerfal Equinox. (2.) The Coincidence of the Equator and Ecliptick, (tho' in fomewhat a different manner) so that the Testimonies for these two can neither establish the one, nor the other, as equally fuiting them both. The other three are peculiar to that Hypothesis we have been proving, and by consequence at the same Time establish that, and confute the Theorist's Hypothesis. And these three are, (1.) The Equality of a Day and a Year. (2.) The Sun and Planets Rifing in the West, and Setting in the East. (3.) The Position of the Poles near the Horizon, with the after Elevation of the Northern, the Depression of the Southern Pole, and the Inclination or Bending of the heavenly Bodies Courfes towards the South.

'Tis evident at first View, that the two former of these three last mention'd Phanomena, are inconfistent with the Theorist's Hypothesis, and on a little Confideration 'twill be fo of the last also. For while the Poles of the Earth or World remain the same, as depending on the same proper Axis of the Earth's own diurnal Revolution, 'tis plain, the Latitude of Places on the Earth, or the Elevation of the Pole equal thereto, remains invariable; and fo the Pole which to the Inhabitants of Paradife was elevated at the least 30 Degrees, could not be at the Horizon, whatever right Pofition the Axis of the Earth might have with refpect to the Ecliptick. On the same Account there could, even in the Theorist's own Hypothesis, be no new Elevation of the one, or Depression of the other Pole at the Deluge, nor Inclination of the Courses of the Sun and Planets towards the South. All that could on the Theorift's Principles be effected, (besides the Earth's Equator, and Poles pointing to different fix'd Stars, and its Confequences) was only this; that whereas before, the Sun was always in the Equator, or middle Distance from any Climate, it afterwards by turns came nearer to them, (as we commonly, tho' carelesly express it) in Summer, and went farther from them in Winter, than before; which, upon the whole, was no more a Bent or Inclination to one Part of the Heavens than to the other; and fo of Planets alfo. And the Case is the same as to the Poles of the Ecliptick; the Northern one being still as much elevated above that of the World at one Hour of the Day, as depress'd beneath it at another. All which is, I think, fufficient to shew, that the Testimonies of Antiquity, alledg'd by the Theorist for the perpetual Equinox, or the right Position of the Earth's Axis till the Deluge, and the oblique Position, and

and different Seasons then acquir'd, are sufficient of themselves alone to consute bis, and establish the present Hypothesis. (5.) All Things consider'd, fuch a Polition as the Theorist contends for, was more likely to incommode, than be useful to Mankind. Taking the Matter wholly as the Theorist puts it, it would prevent the Peopling of the Southern Hemisphere, by the scorching Heat just under the Equator, without the least Intermission at any Time of the Year. It would render the Earth utterly unserviceable, both under the Equator and Poles, and in the Climates adjoining, and so streigthen the Capacity of the Earth in vid. Phamaintaining its numerous Inhabitants; which, nom. 35. were the whole inhabitable, will appear not too infrà. large to contain them. It would, by the Perpetuation of one and the same Season continually, hinder the Variety of Fruits and Vegetables of every vid. Dr. Country; and many other ways spoil the fettled Bentley, Course of Nature, and be pernicious to Mankind. Serm. 8. (6.) No mechanical and rational Cause of the and Dr. Mutation of the Earth's Axis either has been, or, Wood-I believe, can be affign'd on the Theorist's Hypo-ward's thesis, or any others, which should embrace the Essay, p. fame Conclusion. (7.) The Testimonies of Diogenes and Anaxagoras, are as express almost to the Time, as to this Change it felf. The Words, being exceeding remarkable, are thefe, as Plutarch Plutarch. himself relates them in that Chapter before quoted, de Placitis Of the Cause of the Inclination of the World; Dicking Philos. 1. 2. η Αναξαγόρας με το συς ήναι τ κόσμον η τα ζωα όκ τ γης έξαγαγείν, εκκλιθίωσι ωως τ κόσμον εκ τε άυτομάτε είς το μεσεμβεινον αυτέ μέρο ἴσως ἐπο προνοίας, ίνα α μέν τινα ἀοίκητα γένη), ά ή οίκητα μέρη τε κόσμε, 25 ψύξιν, η εππύεωσιν, η έυκρασίαν. 'Twas the Do-Etrine both of Diogenes and Anaxagoras, That after the Creation or primary Constitution of the World, and

and the Production of Animals out of the Earth, the World, as it were of its own accord, was bent or inclin'd towards the South. And truly 'tis probable, this Inclination was the Effect of Providence, on purpose that some Parts of the World might become habitable, and others uninhabitable, by reason of the Difference of the frigid, torrid, and temperate Climates thereof. Which observable and most valuable Fragment of Antiquity ought to have been before mention'd, but was on purpose referv'd for this Place; where it not only fully attests the Matter of Fact, the Inclination of the Heavens towards the South; not only affigns the final Caufe truly enough, (confidering the Uninhabitableness of the torrid, as well as of the frigid Zones, in the Opinion of those Ages) viz. the Distribution of the Earth into certain and fix'd Zones, torrid, temperate, and frigid; but fo accurately and nicely specifies the Time also, That fucceeding the Creation, agreeably to the prefent Hypothesis; that were I to wish or chuse for a Testimony fully to my Mind, I could scarcely have defir'd or pitch'd upon a better. (6.) Lastly, to name no more, the remarkable Testimonies of Empedocles and Plato, before quoted; the former for the Length of the primitive Day, and the latter for the Rifing of the Sun, Moon and Stars in the West, and their Setting in the East; do both of them determine the Time of these Phanomena to be, when Mankind sprung out of the Earth, and, as Plato adds, when Beasts convers'd with Men: Which we learn from Scripture, was only before the Fall. Which Testimonies being express to the Time of two other Phanomena of the Original State of the World, as the former of Diogenes and Anaxagoras are to that of the Inclination of the Earth's Axis; do still more compleatly,

and

Supra, p. 98, 99, 100. Plut. Politic. P. 175. E. & 176. A, B. Gen. ii. 7. & 111. 1, 2, &cc.

and even unanswerably prove, that the Time of these great Mutations is rightly assigned in the

prefent Theory.

II. I come now, in the fecond Place, to shew, That the present Phanomena of the Earth do prove, that its diurnal Motion did not commence till some Time after its annual, and by consequence, in all Probability, not till after the Fall of Man. And an egregious Confirmation of this Affertion we meet with in the Philosophical Transactions, Numb. 195. and it is the celebrated Dr. Halley's Theory of the Variation of the Magnetick Needle; as corrected by my own Observations and Discoveries since, to be found in my Discovery of the Longitude and Latitude by the Dipping-Needle. Dr. Halley, therefore, from very many Observations, taken by feveral Perfons, in diffant Places, and at various Times, has discover'd at least two Magnetical Poles, the one Northern, and the other Southern; from which arises all the Declination of the Horizontal and Inclination of the Dipping-Needle, according to the Difference of Place. Which Poles being moveable, thence arise these Variations of Magnetick Needles, according to the Difference of Time. Now to account for these moveable Magnetical Poles, there must be a very great moving spherical Body within the Earth, and extending its Effects from Pole to Pole: The Centre of this great moving Body, the Doctor rightly proves to be the same with the Centre of the Earth; because otherwise its Motion would change the Centre of Gravity in the Earth, the Equilibration of its Parts, and the Axis of the diurnal Rotation; and would withal alter the Surface of the Sea. This moving internal Substance must also be loose from the external Parts of the Earth;

fo that the external Parts may be reckon'd as a Shell, and the internal as a Nucleus, with a fluid Medium between. The internal Nucleus must be a Magnet, having its Poles in two Places distant from the Earth's Axis; which latter Poles do flowly change their Place in respect of the external Earth: This Motion is Westward, and by consequence, the Nucleus has not attain'd the same Degree of Velocity with the exterior Parts in their diurnal Revolution; but fo very nearly equals it, that in 365 Revolves, the Difference is scarce senfible. So that this Nucleus is many Hundreds of Years in revolving round the Earth Westwards, to the same Point it had set out before: The Reason why the internal Nucleus has not that Degree of Velocity which the exterior Shell has, Dr. Halley agrees must arise from the Impulse whereby the diurnal Motion was impress'd upon the Earth; which being given to the external Parts, is thence communicated to the internal, but not fo perfectly as to equal the first Motion impress'd on, and still conferv'd by the superficial Parts of the Globe. Thus far Dr. Halley agrees with me. So that here we fee, That when one of the most fagacious Naturalists that ever was, reasons from plain Matter of Fact, or the known Observations of the Variation of the Declination of the Magnetick Needle, he is oblig'd to make exactly fuch Deductions as from quite other Principles and Reasonings I saw Ground to suppose; and at once confirms many of the principal and most paradoxical Parts of this Theory; and especially that Proposition I am now upon, namely, That the Earth's diurnal Motion did not commence till fome Time after its annual, i. e. till after it was entirely form'd and confolidated together; and by confequence, in all ProbaProbability, not till after the Fall of Man. In

the next Place, therefore,

III. I shall assign the probable mechanical Cause of this Commencement of the Earth's diurnal Motion, after its annual had continued fome Time, and shew that that Cause is agreeable to the present Phanomena of Nature and of the Earth. Now the only affignable Cause, is that of the Impulse of a Comet with little or no Atmosphere, or of a central Solid hitting obliquely upon the Earth along some Parts of its present Equator. From which Impulse, both the annual Orbit of the Earth, as we shall observe prefently, would be alter'd; and a vertiginous Motion about a new and real Axis, would certainly commence. And this I suppose was the true mechanical Original of the Earth's diurnal Motion, and no other. And that this Cause is agreeable to the Phænomena of Nature, is plain; because such a Motion and Impulse of a Comet is as possible as any other whatfoever, from the now known Phænomena of their Motions; and because the exceeding Brightness of many Comet's Heads, in Hevelius and others, makes it very probable, that some Comets have very little Atmosphere, and others perhaps none at all. And then this Cause is not only agreeable to, but almost demonstrated by the Phænomena of our present Earth: For, as we have just now seen, Dr. Halley and my self do find, from the Phanomena of the Variation and Inclination of Needles, that the external Parts of the Earth receiv'd the original Impulse which caus'd the diurnal Motion; that it was from them convey'd to the internal Parts, and this so plainly, that those internal Parts have not yet in 6200 Years Time receiv'd the entire Impression, but move round Somewhat more flowly to this very Day. Which

Account of this Matter; only it must here be observed, that in Probability, the Comet which caused the diurnal Revolution, was of the Bigness rather of one of the small Secondary, than of the large primary Planets; for otherwise, by its causing vast Tides in the Abyss, after it was passed by, it would have occasion'd many more Alterations in the Earth, than we have any reason to believe happen'd at that Time.

To these three grand Arguments for the Proof of my main Conclusion, I shall, by way of supernumerary ones, or Appendages, add one or two more, and so leave the whole to the Considera-

tion of the impartial Reader.

(4.) The State of Mankind, without question, and perhaps that of other Animals, was before the Fall vaftly different from the present; and confequently requir'd a proportionably different State of external Nature; of which, without the Hypothesis before us, no Account can be given, or at least has not yet by any been attempted. The World, as to other things, feems to have been at first, in great measure, put into the fame Condition which we still enjoy; and yet Reason, as well as Scripture, assure us, that fo different a Condition of Things in the Animal, Rational and Moral, must have been suited with an agreeably different one in the Natural and Corporeal World. Which being confider'd, and that at the same Time no remarkable Difference has been, or perhaps can be affign'd, but what the Hypothesis before us, and its Consequences afford us; and that withal a fatisfactory Account of the several Particulars is deducible from the fame, as I hope to make appear hereafter; upon the whole, I think this a very confiderable derable Attestation to what has been before infisted on.

(5.) Lastly, The present Hypothesis gives an easy Account of the Change in the Natural, on the Change in the Moral World; and of the fad Effects of the Divine Malediction upon the Earth after the Fall of Man; which till now has not, that I know of, been fo much as attempted by any. Several have been endeavouring to account for that Change which the Deluge made in the World: But they are filent as to the natural Causes or Occasions of a Change, which (Antiquity, facred or prophane, being judge) was in all respects still more remarkable: The State of Innocency, and that of Sin, being fure on all Accounts more different from, and contradictory to each other, than the Antediluvian and Postdiluvian, either in Reason can be suppos'd, or in Fact be prov'd to be. Now as to the Particulars of this Change, and the Causes of them; and how well, on the Hypothesis we are upon, they correspond to one another, I must leave that to the Judgment of the Reader, when I come to treat of them in their own Place hereafter. In the mean time, this may fairly be faid, That This being the first Attempt at an Entire Theory, or fuch an one as takes in All the great Mutations of the Earth; as it will on that Account claim the Candor of the Reader, and his unbiass'd Resolution of embracing the Truth (however new or unufual the Affertions may feem) when fufficiently evidenc'd to him; fo the Coincidence of Things from first to last, thro' so many Stages and Periods of Nature, and the Solution of all the main Phanomena of every fuch different Stage and Period, from the Creation to the Confummation of all Things, if they be found just, mechamechanical, and natural, will it felf deferve to be esteem'd one of the most convincing and satisfactory Arguments for any fingle Particular of this Theory that were to be defir'd; and shew, that not any great Labour or Study of the Author, but the happy Advantage of falling into true and real Causes and Principles, is, under the Divine Providence, to be own'd the Occasion of the Discoveries therein contain'd. In all which, may these my poor Endeavours prove as satisfactory to the Minds of others, as they have been to my own, and give them the fame Affurance of the Verity and divine Authority of those holy Books, where the feveral Periods are recorded, and the Phanomena chiefly preserv'd, which the Discovery of these Things has afforded my felf, and I am fure that my Labours will not be in vain.

Scholium. It will be fit here to state my Hypothesis, or Opinion about the Circumstances of the Earth's annual Motion before the Commencement of its diurnal, more particularly; that so the Reader may not only observe, that the one was prior to the other in general, but how and in what manner that Motion was perform'd in the Primitive or Paridifiacal State of Mankind. Notwithstanding therefore, I shall hereafter affert, and attempt to prove, that the Original Orbits of the Planets, and particularly the Earth, were perfect Circles; meaning by the Original Orbits, those in which they were to revolve immediately after they were not only entirely form'd, but were also to be univerfally inhabited; yet I must here add, that I suppose that this Reduction of the very oblong eccentrical Orbit of our Earth at least, if not of the other Planets, whilst it was a Comet, into an uniform concentrical and circular one, which

which I suppose it had before the Deluge, was gradual, and not done all at once; the greatest Part at the commencing of the Mofaick Creation; and the rest at the commencing of the diurnal Rotation afterwards. Nay, indeed, this is almost of Necessity to be suppos'd; because the diurnal Rotation could not mechanically, or without a Miracle, begin, but by the oblique Collision of a Comet, which we have already suppos'd the Cause of it; and this Collision must necessarily affect the annual Motion, and alter the Species of its Ellipsis also: Which being suppos'd, and that withal, Providence adjusted all Circumstances, fo as should be most for the Advantage of the Regions adjoining to Paradise, where alone Adam and the other Creatures dwelt in this State, as is most reasonable to do; we shall then have our Earth revolving in a moderately eccentrical Ellipsis, without any diurnal Rotation, about the Sun in the Space of a Year; the exact Length whereof will not now be determinable; a Day and a Year will be all one: We shall have some Diameter of the Earth, which pass'd near Paradise parallel to the longer Axis of that Ellipsis it revolv'd in: And withal we shall have the Place of Paradife, respecting nearly the same fix'd Stars with the Peribelion of the Ellipsis. Which being suppos'd, we may observe, that as a circular Orbit is much the best for a Globe inhabited all round, That providing equally for the Convenience of both Hemispheres; so is this Elliptick Orbit the best for a Globe inhabited but in one Place, as the Earth was in its primitive State; This providing peculiarly for the Happiness of that particular Spot, where alone the living Part of the Creation was to refide; as on a little Confideration will easily appear. Thus, for instance, P

the Heat of the Day-time would gradually increase before, and decrease after Noon; but yet would never be violent; because a great Part of the Increase of the Heat by the Sun's rifing above the Horizon, still higher and higher in the Forenoon or Spring, would be prevented by the Earth's real receding from him, and approaching nearer his Aphelion during the same Time: And vice versa in the Afternoon, or Summer; which would render the State of the Air more equal and uniform, and lefs uneasy or inconvenient than any other Method whatfoever. Thus also not only the Cold of the Night, (which by our Nearness to the Sun, would be inconsiderable) but the too long Duration and Darkness thereof would be entirely avoided. For the whole Night would then bear no more Proportion to the entire Nuxbinusgov, than in the Ellipsis the Area pBq, below the Latus Restum, bears to the whole Area HBGF; suppose the Proportion of 1 to 6, which will amount to no more than two Months: Out of which Nighttime we must deduct the two Crepuscula, each of near a Fortnight, which now reduces the Duration and Darkness of the Night it self, to about a fingle Month; out of which also another Fortnight is to be still deducted for the Time of the Moon's being above the Horizon, and enlightening the Earth: So that at last if the Moon's Crepuscula be at all allow'd for, as they ought to be, we shall scarce have a single Week of pure Darkness in the whole Year; to the great Comfort, Advantage, and Benefit of this truly Paradifiacal State. But if it be objected, that this implies, that only some Parts of the Earth were habitable with any Convenience before the Fall, viz. those about Paradise; or, however, not more than that Hemisphere: I reply, That this Objection feems 21/2

Fig. 3.

feems to me hardly enough confiderable to deferve an Answer. I should think it no great Matter, if all the Earth, excepting the Regions about Paradife, were uninhabitable at a Time when they were not to be inhabited. For to what Purpose is it, that all proper Provision be made for the Entertainment of a Company of Guests at a Table, when 'tis certainly known that not one of those Guests will be there. Providence does ever wonderfully provide for the Accommodation of his Creatures, where-ever it places them: But that a suitable Provision is made for them where they will never be plac'd, I fee no Reason to imagine. But if it be still farther objected, that in this Hypothesis, the Heat of the Sun before the Fall would at last be intolerable, nay feveral hundred times as great as with us at present, because of the Continuance of his Stay above the Horizon for fo many Months together. I answer, that this is all plainly a Mistake: The Heat produc'd by the Fire, or the Sun, for fome Time confiderably increases; but this only for a while, till a fuitable or competent Degree of Heat, correspondent to the Sun or the Fire's Power at that Distance be produc'd, but no longer. Let us try this a little by Calculation in Dr. Keill's way, who made the Objection. A Piece of Wax will melt in a Second of Time, suppose, at the Distance of an Inch from a very hot Fire; because the Degree of Heat there is sufficient to dissolve its Texture immediately. Let us then remove it to the Distance of 100 Inches, where the Heat is 10,000 times weaker, for the Space of 10,000 Seconds, or near 3 Hours Space. The Quantity of Heat therefore in Dr. Keill's way must be equal to the Rectangle contain'd, betwixt the Sine of the Angle of Incidence (which we suppose the same in both Cases) and the Time P 3

of Continuance; or exactly equal to the former Heat; and must therefore have the same Effect in 3 Hours Time that the other Heat had in one Second, and melt the Wax as the other did. Which yet I presume Dr. Keill did not believe it would. Thus let us compare the Intenseness of the Heat of the Sun at the Equator and near the Poles, where the Sines of the Sun's Angle of Incidence [for the Day-time or 12 Hours at the Equator, and for the 12 Hours at the Conclusion of the half-year's Day near the Poles | are as 10 to 1; which, according to Dr. Keill, will be as 10 x 12 to 1 x 4320, or as 1 to 36; And so the Heat near the Pole be 36 times as intense as that at the Equator; which I presume Experience does not attest. But after all, this Objection, if it were true, chiefly relates to a circular Orbit of the Earth before the Fall; but in the present Elliptick Hypothesis is very little to the Purpose.

IV. The Ancient Paradise or Garden of E-den, the Seat of our first Parents in the State of Innocence, was about the North-West Bounds of Assyria, at the River Tigris and Euphrates: (for their Antediluvian Streams seem to have been united before they were come so far as Assyria:) a little below which Place they were parted into four Branches, and so ran into the great Southern Ocean, call'd by the Ancients the Red-Sea, at sour Out-lets at no small Distance from one another.

That somewhere thereabouts, on the Northern Regions

Regions of Mesopotamia was the Place of the ancient Paradife, feems very probable from two of its Rivers, Tigris and Euphrates, occurring in the Description of its Situation by Moses; from Isaiah the neighbouring Counties to Eden mention'd xxxvii. in Scripture; and from the Countries which were Ezekiel water'd or encompass'd by those four Streams, Pi-xxvi. 22, son, Gibon, Tigris, and Euphrates, which arose 23. from the grand River of Paradife, foon after it had water'd the same. And when the following Theory is understood, which will shew that all our present upper Earth is factitious, and the Sediment of the Deluge; and that, by consequence, the Rife and Currents of Rivers are not always the fame now as before the Flood, the Strangeness and Novelty of this Affertion will not appear so great an Argument against it, as at first it must necessarily do. I confess, the Situation of Paradise has been a very obscure Problem; because we still examine the Description of it by the postdiluvian Geography, and the present Course of Rivers there. But if we would lay aside that Mistake, I think Moses's Account fixes the Garden of Eden at the Place here affign'd by us, and no other. Let us trace all the Description.

And the Lord God planted a garden eastward in Gen. ii. Eden. Eden, by the Situation of the Places men-8, &co. tion'd with it in Scripture, and on Account of the City Adana upon the River Euphrates, seems to be Steph. Bypartly in Syria and partly in Mesopotamia; where-zant. in by the Garden in the East Part of Eden, will be situate about the North-West Bounds of Assyria, according to this Hypothesis. And a river went out of Eden, to water the garden: That is, it ran partly Eastward, since the Garden was planted in the East Part of Eden, as we have seen. And hence it appears, that originally Tigris and Euphrates,

phrates, if then they were two Rivers, were united together before they came so far South as Mesopotamia; and the united Stream directed its Course Eastward through the Northern Part of Mesopotamia, between the present Channels of Euphrates and Tigris there, and so went out of Eden to water the garden. And from thence it was parted, and became into sour Heads, or Beginnings of different Streams. The name of the first was Pison,

* Xenophon which is still preserv'd in that of * Physcus, a Ride Expedit. ver running into Tigris; that was it which com-Cyri, l. 2. passed the whole land of Havilah, or ran South-

Westward, near Syria and Canaan, and after it † Vid. Joh. had compass'd the Countrey belonging to † Ha-Clerici vilab, in the South-West of Arabia deserta, ran incomment. in Gen. to the Arabian Gulph, and so into the ancient ii. 11. Red Sea. The name of the second river was Gibon, ‡ Herodot. which is still preserv'd in that of ‡ Gyndes, a River also running into Tigris, that was it which

compass'd the whole land of Cush, or ran also Southward, inclining to the West, and after it had Bochart. compass'd the whole Land of Cush, || in the North-Phaleg. West of Arabia Felix and South-West of Arabia

Phaleg. West of Arabia Felix and South-West of Arabia 1.4. c. z. Petrea, ran into the same Gulph and Sea with the former. The name of the third river was Hiddekel, or Tigris, whose Name is preserved in that samous River which still separates Assyria from Mesopotamia; that was it which went toward the East of Assyria, and therefore was the most Eastern Branch, which ran Eastward till it was past Assyria, and then turn'd to the South, and wash'd that Countrey on its Eastern Borders, as it does now on its Western, and so passing on, enter'd the great Ocean or Red Sea, by the Persian Gulph: As did also the fourth or principal Branch, which

ran nearest to the present Course of the most famous of the Rivers of those Countries, Euphra-

E

tes,

tes, and which therefore has its ancient Name

preserv'd therein to this Day.

This Account we fee takes in all the Description of Moses, excepting that which belongs to the Metals and Minerals of some of those Antediluvian Countries. But fince the Sediment of the Waters of the Deluge has cover'd those Countries and Mines fo deep, as to take away generally the Expectation of our obtaining or examining those Metals and Minerals, as will hereafter appear, I shall not insist any farther on that Matter; but conclude that our present Hypothesis agreeing with all the Characters in Moses that are capable of being examin'd, and no other Hypothesis, I think, doing so, seems to afford good Foundation for our Belief that we have not much err'd in our Opinion; but that the Garden of Eden was fituate about the North-West Bounds of Assyria, at the River Tigris and Euphrates.

V. The Primitive Ecliptick, or its correfpondent Circle on the Earth, intersected the present Tropick of Cancer, if not at Paradise, yet at least at its Meridian.

Since from the last Hypothesis but one, it appears that the Primitive Ecliptick was a fix'd Circle on the Earth, as well as in the Heavens; and must both equally divide the present Equator, and touch the present Tropicks; 'tis proper to fix, if possible, the Point of Intersection with the Northern Tropick; whereby the entire Circle may still be describ'd, and its original Situation determined. Which is the Attempt of this Hypothesis we are now upon; and which I thus prove.

(1.) The

23, 31.

(1.) The Production of Animals out of the Earth and Waters, at or near Paradife, feems to have requir'd all the Heat possible in any Part of the Earth; which being to be found only near the ancient Ecliptick, confirms the last mention'd Argument, and pleads for that Situation of Pa-

radife which is here affign'd to it.

(2.) And principally, This Situation is determin'd by the Coincidence of the Autumnal Equinox, and the Beginning of the Night or Sun-fet, at the Meridian of Paradife. 'Tis known that at Paradise, or the Place of the Creation of Man, Gen. i. 5, the Nux 9 n µ seov, or Natural Day, commenc'd with 8, 13. 19, the Sun-fetting, Six a Clock, or coming on of

the Night. 'Tis granted also, that the Beginning of the most ancient Year, (which shall prefently be prov'd to have been at the Autumnal Equinox) was coincident with the Beginning of the World, or of the Mosaick Creation. Which Things compar'd together, do determine the Question we are upon. It being impossible, on the Grounds here suppos'd, that Sun-set and the Autumnal Equinox should be coincident to any but those in the Northern Hemisphere, at the Point of Interfection of the ancient Ecliptick, and the present Tropick of Cancer; or such as were under the fame Meridian with them; as any ordinary Aftronomer will foon confess: Which Argument is decretory, and fixes the Place of Paradife to the greatest Exactness and Satisfaction.

Corollary 1. Hence a plain Reason is given, why the Days of Creation commenced at Evening; which otherwise is a little strange; It being but a necessary Result of the Time of the Year, and Region of the Earth, when, and where the Creation

began.

Coroll.

Coroll. 2. As also why the Jewish Days, especially their Sabbath-Days, began at the same Time ever since: The Memory of the Days of Creation being Lev. xxiii. thereby exactly preserv'd.

Coroll. 3. As also why their Civil Years, but especially their Sabbatical Years, and Years of Jubilee, (even after their Months were reckon'd from the Vernal) begun at the Autumnal Equinox: The Memory of the Years of the Creation being thereby alike exactly preserv'd also.

VI. The Patriarchal, or most ancient Antediluvian Year, mention'd in the Scripture, vid. Calvif. began at the Autumnal Equinox. Prolegom. de tempore mundi con-

The Reasons of this Affertion are these ensu-diri, c. 34. ing.

(1.) The principal Head or Beginning of the Jewish Year in all Ages, was the first Day of their Autumnal Month Tifri; and was accordingly honour'd with an extraordinary Festival, the Feast Lev. xxiii. of Trumpets: While the Head or Beginning of 24, 25. their facred Year, the first of Nisan, had no such Numb. Solemnity annex'd to it: As is known and con-xxix.1-6. fess'd by all.

(2.) When God commanded the Jews, on their coming out of Egypt, to esteem the Month Nisan, the First in their Year; it seems plainly to imply, that till then it had not been so esteem'd by them. The Words are these; The Lord spake Exod. xii. unto Moses and Aaron in the land of Egypt, saying, 1, 2. This Month (shall be) unto you the beginning of Months; it (shall be) the first Month of the Year to you. And this is strengthen'd by considering, that tho' we here find an Original of the facred Year

Year in the Spring; yet we no where do of the civil in Autumn: Which therefore, 'tis very probable, was the immemorial Beginning of the an-

cient Year long before the Times of Moses.

(3.) Whatever Beginning of the Jewish Year there might be on other Accounts; 'tis confess'd Lev. xxv. by all, That the Beginning of the Sabbatical 8, 9, 10. Years, and Years of Jubilee, (by which, in all Probability, the primary Years of the World were commemorated and preferv'd,) was at the Autumnal Equinox: Which is a very good Argument that those ancient Years, so commemorated and preferv'd, began at the same Time alfo.

(4.) The Feaft of Ingathering, or of Tabernacles, which was foon after the Autumnal Equinox, is faid to be in the End, or after the Revoxxii.16. & lution of the Year: Which is no small Confir-

xxxiv. 22. mation of the Affertion we are now upon.

(5.) What was alledg'd under the last Propofition, is here to be confider'd; That on this Hypothesis, a clear Reason is given of the Night's preceding the Day in the History of the Creation, and ever fince among the Jews; which otherwise is not so easily to be accounted for.

(6.) The Testimony of the Chaldee Paraphrast, (to which Josephus does fully agree) is as express as possible, upon 1 Kings viii. 2. where the Words are, In the Month Ethanim, which is the seventh Month; (viz. as all confess, from the Vernal Equinox) upon which the Paraphrase is, They call'd it of Old the First Month; but now it is the Seventh Month: Which may well counterpoife all that from some later Authors can be produc'd to the contrary.

(7.) This is also confirm'd by the remarkable Plut. de Iside & Osiri- Testimony of Plutarch; who, speaking of the Day

Day of Osiris or Noah's going into the Ark, says expressy that it was the 17th Day of the Month Athyr; in which the Sun passes through Scorpius; and this Time Moses as expressy calls the 17th Day of the second Month; therefore the first Month began when the Sun enter'd into Libra, or at the Autumnal Equinox. So that upon the whole, I may fairly conclude, notwithstanding some small Objections, (which either lose their Force on such Principles as are here laid down, or will, on other Occasions, be taken off,) that the most Ancient or Patriarchal Year began at the Autumnal Equinox.

VII. The Original Orbits of the Planets, and particularly of the Earth, before the Deluge, were perfect Circles.

This is in it felf fo easy and natural an Hypothesis, that I might very justly take it for granted, and make it a Postulatum: And in Case I could prove every Thing to agree to, and receive Light from the same; and withal account for the prefent Eccentricity, no Man could fairly charge it with being a precarious or unreasonable one. But altho' the main Reasons for such a Proposition are, I confess, to be taken from the Consequences thence to be deriv'd; and the admirable Correspondence of them all to ancient Tradition, to the Phanomena of the Deluge, and to the Scripture Accounts relating thereto, as will be visible hereafter; yet there being some Arguments of a different Nature which may render it probable, and prepare the Reader for admitting the fame, before the Consequences thereof come to be fully understood, I chuse to place this Affertion here,

among

among my Hypotheses; tho' I do not pretend that the Arguments here to be made use of, ought to put the same so near to Certainty, as its Fellows have, I think, Reason to expect with unprejudic'd Readers. But to come to the Matter it self: The Reasons I would offer, are these following.

(1.) The Defigns and Uses of Planets seem most properly to require circular Orbits. Now in order to give a rational Guess at the same Defigns and Uses of Planets, I know no other way than that from a Comparison with the Earth. And here, fince we find one of the Planets, and that plac'd in the Middle among the rest, to agree with the others in every thing of which we have any Means of Enquiry; 'tis but reasonable to suppose, that it does so also in those, which 'tis impossible for us, by any other certain way, to be affured of. If we observe a certain Engine in one Country, and see to what Use 'tis put, and to what End it serves; and if afterward we see another, tho' in a different Country, agreeing to the former in all things, as far as we are able to discover: tho' we are not informed of its Defign and Use, we yet very naturally, and very probably, believe that it ferves to the same Purpose, and was intended for the same End with the former. Thus it ought fure to be in the Case before us; and by the same way of reasoning, we may fairly conclude to what Uses all the Planets serve, and on what general Defigns Providence makes use of them, viz. to be the Seats or Habitations of Animals, and the Seminaries of fuch Plants and Vegetables as are necessary or convenient for their Support and Sustenance. Which being therefore probably suppos'd of the rest, and certainly known of the Earth, I argue, That a circular Orbit, being the most fit and proper for such Purposes, may

may justly be presum'd the original Situation of the Planets, and the primary Work of Providence in ordering their Courses. Such Creatures, rational, sensitive, or vegetative, as are fit and difpos'd for a certain Degree of the Sun's Heat, are very much incommoded by one much greater, or much lefs; and by confequence are peculiarly accommodate to a Circular, but by no means to an Eccentrical Orbit. And tho' the Inequality of the Earth's Distance from the Sun, in the different Points of its Orbit, be so inconsiderable, that we observe little Effect of it; yet in some of the other Orbits, which are much more Ec- Vid. centrical, it must be very sensible, and have a Arg. 4. mighty Influence on the Productions of Nature, Hypoth. xi. and the Constitution of Animals in Planets revol-infra. ving therein. And what Reason can we imagine, why the Southern Hemisphere, for instance, of a Planet, by the Situation of the Peribelion near its Summer Solftice, should be so different from the Northern, in the primary Contrivance of the Divine Providence? This feems not so agreeable to the original Regularity and Uniformity of Nature; nor does it look like the immediate Effect of the Divine Power and Wisdom in the first Frame of the World, when all Things just coming out of the Creator's Hands, must be allow'd to have been perfect in their Kind, and exceeding good; when Creatures rational and irrational, of the same Species, Abilities, Faculties and Demerits, were in common to live upon the feveral Parts and Regions of it: and the natural State of Things was to be equally fuited to them all, and dispos'd impartially among them.

(2.) The opposite Position and Use of the opposite Species of Bodies in the Comets, seem, by the Rule of Contraries, to suppose what we have been

contending

contending for. If indeed we had found a Mixture of Planets and Comets in the fame Regions of the Solar System, and a Confusion of the Orbits and Order of both: If we had discover'd all Species of Ellipses, with all Degrees of Eccentricity from the Circle to the Parabola; the Proposition I am upon would be more than precarious, and but too disagreeable to the Frame of Nature. But fince we find no fuch thing, but the clean contrary; namely, that all the Comets revolve in Orbits fo extreamly eccentrical, that fuch Segments of them as come within our Observation are almost parabolical, or of an infinite Degree of Eccentricity; 'tis not unreasonable to conclude, that, likely enough, the contradiftinct Species of Bodies, the Planets, originally revolv'd in Orbits of no degree of Eccentricity; that is, in perfect Circles: The Eccentrical or Elliptick Orbits of the one, among other things probably diffinguishing them from the other; which originally moved in Concentrical or Circular ones.

(3.) This Hypothesis is favour'd by the ancient Astronomy; which so pertinaciously adher'd to the Circular Hypothesis, notwithstanding all its Eccentricks, Epicycles, and strange Wheelwork; that it may feem the Effect of ancient Tradition, that once the heavenly Motions were really Circular. And this is the more remarkable, because, not only the true System of the World, but the Conick Sections, and among them the Elliptick Figure was very anciently known and confider'd. By the Introduction of which, all the fanciful and uncouth Figments they were forc'd upon, might have been wholly spar'd, and an easy and natural Idea of the Planetary Motions obtain'd. Which, if ever it had been started, by its exact Agreement to the Phanomena, could

could scarce ever have been lost; and which yet, as far as I know, never came into the Minds of Astronomers till the great Kepler's Time; who first prov'd the Orbits to be Elliptick, too plainly to be denied, or almost doubted any longer.

(4.) The Quantity of the several Orbits Eccentricity, and the Position of their Aphelia, are so various, different, and without any visible Design, Order or Method, so far as is hitherto discover'd, that the whole looks more like the Refult of Second Causes, in succeeding Times, than the primary Contrivance and Workmanship of the Creator himself. 'Tis indeed possible that there may be Defign and Contrivance in these Things, tho' we cannot discern them; yet seeing we have, on the common Grounds, no Reason to affirm such a Thing; feeing the equidiftant Situation from the Sun would more clearly shew such Design and Contrivance; feeing also, the original circular Motion of the Earth once granted, the Position of the Earth's Aphelion, and the Quantity of its Orbit's Eccentricity, do fo remarkably infer the Divine Wisdom and Artifice therein, and are wonderfully subservient to the highest Purposes; (by the one, the Day of the Year when the Flood began; by the other, the Length of the Antediluvian Year, being nearly determinable; of which hereafter;) 'tis, I think, but fair Reasoning to conclude, That that Hypothesis, which does so certainly argue Art and Contrivance, Order and Providence, is to be preferr'd to another, which feems to infer the clean contrary, or at best only leaves Room for a Possibility thereof; as 'tis in the present Case. I do by no means question, but these uncertain Eccentricities and various Position of the Aphelia of the Planets, with all other fuch feemingly anomalous Phænomena of Nature, happen'd

pen'd by a particular Providence, and were all (one way or other) fitted to the State of each Species of Creatures inhabiting the feveral Planets, according as their respective Behaviours or Circumstances, in their feveral Generations, requir'd; (of which the fucceeding Theory will be a pregnant Instance:) But my Meaning is this; that when every Thing was just as the Wisdom of God was pleas'd to appoint; when each Creature was compleat and perfect in its Kind, and fo fuited to the most compleat and perfect State of external Nature; 'tis highly probable that the outward World, or every fuch State of external Nature, was even, uniform, and regular, and agreeable to the Necessities of the whole Body of those Creatures that were to be plac'd therein; and as properly fuited to all their feveral Conveniencies, as was possible, or reasonable to be expected. Such a State, 'tis natural to believe, obtain'd through the Universe, till succeeding Changes in the Living and Rational, requir'd proportionable ones in the Inanimate and Corporeal World. 'Tis most philosophical, as well as most pious, to ascribe only what appears wife, regular, uniform, and harmonious, to the First Cause; (as the main Phanomena of the heavenly Bodies, their Places and Motions, do, to the greatest degree of Wonder and Surprize;) but as to fuch Things as may feem of another Nature, to attribute them entirely to subsequent Changes, which the mutual Actions of Bodies one upon another, fore-ordain'd and adjusted by the Divine Providence, in various Periods, agreeably to the various Exigencies of Creatures, might bring to pass.

(3.) It being evident, that Multitudes of Comets have pass'd through the Planetary System;

that

that in fuch their Passage they were sometimes capable of causing; nay, in very long Periods must certainly, without a Miracle, have caused great Alterations in the same; and that the Nature and Quantities of the present Eccentricities or Anomalies, are no other than what must be expected from such Causes; 'tis very reasonable to allow these Effects to have really happen'd; and that confequently all might be, as I here contend it was originally, orderly, and regular; and particularly the Planetary Orbits uniform, concentrical and circular, as I am here concern'd to prove. If any one of us should observe that a curious Clock, made and kept in Order by an excellent Artist, was very notably different from the true Time of the Day, and took notice withal of a certain Rub or Stoppage, which was very capable of causing that Error in its Motion; he would eafily and undoubtedly conclude, that fuch an Error was truly occasion'd by that visible Impediment; and never designed at first, or procur'd by the Artist. The Application of which Refemblance is too obvious to need a Comment, and naturally enforces what I am now contending for.

- (6.) 'Tis evident, that all the little Planets about Jupiter move in Orbits truly circular, without any confiderable degree of Eccentricity: On which account, the present Hypothesis appears to be far from contrary to the Frame of Nature; nay, to be no other with regard to the Primary, than is, de facto, true in this Secondary System; and from that so remarkable a Parallel, may the more easily be believ'd to have once been the Case of this also.
- (7.) 'Tis evident, that in case the Comets Attraction were the Cause of the Eccentricity

of the Planets, they would usually draw them also from the Plains of their former Orbits, and make them inclin'd or oblique to one another: So that where the Orbits are Eccentrical, 'tis probable, according to the present Hypothesis, the Plains must be different, and oblique to each other; and where the Orbits are circular, the Plains of the feveral Orbits must be as they were at first, or, in Probability, coincident. this is really observable in the two Systems last mention'd: The Plains of the circular Orbits about Jupiter being nearly, if not exactly coincident, and those of the Eccentrical ones about the Sun being oblique to each other. Which Observation is no inconsiderable Argument, that originally the Planetary Orbits were exactly circular; as well as that at the same time they were every one in the fame common Plain, or in Plains coincident with one another. Which last mention'd Hypothesis, (to speak a word or two of that by the way) tho' I look upon it as not unlikely, and fuch an one as feveral of the foregoing Arguments might be apply'd to, and do plead for; yet I shall not insist farther upon it here; both because the following Theory does not directly depend upon it in any Part; and because the moving in different Plains does not cause any ill Effects, or notable Inconveniencies, in the System of Nature, as we have shewn the Eccentricity does; and so cannot with the same Clearness and Force be urg'd against its being the original Workmanship of God, as I have above discours'd in the other Case. Only this I may say, that feeing the Planetary Orbits are still almost in the same Plain; seeing the Comets Passages are capable of causing such little Obliquity; may, were they originally in the same Plain, in Length

Length of Time, by the foremention'd Attraction, they must, without a Miracle, have been drawn from their common Planes, and been oblig'd to revolve in those different from each other, as they now do; and feeing withal that Eccentricity and Obliquity, as Uniformity of Distance from the Centre, and Coincidence of the Planes, go together in the World, as has been just before noted; this Hypothesis of the original Coincidence of the Planetary Planes, is an Opinion neither improbable, nor unphilosophical; and only a little less evident than what this Proposition was to prove, viz. That the primary Orbits of the Planets were perfect Circles; but otherwise very much a-kin, and exceeding correspondent thereto; they at once receiving Light from, and affording Light to one another mutually.

VIII. The Ark rested on one of the Gordyean Mountains, which separate Armenia from Mesopotamia and Assyria.

This is the commonly receiv'd Opinion, from which at present I see no Reason to recede. The Arguments usually urg'd for it, are thus briefly represented by the learned Cellarius, in his Geo-L.3. c.11. graphia antiqua.

"Strabo fays, that the Chain of Mountains which L. 11. "ran Eastward from Cappadocia and Comagena, p. 359.

" are first called Taurus; these separate Sophene,
" and the rest of Armenia, from Mesopotamia;
" τινες η Γοςδυαία έςη καλδοι, but some call them the

"Gordyean Mountains. The Meaning of which

Passage seems to be, that the Gordyean Mountains are contiguous to Taurus, or are a Part

" of it; for by this Explication, the receiv'd

2 3 "Op

134 HYPOTHESES. Book II.

" Opinion that the Mountains of Ararat, on which " Noah's Ark rested, are the Gordyean Moun-" tains, is fignally confirm'd; because Noab, with " his Sons, descending from thence, came into " Mesopotamia, the first Seat of the Patriarchs [af-" ter the Flood.] And that Ararat belongs to " Armenia, is the Opinion and Affirmation of al-" most all Antiquity. Not to mention Abydenus " and Megasthenes, whose Words Eusebius quotes; Præp. ix. " Berosus, the Chaldean in Josephus, speaking of 12, 19. Antiq. x. " Senacherib's paricide Sons, fays, eis + 'Aeuliav " απηραν, they fled into Armenia; for which Isaiah Ifaiah xxxvii.38. " fays, they fled into the land of Ararat, which " the Septuagint renders, eis Applular, agreeably " to Berosus. The vulgar Interpreter also ren-46 ders Gen. viii. 4. Montes Armeniæ, and 2 Kings " xix. 3. Terram Armeniorum. So Alcimus Avi-Lib. 4. ¥ 537. " tus, Armeniæ celsis instabat montibus Arca. "Let us next enquire in what Part of Arme-" nia this Mountain is, whereon the Ark rested. In Ifa. " St. Ferom fays, Ararat is a Champaign Country xxxvii. " in Armenia, thro' which Araxes runs, being " very fruitful, and at the foot of Mount Taurus, " which extends it self thither. I approve not of " his placing the Course of Araxes under Mount " Taurus, fince they are at a great Distance from " each other: But I allow what he fays after-" wards, that the Ark was carried to the highest " Parts of Mount Taurus. All Armenia is ra-" ther the same with Ararat; or, if a Part of " Armenia, then the Southern Part, which lies " under Mount Taurus, from which the River " Araxes is far distant, according to Strabo, Pliny, " and Ptolemy. By the Mountains of Ararat, ve-" ry many understand the Gordyean Mountains, " which either are a Part of Taurus, or adjoining 66 to it. Berosus, speaking of the Deluge, and 66 Of

of those sew that were preserved in the Ark, Apud Jo says, λέγε) τὸ τᾶ πλοία ἐν Αρμβία πρὸς τῷ ὅρα τρ seph. An Γορδυαίων ἐτι μέρ ۞ τὶ εναι. 'Tis reported, that a tiq. i. 4.

" Part of that Vessel [the Ark] is yet to be seen on

- "the Mountains of the Gordyeans. And in the "Targum of Onkelos upon Gen. viii. 4. the Moun-
- " tains of Ararat are render'd the Mountains of
- " Kardu in the Chaldee; and the other Targum,
- " which goes under the Name of Jonathan, calls
- " them the Mountains of Kadrun, by a Metathesis,
- except there has been a Mistake in the Tran-
- " feribers. Thus also Epiphanius; έτι κ τὰ λείψανα Hæres.
- " τ τε Νως λάρνακο δέκνυ) εν τη τ Κορδυέων xviii. ex-
- " χώρα. The Reliques of Noah's Ark are shewn in trem.
- " the Country of the Cordyeans, even at this Day.
- " And Elmacinus, the Arabian, speaking of He-Hist. Sara-
- ce raclius, fays, He ascended up into the Mountain cen. i. I.
- " Cordi, and there saw the Place of [Noah's] Ark.
- " And so much may suffice for the Mountains of
- " Ararat, and the Place where the Ark refted.
- " Bochart, in the 1st Book and 3d Chapter of
- " his Geographia Sacra, has more to the same

44 Purpose.

To these I shall add two other Arguments.

(1.) The Ark rested upon that Mountain which then was the highest in the World: But those Mountains which lye on the North of Assyria (that is, the Gordyean Mountains) are now the highest in the whole World, as † Theodoret and * Haitho the Armenian report; but were

[†] Theodoret. in Efai. xiv. 13. "Ος τίνλος τη λέγε] βορράθες Αστυρίως κὰ Μήδως, δίπο τέτως, τὰ Σκυθικά διώριζος έθνη, πάντως το τζ τ οἰκεμένος δεως ύψηλοτατος.

^{*} In Armenia est altior mons quam sit in toto orbe terrarum, qui Arath vulgariter nuncupatur; & in cacumine illius montis area Nohæ post diluvium primo sedit. Et licet

more certainly so at the Deluge, as will be hereafter prov'd, whatever Pretence any other may at present make. All therefore I am here to make out is, that the Ark must have rested on the highest Mountain in the World; which is easily done: For the Waters covering the Tops of all the highest Hills on the Face of the Earth 15 Cubits, or about 27 Feet; and yet the Ark resting the very first Day of the Abatement of the Waters, above two Months before the Tops of the other Mountains were seen (as will be prov'd hereafter:) 'tis evident, that the Ark rested on the highest Hill in the World at that Time, and therefore rested on the Gordyean Mountains, which (as the forenam'd Authors say) are still the highest

in the whole World.
(2.) 'Tis faid, G

(2.) 'Tis faid, Gen. xi. 2. that the first Removal of the Fathers after the Flood towards the Land of Shinar, was Mikkedem, Eastward. For tho' most Translators render it from the East, † yet I rather suppose that the true Meaning is towards the East, or Eastward; since Mikkedem, in Scripture, is always used in this latter Sense, and never in the former. And particularly, in Gen. xiii. 11. 'tis joined in this Sense with the same Verb, as in the Place before us. And Lot journeyed Eastward, &cc. For that he journeyed not from the East, appears from this very Chapter; where

propter abundantiam nivium, quæ semper in illo monte reperiuntur tam hyeme quam æstate, nemo valet ascendere montem illum; semper tamen apparet in ejus cacumine quoddam nigrum, quod ab hominibus dicitur esse arca. Histor. Oriental. c. 9.

+ See Gen. ii. 8. & iii. 24. & xii. 8. & xiii. 11. Numb. xxxiv. 11. Josh. vii. 2. Judg. viii. 11. Isa. ix. 12. Ezek. xi. 23. Joh. iv. 5. Zech. xi. 4.

We

See Bochart. Phaleg. 1.3. c.3. we find his Road lay from Bethel and Hai, in the Tribe of Benjamin, towards the Plains of Sodom; and so he travelled South-East. And if the Ark rested on the Mountains between Mesopotamia and Armenia, the Journeying of the first Patriarchs after the Flood, from thence to the Land of Shinar, was towards the South-East also.

Scholium. In this Place, I cannot but propose a Conjecture I have for some Time had in my Mind about the Peopling of China; which I think may deserve to be consider'd; and 'tis this; that the Chinese are the Offspring of Noah himself after the Flood, and not deriv'd from any of his other Posterity, Shem, Ham, or Japhet, as the Inhabitants of the rest of the World are. This Conjecture depends on the sollowing Reasons.

I. The Account of the Posterity of Shem, Ham, and Japhet, and of their Dispersion, gives no Hint of any that went so far East as China, as I think is plain from the best Expositions of the 10th of Genesis, where that Matter is chiefly treated of.

II. Since the Dispersion of the Posterity of Shem. Ham, and Japher, appears to have begun about Babylon; a Country so remote as China could not be so soon reach'd and peopled, as the prodigious Numbers of its Inhabitants at present shew it to have been. The nearest Regions must have been first and most fully peopled; and the remoter not till Men were increas'd sufficiently to require new Habitations; and accordingly, it has happen'd in the Countries of Europe, Africa, and the Western Parts of Asia; to which, I suppose, the Dissers of Dispersion begun at Babel is confin'd. But this is a sufficient some suppose of the Dissers of the Babel is confin'd. But this is a sufficient some suppose of the Dissers of the Babel is confin'd. But this is a sufficient suppose of the Dissers of the Babel is confin'd.

fufficient Proof, that so very large and prodigiously populous a Country as China, could not be of so late an Original, as it must be in case the Chinese are deriv'd from this Dispersion.

Gen. ix.

III. The facred History, foon after the Flood, confines it felf within the then known World: (which, I think, did not include China, no more than America, and which is styl'd the whole Earth very often in Scripture) and at the same Time says not a word of the great Father of the whole Race of Mankind, Noah, excepting the Number of Years he liv'd. Now this is, I think, a kind of Intimation, that Noah had no Share in the Actions related in the sacred History; and so, by a fair Confequence, was probably plac'd in China, a Region out of the Compass of the then known World.

IV. This Argument appears the more probable, because the Scripture tells us, as we have now seen, that all Mankind journeyed Eastward after the Flood. And tho' the Posterity of Shem, Ham and Japhet, stopt in the Land of Shinar, and there undertook to build a City, and a Tower; yet'tis probable that Noah himself, together with his Wife and his young Postdiluvian Posterity, would not join with the rest of the World in that Undertaking, (which appears to be displeasing to God, since he miraculously defeated their Enterprizes,) but proceeded still in their Journey Eastward, till they came into China.

Vide Syncel. p. 30, Chaldean Tradition concerning the Deluge, which
informs us, that Xifuthrus (so Noah is there
call'd) coming out of the Ark after the Deluge,
with his Wife and Daughter, and the Pilot of

the

the Ark, offer'd Sacrifice to God; and then both he and they disappear'd, and were never seen again: And that afterward Xisûthrus's Sons journeyed towards Babylonia, and built Babylon, and several other Cities.

VI. The Chinese Language and Writing are fo entirely different from those with us, which the Confusion at Babel introduc'd, and are at fo vast a Distance from them, that I think they cannot well be deriv'd from thence, nor from any of those Patriarchs whose Posterity was there divided into the feveral Parts of the World. All our Languages confift of Words and Syllables, made by a few Letters: which is wholly different from the way of expressing entire Sounds, and of varying the Sense by Tones or Accents among the Chinese. All which Circumstances persuade me, that their Original is different from ours: And that as we are the Offspring of Shem, Ham and Japhet, whose Sons were featter'd from Babel; so are they of Noah, who was no way interested in that Dispersion, or in those Languages which are deriv'd therefrom.

VII. The learned Sciences feem to have been anciently much better known in China, than in these Parts of the World: Their Government and Constitution much firmer, and more lasting than Ours: Their most ancient Histories more authentick and certain than Ours; (excepting those of more than bare human Original.) All which Things make one ready to imagine, that as, 'tis probable, Noah might be much more wise and learned than any of his Sons; so all those Settlements, Laws and Traditions, which are deriv'd from him, are remarkable Effects

and Testimonies of the same: And therefore that in China (where these Essects and Testimonies chiefly appear) all those Prerogatives are owing to Noah, their original Founder, and no other.

VIII. There are some Reasons to believe, that the Chinese mean no other by their first Monarch Fobi, than Noah himself. For, 1. The Beginning of their History with the Reign of short View Fobi, will, if the second and third Families of of the Chro-their Kings were collateral, (as I have elfewhere nol. of the shown they were) be coincident, even from the p. 62, &c. Hebrew, which, about the 235th Year after the Deluge, and consequently the End of Fo-Gen. ix. bi's Reign will be coincident with the Time of Noah's Death. 2. The Chinese Histories fay, Martinii Hist. Sinic. that Fobi had no Father; which agrees well enough with Noah, because the Memory of his p. 21. Father might be loft in the Deluge, or they could trace his Genealogy no higher, and fo Occasion was given to this Fable, that he had no Father at all. 3. The same Histories affirm, that Ibid. Fobi's Mother conceiv'd him as fhe was encompass'd with a Rainbow; which feems an imperfect Tradition concerning the first Appearance of Gen. ix. the Rainbow to Noah after the Flood. 4. The 12-17. Character and Circumstances, and Appellation of Fobi among the Chinese, agrees exactly with what the Scriptures affirm of Noah. Fobi, fays Memoirs of China, Le Compte, the first Emperor of China, carefully bred up seven Sorts of Creatures, which he used p. 313. and Couto facrifice to the supreme Spirit of Heaven and plet's Con-Earth. For this Reason, some call him Paohi, fucius that is, Oblation. Noah, fays Moses, took into Procem. P. 38, 76. the Ark of every clean beast by sevens, the Male Gen. vii. and his Female. And after the Flood, Noah 2, 3, 9. builded

builded an Altar unto the Lord, and took of every Gen. viii. clean beast and every clean fowl, and offer'd burnt-20. offerings on the Altar. 5. The Chinese Histories Martinius affirm, that Fohi settled in the Province of Xensi, ubi prius. which is the most North-West Province of China, & Couplet Chroas was natural to expect if he journeyed from the nol. in Foark, or from Mesopotamia. From all which Ar-hi. guments, I think it very probable, that Fohi, the Founder of the Chinese Monarchy, was the same Person with Noah in the Scripture, and consequently, that the Chinese are the Offspring of Noah.

IX. All this will be further confirm'd, when we shall have shewn hereafter, that the Current of the Waters of the Deluge would carry the Ark a long way from East to West, and that China lies just East from the Gordyean Mountains; so that Noah, before the Flood, must have liv'd in those Eastern Parts, and probably in no other than China it felf. Since therefore 'tis fo likely, that Noah liv'd in China before the Deluge, 'tis no wonder that he return'd to China again, and re-peopled the same with his own Offspring born after the Deluge; and that from this Difference in Original proceeds all that Difference in other Things, which is so remarkable, (if compar'd with the rest of the World) in that ancient, numerous and learned Nation.

142 HYPOTHESES. Book II.

X. The Deluge began, according to the modern Hebrew Chronology, on the 17th Day of the 2^d Month from the Autumnal Equinox, (or on the 28th of Nov. in the Julian Style, extended backward) in the 2365th Year of the Julian Period, and in the 2349th Year before the Christian Æra.

after the Creation of Adam, till the Autumnal Equinox in the Year of the Deluge III. From the Autumnal Equinox in the Year of the Deluge, till the Departure of Abraham out of Haran IV. From Abraham's Departure out of Haran, till the Exodus of the Children of Ifrael out of Egypt V. From the Exodus of the Children of Ifrael out of Egypt, till the Foundation of Solomon's Temple VI. From the Foundation of Solomon's Temple, till its Conflagration VII. From the Conflagration of Solomon's Temple, till the Beginning of the Christian Æra VIII. From the Beginning of the Christian Æra, till OA.11. this Year 1736. Sum of all 5745 2 From the 1st Day of the Deluge, till the 28th of November, this very Year, 1736.	A Chronological Canon. I. From the Beginning of the Mo- faick Creation, till the Autumnal Equinox next after the Creation of Adam ————————————————————————————————————	Y. 6	M.
the Year of the Deluge, till the Departure of Abraham out of Haran - IV. From Abraham's Departure out of Haran, till the Exodus of the Children of Ifrael out of Egypt — V. From the Exodus of the Children of Ifrael out of Egypt, till the Foundation of Solomon's Temple — VI. From the Foundation of Solomon's Temple, till its Conflagration — VII. From the Conflagration of Solomon's Temple, till the Beginning of the Christian Æra — VIII. From the Beginning of the Christian Æra, till Oft. 11. this Year 1736. Sum of all — 5745 2	Autumnal Equinox in the Year of the Deluge	1656	0
IV. From Abraham's Departure out of Haran, till the Exodus of the Children of Israel out of Egypt — V. From the Exodus of the Children of Israel out of Egypt, till the Foundation of Solomon's Temple — VI. From the Foundation of Solomon's Temple, till its Conflagration — 479 1 VII. From the Conflagration of Solomon's Temple, till the Beginning of the Christian Æra — VIII. From the Beginning of the Christian Æra, till OA.11. this Year 1736. 1735 9½ Sum of all — 5745 2	the Year of the Deluge, till the De-	427	61
of Ifrael out of Egypt, till the Foundation of Solomon's Temple — \ VI. From the Foundation of Solomon's \ Temple, till its Conflagration — \ VII. From the Conflagration of Solomon's Temple, till the Beginning of the Christian Æra — \ VIII. From the Beginning of the Christian Æra, till OA.11. this Year 1736. \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	of Haran, till the Exodus of the Children of Israel out of Egypt —	430	0
VI. From the Foundation of Solomon's Temple, till its Conflagration — \ 424 3 VII. From the Conflagration of Solomon's Temple, till the Beginning \ 586 6 of the Christian Æra — \ 586 5 VIII. From the Beginning of the Christian Æra, till OA. 11. this Year 1736. \ 1735 9\frac{1}{2} Sum of all — \ 5745 2	of Israel out of Egypt, till the Foun-	479	1
lomon's Temple, till the Beginning 586 6 of the Christian Æra— VIII. From the Beginning of the Christian Æra, till OA.11. this Year 1736. Sum of all———————————————————————————————————	VI. From the Foundation of Solomon's Temple, till its Conflagration —	424	3
VIII. From the Beginning of the Chriftian Æra, till OA. 11. this Year 1736. \[\frac{1735}{5745} = \frac{5}{2} \]	lomon's Temple, till the Beginning	586	6
7,17		1735	9 t
From the 1st Day of the Deluge, till the 28th of 34084 o	Sum of all	5745	2
2014	From the 1st Day of the Deluge, till the 28th of November, this very Year, 1736.	}4084	o

For the Proof of the several Parts or Periods of this Canon, I must refer my Reader to my Short View of the Chronology of the Old Testament. Only I must add a Word or two concerning the 3d and 7th Periods; the former being a Year more, and the latter a Year less than I had before stated them. I. Whereas the Vid. Shore Scripture reckons 427 Years from the Flood till View, p.70. Abraham's Departure out of Haran, about the 40, 41. Vernal Equinox; I, in my Book, computed thefe Years from the Vernal Equinox in the Year of the Deluge, but now see Reason to compute them from the Vernal Equinox following; fince this Gen. viii. latter was but four Months after the End of the 14, 15. Flood, or Coming out of the Ark, whereas the Short View, former Vernal Equinox was eight Months before Hyp. 6. the Flood ended. 2. I allowed 587 Years and four Months, for the Period from the Conflagration of Solomon's Temple, till the Beginning of the Christian Æra; but now I state it at 586 Years, and four Months. For having, fince the Publishing of my Chronology, difcover'd, that according to the true and genuine Method of the Canon, the Regions therein mention'd, begin a Year later short View, than according to the Method which I followed p. 14. in my Book; I am thereupon obliged, in connecting the facred Chronology with the prophane, to fix the Conflagration of Solomon's Temple a Year later, whereby the Period from thence to the Christian Æra, becomes a Year less than I had at first stated it: But the whole Sum, by the equal Addition and Substraction, is still the same that it was before.

N. B. The same Deluge began, according to the truer Chronology, from the Samaritan Pentateuch,

tateuch, Josephus's ancient Hebrew, and the LXXII. ancient Greek Copies, on the same 17th Day of the 2^d Month from the Autumnal Equinox, (or on December the 2^d, in the Julian Style extended backward;) in the 1788th Year of the Julian Period, and in the 2926th Year before the Christian Æra.

This has been proved, at least within a very few Years, in My Essay towards restoring the true Text of the Old Testament, lately publish'd, under Prop. XI, to which I must refer the Reader.

N. B. Before the Reader proceed to the next Hypothesis, he is to observe that it is not of my Composure; but is a short tho' excellent Dissertation of my Learned Friend Mr. Richard Allin, Fellow of Sidney-College; with which, at my Desire, he has been pleas'd to permit me to enrich the later Editions of my Theory.

XI. The most ancient Civil Year in most Parts of the World after the Deluge; and also the Tropical Solar and Lunar Year before the Deluge, contain'd just 12 Months of 30 Days apiece, or 360 Days in the whole.

First, I shall endeavour to prove, that the most Antient Year in Civil Use almost throughout the World, for several Ages after the Deluge, contain'd exactly 360 Days, or 12 Months of 30 Days apiece. Secondly, That before the Deluge, not only the Civil Year, but also the Tropical So-

lar Year, wherein the Sun passes through the E-cliptick, to the same Point from whence it began; and likewise the Lunar Year, consisting of 12 Synodical Months, each from New-Moon to New-Moon, or from Full-Moon to Full-Moon, were severally just 360 Days long; and consequently, that the Lunar Month was exactly 30 Days.

And, First, I am to prove, that the most ancient Civil Year and Month were of this Length, in most Places, after the Deluge.

- (1.) This appears by that Testimony mentioned in Georgius Syncellus, a which informs us, that the additional five Days, even amongst the Egyptians, one of the most ancient and learned Nations in the World, were not originally added to the 360 Days, or 12 Months of 30 Days apiece, of which their Year consisted, but were introduced about a thousand Years after the De-Vid. Marluge: So that till that Time, their ancient Year sham. Seappears to have been no more than 360 Days.

 Tit. Anni Reformatio.
- (2.) This Argument, from the latter Introduction of the five additional Days, receives fome Confirmation from the Place they always posses'd in the Year, even after they were introduced in the Egyptian, and thence in the Nabonassarean Form; which was at the End of the whole Year, as πμέρωι ἐπαγόμωνα, additional or su-

² Syncel. pag. 123. ΟὖτΦ [Afeth, seu Assis, Rex] προσέθτας το ενιαυτο τὰς ε ἐπαγομθρας, τὸ ἐπὶ αὐτῶ, ὡς Φασιν,
ἐχεημάτισεν τἔς ἡμεςῶν ὁ Αἰγυπλιακὸς ενιαυτὸς, τἔς μόνον ἡμεςῶν
πεὸ τέτε μεςέμθρΦ.

at the Year's End, seems naturally to imply, that the several Months had been so long stated at 30 Days apiece, and so the whole Year at just 360 Days, that they could not think sit to alter them, but only ventur'd to add sive Days at the End of the Year; which indeed were scarce accounted a Part of it: Still implying and supposing, that the ancient and stated Year was made up of 12 Months of 30 Days apiece, or of 360 Days in the whole, and no more.

- (3.) And what is but conjectur'd at in the last Argument, is particularly afferted in a samous Tradition in Plutarch, from whence it appears, that the ancient Egyptian Year was no more than 360 Days; and that the five Epagomenæ were not look'd upon as proper Parts either of the Year, or of any of its Months, but as Days belonging to the Nativities of five several Egyptian Deities, who, as this present Piece of Mythology supposes, were to be born neither in any Year, nor in any Month, and that thereupon, these five Days were added to the ancient Year; which therefore, before this Addition was made, contained no more than 360 Days.
- (4.) That the most ancient Chaldean or Babylonian Year was just 360 Days, appears by

b Plutarch. de Iside & Osiride, Operum Moral. p. 355.
Της Ρέας φασι, κεύφα τω Κεόνω συγγρομήνης, αιδομβρον έπαράσαδζ τ΄ Ήλιον αυτή, μήτε μηνί, μήτε ενιαυτώ τεκεν έρωνδε
3 τ΄ Ερμίω τ΄ Θεδ σωνελθεν, είτα παίξανδα πέτλια πρός τ΄
Σελήνίω, ε άφελόνδα τω φώτων έκάσε ε έδδομηκοσόν, εκ πάντων ημέρας πένλε σωνελθεν. κ) ταςς έξηκονδα κ) τεκακοσίας
επάγειν, ας Θεων γροεθλίες άγεσι.

that Number of Furlongs for the Compass of the Walls of Babylon, which, as " 2. Curtius and d Tzetzes affirm, were built in a Year, a Furlong each Day. For tho' fome, who wrote about the Time of Alexander the Great, and feem to have known either that the Solar Year was about 365 Days long, or that the Astronomical Year at Babylon it self was of that Length, do fay, that the Compass of the Walls was 365 Furlongs; yet o Ctesias, who wrote before that Time, in the Reign of Artaxerxes Memor, fays, with greater f Probability, that the Number of Furlongs was but 360. And fince even those later Writers add, that Babylon was as many Furlongs in Compass, as there were Days in the Year; 'tis more than probable, that they erroneously concluded from thence, that because the Tropical Year (or the Astronomical Year of Nabonassar)

ram singulis diebus perfectam esse, memoriæ proditum est.

d Tzetz. Chil. ix. y 563. De Babylone.
"Εκτισε τωντίω ζ εντωντώ κζ μόνω.

Φόλοι [Babyloni] ταδίων τελακοσίων εξήκουδα, — ως φησι Κτησίας ο Κνίδιω ως ή Κλείταεχω, κ τ ύσερον μετ Αλεξάνδε Αβαδάν ων είς των Ασίαν τινές ανέγραψαν, τελακοσίων εξήκουδα κ ωνίδιε κ περς είναι τινές ανέγραψαν, τελακοσίων εξήκουδα κ ωνίδιε κ περς είναστιν, ότι τ ίσων ήμερων είς τ ενιαυτόν εσών, εφιλοτιμήθη τ ίσου άρκθμον πό ταδίων υπος ήσαοχ. Vide & Tzetz. Chil. ix. γ 568, 600.

Τῶ Τζέτζη ἀληθέσερα συίγράρειν την ἐτέρων,
Τέως εἰς ἀπες ἔγραψε τοῦν το Βαδυλών.
Τεκακοσίων ηδι αὐτὸς ἐξήκονῶς καδίων
Πᾶσαν αὐτῆς πθέμετρον ὑπάρχειν Δίωγράφει
Οἱ δ' ἄλλοι το Βαυξάνεσι πλέον εὰ πλέον ταψτίω.

had 365 Days in it, therefore Babylon was 365 Furlongs in Compass. Thus then we see the Testimonies of several Authors, that the Walls of Babylon were as many Furlongs in Compass as there were Days in the Year; and that the oldest and best Testimony asserts, that they were 360 Furlongs in Compass: Wherefore it must be concluded highly probable at least, that the most ancient Babylonian Year was exactly 360 Days long.

(5.) All this is more fully confirm'd by a contemporary Author, the Prophet Daniel, who liv'd and wrote in Babylon in the Reign of Ne-Dan.xii.7. buchadnezzar 5, who built those Walls. For Apoc.xii. Daniel, by his Time, Times and a half, or three 6, 14. Years and a half, as we are sure from St. John's Exposition of them, means 1260 Days; and confequently by a single Time, or one Year, means no more than 360 Days; according to the usual Computation of the Age and Nation in which he liv'd.

(6.) We find also several Footsteps and Remains of this old Year in the Medo-Persian Monarchy, which subdu'd the Babylonian. As in the Herodot. 360 Channels, which Cyrus cut, to make the River Gyndes fordable for his Army, when he went on his Expedition against Babylon: And (if Jose-Antiq. x. phus be not mistaken) in the 360 Satrapæ, which C. Darius set over so many Provinces of his Em-

Et Abyden. apud Euseb. Præpar. ix. 41. p. 457. C. Et Dan. iv. 30.

pire. Thus also the sacred Historian assures us, that King Abasuerus made a feast unto all bis Prin-Esth. i. 3, ces and bis servants many days, even 180 days; i. e. 4. a just Half-year's Feast, that Number being exactly half 360. Thus also the Periodus Mago-Emend. rum, mention'd by Scaliger, was 360,000 Years, l. 1. p. 19. i. e. Days, or a just Millenninm. In all which Instances, a plain Reference is had to the Year of 360 Days, then in use.

(7.) That the Persian Year contain'd but 360 Days, is still more evident from the Testimonies of h Plutarch and i Q. Curtius; who affirm, that the Number of the Royal Concubines to more than one of the Persian Kings, was just 360. And we know both from Scripture and Esth. ii. Herodotus, that they went in constant Courses 12-15. to their Kings. And fince their Number anfwers fo exactly to the Days in the ancient Year, according to the other Testimonies: Since also a Year is fo natural and obvious a Length for one of those Courses; nay, fince Diodorus Siculus directly affirms, that the Royal Concubines were just as many as the Days of the Year; 'tis plain, the Persian Year had just 360 Days. Nay, even in much later Times, we find in the vid. Wal-Arabick Historians, that Ardsbir Ebn Babec, who lisii Opus Arithmet.

C. 31.

h Plutarch in Artaxer. Vitarum, pag. 1025. Έξηκονως ή κ τεκακόσιαν παρετρέφου κάλλη Δαφέρυσαν παλλακίδες.

i Q. Curt. lib. 6. cap. 6. Pellices 360, totidem quot Darii fuerant, Regiam implebant.

k Herodot. iii. 69. Ен жентедий S du ушайке Фонтевон

was King of Persia in the third Century of Christianity, was the Author of the Play which we call Tables: In which he appointed twelve Houses, or Areolæ, to correspond to the twelve Months of the Year, and thirty Calculi or Tablemen, to answer to so many Days in every Month. A plain Instance (if not of the then present Length of the Persian Year and Months, yet at least) of the Tradition they still retain'd, that originally the Persian Year was just 360 Days, containing twelve Months of thirty Days apiece.

most ancient Year of the Mexicans in North-America (who seem to have had their Original from some of the Eastern Nations) was also exactly 360 Days. This People (as Joseph Acosta, amongst others, informs us) "divided their Year into "Months, to [each of] which they gave 20

"Days, wherein the 360 Days are accomplished, not comprehending in any of these Months the

(8.) There is also no small Probability, that the

" 5 Days that remain and make the Year perfect.

"But they did reckon them apart at the End of the

"Year, and called them Days of Nothing: During

" which, the People did not any thing; neither went they to their Temples, but occupied themselves

" only in visiting one another, and so spent the

"Time. The Sacrificers of the Temple did like"wife cease their Sacrifices." Since then the Mexicans, even till these later Times, esteem'd as nothing those 5 Days, that were added to the other 360 at the End of the Year, and accordingly spent them in mere Idleness; 'tis very probable they did this, to signify, that those additional Days were not to be look'd upon as any real Part of the Year, as they certainly were

Natural
and Moral
Hift. of the
Indies,
1. 6. c. 2.

not of any of its Months: Or, at least, to signify, that they did not originally belong to the Year, but were added to it in later Times, to make it more agreeable to the Solar Year. And if so, it must be allow'd, that the primitive Year of the Mexicans contain'd just 360 Days, and no more.

(9.) The only Year among the ancient Greeks, and the Nations descended from them, that can come in Competition with this Year of 360 Days, is the Tropical Year, or a Year made very nearly equal to the Tropical by Cycles of Years, or proper Intercalations of Months or Days in certain revolving Periods. And that this Year was not originally in civil Use amongst 'em, appears very probable from the most ancient Manner of determining the Seasons of the Year, which was not done by the Names of the Months and Days of the civil Year, but by the heliacal Rifing and Setting of the fix'd Stars, as is well known to all that are converfant in the old Poetry and Astronomy. Now if the Tropical Year, or a Year made equivalent to it by proper Intercalations had been the civil Year; it can hardly be imagin'd, that the easy and obvious Method of reckoning the Seafons by the · Months and Days of the civil Year should be entirely neglected; and fo odd and troublesome a Method as that of fixing them by the heliacal Rifing and Setting of the fix'd Stars, should be entertain'd in its stead. And in Confirmation of this Reasoning, " Diogenes Laertius says, that

m Diog. Laert. i. 27. in vita Thaletis. Τάς τε ώρας Ε ενιαυτε φασίν αύτον έυρεν, η είς τραακοσίας εξήκου α σέν τε πρέρας διελείν.

Thales the Milesian, was the first of all the Greeks who discover'd the Length of the four Seasons of the Year, and that the Tropical Year was 365 vid. Arg. Days in Length. And tho' Solon is faid to have 16. infra. made the Month conformable to the Motion of the Moon at Athens; yet even he himself was utterly ignorant of the Tropical Year, if he really had that Discourse with Crasus King of Lydia, which " Herodotus relates he had. For he there supposes, that if the Year of 360 Days had an embolimary Month of 30 Days added to it every other Year, it would thereby become equal to the Tropical Year. Whereby 'tis plain, he took the Tropical Year to be 375 Days long, which is above 9 Days and 18 Hours more than the Truth. Wherefore I think it may be concluded, that till after the Time of Solon, (or if this Difcourse with Crasus be seign'd by Herodotus under Solon's Name, then even till Herodotus's Time, which is above 100 Years later, the ancient Greeks were generally ignorant of the true Length of the Tropical Year; and confequently, the most ancient Grecian Year was not equal to the Tropical. And if so, the following ancient Testimonies will be undoubted Evidence, that it was of no other Length than 360 Days.

(10.) That the ancient Year of Greece, Lydia, and the Grecian Colonies in Asia, was just 360 Days, appears from several Testimonies. There

P Herodot. i. 32. Ές ηδ εδδομήκονω έτεα δορν τ ζωής ανβεώπα περείθημι. Οὐτοι ἐονθες ενιαυτοὶ ἐδδομήκονω, παεέχον)
πμέρας Δακοσίας κὰ πενθακιχιλίας κὰ δισμυρέας, ἐμδολίμα μηνὸς
μὰ γνορίρα. Ει β δὰ ἐθελήσο τάτερον μηνὶ μακρότερον γίνεως,
ϊνα β αἰ ὧραι συμδαίνωσι το βαγνόρημαι ἐς τὸ δέον, μήνες μὰ
τὰ ἐδδομήκονθα ἔτεα οἱ ἐμδόλιμοι γίνον) τεκάκονθα πέρθε,
πμέραι β εκ τη μηνών τάτων, χίλιαι πεντήχονθα.

is a clear Intimation of this in the 360 Gods, which (as Justin o Martyr affures us) that most ancient Poet and Philosopher, Orpheus, introduc'd; one, it feems, for every Day in the Year. The fame Thing may be concluded from the before-cited Testimony of Herodotus, (of Halicarnassus, a Grecian City in Asia) who introduces Solon discoursing with Crasus, King of Lydia; where he fays, that 70 Years (viz. either Afiatick Years, even till Herodotus's Time, or at least Lydian Years in the Time of Crasus) contain'd 25,200 Days: From whence it follows, that a fingle Year, at the same Time, contain'd just 360 Days. This is also prov'd from the Riddle of P Cleobulus, Tyrant of Lindus, a City of Rhodes. There is, fays he, one Father who has 12 Children, and each of these bas 60 Daughters, 30 of them white, and 30 of them black; all of them being immortal, and yet mortal continually. By which all agree, that the Year is meant with its 12 Months, and each of their 30 Days and 30 Nights. Thus also Hippocrates (of the Island Cos, in the Egean Sea) affirms, that 7 Years contain 360 Weeks, and so one Year 360 Days: And also that seven

P Diog. Laert. i. 91. in vita Cleobuli. Фере? 8' auts cu

τοίς Παμφίλης υπομνήμασι το αίνι μα τοιούδε.

o Justin, Martyr de Monar. Dei, p. 104. Edit. Parii. 'Ogφούς, ο σαρεισάγων της τελακοσίης εξήκονία Θεκς, εν τω Δα-Throng impeatophin β. δλίω, &c. Vide & Theoph. ad Autol. 1. 3. fub initio.

Είς ο σατής, σαίδες 3 δυώδεκα τ 3 χ΄ εκάς ω Παίδες δίς τειάκονλα, Δίανδιχα είδ 🗗 έχεσαι. Αι μ λουκαί έασιν ίδειν, αι δ' αύτε μέλαιναι. Αθάνατοι 🐧 τ΄ έμσαι, άποζθινύθες ιν άπασαι. Est j o culautos.

⁹ Hippocrat. de Carnibus. Operum, p. 254. Edit, Genev. 1657. Evrén 3 uluav no déna nuegéar vois vivre) no 57. τό έχο τ άριθμον άτε εκία ές τας έδδομάδας. Τισταρες δεκάδες

Months are 210 Days; and 9 Months and 10 Days, are just 280 Days: And elsewhere, 'that nine Months contain'd 270 Days, according to the Computation of the Grecians. From all which it is evident, that 30 Days were then allowed to a Month, and 360 Days to a Year.

(11.) That the most ancient Year at Athens, in particular, was 360 Days, and the Month 30 Days, appears from the very original Constitution of the City of Athens it self; which, as we learn from 'Harpocration, 'Julius Pollux, and 'Suidas, was divided (to use the Words

εδδομάδων ημέραι είσιν διηκόσιαι όγδο κουθα, — "Εχό ή κη το επθάμηνον τρεϊς δεκάδας εδδομάδων, ες ή τω δεκάδα εκάσω εδδομάδων αι σύμπασαι, δέκα κη διηκόσιαι — "Εςι ή κη άλλο τεκμήριον, τες όδο θας οι σαϊδες επθα ετέων διελθόνων σληρεσι Και όν επθα ετεσιν, εςι ή λόγω κη αριθμώ ατρεκέως, δεκάδες εδδομάδων εξήκονθα κη τριηκόσιαι.

r Idem, de Morbis vulgarib. L. 2. Sect. 3. Operum, pag. 1031. Έις εδθομήκονλα κ διηκοσίησιν, οι εντέα μηνες Έλλωικοι

ylvov).

Η Harpocratio voce Γεννή). — Διηςημβρων — ἀπάνθων τόν πολιτίν καταμές», τὰ μ΄ πρώτα κὶ μάλισα μέςη ἀκαλείνο Φυλαί. ἐκάση ζ Φυλή τελχή διήςηθ, κὶ ἀκαλείτο ἔκασον μές Φυλαίν, τελτθύς, κὶ ἔθυΦ, κὶ Φρατεία. Πάλιν ζ τ Φρατειών ἐκάση διήςηθ εἰς χίνη τελάκονθα, ἐξ ών αὶ ἰερησωίαι ἐκάσοις πρησήκεσαι ἀκληρημώθ.

t Jul. Pollux, lib. 3. Segm. 52. Φρατελαι δ' ήσαν δυοκαίδεκα, κζ ον εκάτη χώη τελάκονλα, έκατον ον τελάκονλα άνδεῶν.

Ετ lib. viii. Segm. 109, 111. Ο μφ τ Τελτίος ἄεχων, τελίσεχος καλέπο. Τελτίος δ' ἐκάςης χου τελα [lege τελάκονλα, ut apud eund. lib. iii. Segm. 52. fupra, & infra Segm. 111.] κ αὶ φυλαὶ, τέως μ ἐπὶ Κέκροπος, ποαν τέωταρες, Κέκροπις, Αὐτόχθων, 'Ανλαία, Παραλία' Ἐπὶ ζ Κρανακ μετωνομάθησαν, Κραναϊς, 'Ατθίς, Μεσόγαια, Διακείς' Ἐπὶ ζ Ἐριχ-Θοήκ, Διας, 'Αθωαϊς, Ποσειδωνιάς, 'Ηφαιςιάς' Απὸ ζ τ' Ίωνος παίδων ἐπὶ 'Αρεχθέως, Τελέονλες, 'Οπλητες, 'Αιγικόρεις, 'Αργά-δεις. — [Segm. 111.] ὅτε μέν τοι τέωταρες ήσαν αὶ φυλαὶ, εἰς τελα μέρη ἐκάςη διήρητο κ το μέρος τκτο ἐκαλείτο τελτλυς, κ εθνος, κ Φρατεία. Έκας ξ ἔθνες χώη τελάκονλα, ἐξ ἀνδεων τοσέτων α ἐκαλείτο τελακάδες.

Y Suidas in Terra). 'At 3 pegeres an chansile restles, ort

of the last) into 4 Tribes, in Imitation of the 4 Seasons of the Year; which Tribes contained 12 Федтейаs, corresponding to the 12 Months; and each φεσιτεία had 30 gin, answering to the 30 Days of each Month; so that all the Lyn collected together, were 360, as many as the Days of the Year. Which Words, in the Opinion of a learned Man, do not Maussac. only demonstrate the true Length of the Primi-Not. in tive Athenian Year, but also give the Reason of Harpoit, from the original Constitution of the City revig? it felf. That they demonstrate the true Length of the Primitive Athenian Year, I acknowledge, is very plain: But (with Submission) they are so far from deriving this Year, with its 4 Seafons, 12 Months, and 30 Days in each Month, from the Constitution of the City, that they affert, on the contrary, the City was fo divided and constituted in Imitation of the Year, and of its 4 Seasons, 12 Months, &c. And if Athens vide was a Colony of the Egyptians, as feems exceed-Marsham ing probable, there can be no doubt but that the Sec. viii. ancient Year of 360 Days and 12 equal Months, tiorum Co-(the only Year and Months the Egyptians then lonia, & made use of) gave birth to the aforesaid Consti-Tit. Cetution of that City, and fo were evidently the pri-crops. mitive Year and Months in civil Use at Athens.

(12.) That the Athenians retained the Year of 360 Days, and the Month of 30 Days, till after the Time of Alexander the Great, (either folely, as fome learned Men hold; or at least, together with the Lunæ-Solar Year, as " Theodorus

w Theodor. Gaza de Menfib. cap. 9. Aixws &v Dewest exprefly -

τεοσάζων φυλών έσων, είς τεία έχάς λυ διείλον μέξη τάς μβρ φυλάς τέσσαρας ποιήσαν ες, άπομιμησά μυροι τὰς Ε ενιαυτέ ώρας. Τὰς ή Φρατείας τὰ τειπίος ιδ΄, καθάτος οἱ μίως. Τὰ ή χών λ' εν εκάτη Φεατεία, καθάτος αι ημέραι τζέ. [Lege cum Mauffaco & Kuftero, 72'.]

Gaza was of Opinion) may be proved from the Books of ancient Albenians, yet extant, as well as by other Authorities. Thus * Xenophon, in his excellent Discourse of the Revenue of the State of Albens, always takes it for granted, that a Year did then contain 360 Days, and no more; as his late Translator, in his Notes, particularly observes and demonstrates. And * Plato, in his 6th Book de Legibus, would have the Senate of the New Commonwealth he is there describing, to consist of 360 Men, to be divided into four Parts, of 90 each; in this, alluding plainly to the Year of 360 Days, and its four Quarters. And * Aristotle

[Athenienses] τ ενιαυτίν, οίον τ μ εξήκονω κ τελακοσίαις ημέρωις δελζόμημον τω ήλίω, Δω τω είς τοσαύτας μοίρως κατατομίω το λοξο. Καλ τότο το μέρω σεμπθον Αρλεστέλης είναι Φησιν ήμέρως εδδομήκονω κ δύο. Τὸν τέτθαρσι κ σενθήκονω κ τριακοσίαις, τη σελωή. Ανάλογον τ κ τος μωας ήγον,

דאי ע בן ד אוסי, דאי ז צו דוני סבאאיוני.

x Xenophon de Vectigalib. Operum p. 731. Edit. Bafil. 1572. "Η γε μβο οι το σεωτον συση Δίσκοσια κ χίλια ανδεά-मार्जिय, संस्केंद्र में जी क्षेत्र क्यारमेंद्र के कालुक्विंश देंग हरहा कहिंग है है, माने μετον αυτή έξακιοιλίων οβυέαζ. Απόγε μην τέτε τε αξιθμού, ην όδολον έκας Φ άτελη τ ημέρας Φέρη, η μ σρόσοδ Εξήκον & τάλαν α τε κιαυτε. Upon which words, the English Tranflator has the following Note, p. 54. of the Revenue of the State of Athens. " This Computation proves, that Xenophon " reckon'd 360 Days to the Year: For 6000 Oboli multiplied by " 360, make 2160000 Oboli; which Sum divided by 600, " (for 600 Oboli make a Mina) makes 3600 Minæ, which di-" vided by 60 (for 60 Minæ make a Talent) reduces the whole " Sum to 60 Talents. And the following Computation of 100 "Talents a Year, produc'd by 10000 Oboli a Day, answers " exactly to the former." Xenophon's Words referr'd to in this Place, are these, ibid. "Ο ταν δε γε μυθέα αναπληςωθή, εκατον τάλανλα ή τρέσσοδο έται.

γ Plato de Legib. l. 6. p. 615. D. Edit. Lugdun. 1690. Βυλίω 3 τη πεκάκουλα δωδεκάδας εξήκουλα 3 κ τεκακόσιοι γίνουν δ αν σεξεπουλες ταϊς Αμουραϊς. μέξη 3 Δμυκίμανλας τέτλαςα

κτ εννενήχου Τα τ α estusor.

2 Aristot. Hist. Animal. vi. 20. Kies j n pop Account, expresy

expressly assures us, that the 5th Part of a Year was 72 Days, and the 6th Part was 60 Days; and so, by plain Consequence, the whole Year must have been 360 Days. Lastly, Pliny, Laertius, and Varro inform us, that at Athens, Demetrius Phalereus (after the Time of Alexander the Great) had just 360 Statues erected to his Memory, the Year at that Time (as Pliny says expressy, and the other two as expressy as he, if their Testimonies be taken jointly) not having any greater Number of Days in it than 360.

(13.) This ancient Year of only 360 Days, appears also to have been the first Roman Year before Numa Pompilius's Correction. For de Plutarch, in the Life of Numa, says, That during the Reign of Romulus, some Months were not 20 Days long, and others contain'd 35 Days or more; the Romans not then sufficiently understanding the true Length of the Solar or

" Lunar Periods; but only providing for this one

έκθον μές τε ενιαυτε. Τετο δέ έτη πμέραι έξηκονθα — "Ενιαι η κύκοι το κωών το πέμπθον μές τε ενιαυτε: Τετο δέ έτη πμέραι έβδομήκονθα κε δύο.

dicatas, quam Phalareo Demetrio Athenis, fiquidem 360 statuere, quas mox laceraverunt, nondum anno hunc numerum dierum excedente.

b Diog. Laert. y 75. in vita Demetrii. Kai eixovuv ngian

χαλκών εξήκον α σεος ταις τειακοσίαις.

c Varro apud Nonium.

Hic Demetrius æreas tot aptu'st, Quot luces habet annus absolutus.

d Plutarch. Vitarum, p. 71. 'Ρωμύλε ης βασιλούον Φ, άλόγως έχεων β τοῖς μησὶ κὰμ ἀτάκλως, τες με εδε εκοσι ἡμεςων,
τες ζ πένλε κς τριάκονλα, τες ζ πλειόνων λογιζόμουοι, τ ζ γινομόνης ἀνωμαλίας τε τ σελλών κς τ κλιον εννοιαν στα έχουλες,
άλλ' εν με Φυλάτλοντες μόνον, όπως εξήκονλα ε τριακοσίων ήμεςων
ε ενιαυτός εςαι.

Biffexto, c. 4.

ce thing, that the whole Year should contain just

« 360 Days.

(14.) That this was the Primitive Roman Year, will appear very probable also from the Julian Calendar it felf, which intercalates the Vide Eryc. Biffextile Day immediately after the Termina-Putean de lia, the e last Day of the ancient Year; that is, immediately before the 5 last Days of February, the last Month in the ancient Year: So that the 5 last Days of February every common Year, and the 6 last every Bissextile Year, are to be reckon'd intercalary, or additional Days to the other 360. And indeed St. Austin, speaking of those who reckon'd the Antediluvian Years to be no more than 36 Days, the 10th Part of the Lunar Year, which he fuppos'd to be 360 Days; to which the 5 1 Days were afterwards added to fill up the Solar Year; directly fays, that the Romans called all those Five (or Six Days in a Biffextile Year) intercalary Days. And tho' an intercalary Month, in the Times immediately before the Julian

> e Varro de Lingua Latina, lib. 5. cap. 3. Terminalia, quod is dies anni extremus constitutus: Duodecimus enim mensis fuit Februarius; & cum intercalatur, inferiores quinque dies

duodecimo demuntur mense.

f Augustin. de Civit. Dei. xv. 12. Unum annum qualem nunc habemus, in decem partes illi dividebant, & eafdem partes annos vocabant. Quarum partium habet unaquæque quadratum senarium; eo quod Deus sex diebus perfecerit opera sua, ut in septimo requiesceret. Sexies autem seni, qui numerus quadratum senarium fecit, triginta sex dies fiunt; qui multiplicati per decem, ad trecentos sexaginta perveniunt, id est, duodecim menses lunares. Propter quinque dies enim reliquos, quibus folaris annus impletur, & diei quadrantem, propter quem quater ductum eo anno quem biffextum vocant, unus dies adjicitur, addebantur à veteribus postea dies, ut occurreret numerus annorum; quos dies Romani intercalares vocabant.

Correction, was inferted in the fame Place where the Biffextile Day is inserted now; yet, 'tis probable, from what St. Austin says, and indeed from the Agreeableness of the Thing it self, that the first Correction of the ancient Year of 360 Days, was made by adding the 5 Days aforesaid to the End of it. I wo at business whereares

(15.) That the original Roman Year was exactly 360 Days, is farther proved; because a tacit Year of that Length was retain'd in the Roman Empire, for the anniversary Celebration of some particular Solemnities, long after the Establishment of the Julian Year; as appears from fome Inscriptions in Gruter: Concerning which,

hear the Words of the famous Cardinal Noris. P. 1087. "In harum Inscriptionum una dicitur Nonius Inscrip. 5. " Victor cum Aurelio Victore, Datiano & Ce- Noris de " reale Coss, tradidisse LEONTICA XVI. anno, &c.

« KAL. APRIL. Et in altera memorandum ced. p. 4.

" iidem, Eusebio & Hypatio Coss, iterum tradidisse

" LEONTICA IV. IDUS MARTIAS.

· Erant sacra anniversaria, quæ anno evoluto, " ab iisdem instaurata fuerunt. Priora peracta

" funt anno Christi 358, die 17 Martii; altera " anno 359, die ejusdem mensis 12, jam evolu-

" tis diebus à prioribus Leonticis, 360." This Reafoning from fuch undoubted Authorities, is fo plain and convincing, that nothing farther

need be added to it.

(16.) This Computation of 30 Days to every Month, and fo of 360 Days to a Year, in ancient Time, is also confirm'd by that Length of a Month all along in the old Histories, as has in great measure been prov'd already, and is confirm'd by these farther Testimonies. When Queen Esther would express her Absence from King Abasuerus for an entire Month, she expresses it

Efth. iv.

King these 30 Days. And when Darius's Courtiers, in Daniel, follicited him to prohibit Pray-

thus; I have not been called to come in unto the

Dan. vi. 12.

ers for an entire Month likewise, they express'd it thus; that none should ask a petition of any God or Man for 30 Days. And this Month of 30 Days did certainly continue in civil Use at Athens till Solon's Time at least. 8 Diogenes Laertius and h Plutarch agree, that he was the first who accommodated the Month to the Motion of the Moon, and called the last Day of it (which before was named resands, the 30th Day) Evn & véa, the Old and New Day, as belonging partly to the Old Moon, and partly to the New. And Proclus also adds, that Solon was the first that made the Month less than 30 Days. Nay, even in later Years, above 200 Years after Solon, the ancient Astronomers, Eustemon, Philip, and Calippus, in those very Cycles which they made for adjusting the Years and Months to the Motions of the Sun and Moon, did con-

B Diog. Laert. i. 57. in vita Solonis. Πεωτ 🖰 ζόλων την

τρακάδα ένω κ νέαν εκάλησεν.

Të phi phino To plude, & d' isaphono. Τίω ζ εφεξής νεμηνίαν οπάλεσε. Την δ' ἀπ' εικάδο ε προς:θείς αλλ' αφαιεών κζ αναλύων, ώσως τα φώτα ο σελήνης ής

εώρα μέχρι τελακάδ 🕒 πείθμησεν.

h Plutarch. in vita Solonis. Vitarum, pag. 92. Zundur 3 [Solon] & ulues & arumaxiar, & & xinnow & σελίωης, έτε δυομβρο το πλίω σάνθως, ετ ανίχονοι συμφερομβρίω, άλλα σολλάκις τ αυτής ημέρας κο καταλαμδανέσας κάμ ταςερχομβίω τ τλιον, αυτίω με εταξε ταύτίω, ένων κε νέαν καλειας. το με weg σωνόδε μόριον αύτης του σταυορθήτο μίωι, το 3 λοιπον ήδη τω αρχομβρω τροσέκειν πρέμβρο. Πρώτο, ως εοικεν, όρθως aκέσας Όμης κεγονίο.

Proclus in Timæum, lib. 1. p. 25. lin. 43, &c. Σόλων 🕒 3 % oti o uni o σε luianos σοκ ές ι τριακονθήμες Φ, κ Δρά τε 6 σεωτος αυτος ένην οπάλησε κο νέαν, κο όλως το ανασείψαι της बंशिमिश्वेद के म्हिट्बिंग केंग्रे संप्रवेद , संद देश का वंग्यप्रेंट्ड). **Itantly**

ftantly allow 30 Days to each Month, and then threw out every 63^d or 64th Day, as is particularly explain'd in Geminus; who himself also expressly k afferts, that the Ancients constantly Cap. 6 ad allowed 30 Days to a Month. Lastly, I Julius calcem. Pollux, Galen, Cleomedes, Orus Apollo, Achilles Tatius, and St. Austin, do each of them assure us, that by a Month, in the vulgar way of speaking, is meant 30 Days. Nay, the four last express themselves so, as if the Lunar Month it self were exactly of that Length: And St. Austin carries the Matter farther, and takes the

Sui

k Gemin. cap. 6. Οἱ με ἐν ἀξχαῖοι τὰς μῆνας τεκακονθημέ-

¹ Jul. Pollux, lib. 1. Seg. 59. Περί τ μηνών. 'Εκ ή μηνών ερείς σιτηρέσιον έμμηνον, κ μλωιαίον, κ τελακονθήμερος.

m Galen de Crisib. ii. 2. Τον μένα τεκάκονος τμερών τη λέγομεν.

π Cleomed. ii. 4. Καλεί] ζ [μίω] κὰ το λίπο σωνόθε ἐπὶ σωνόδον, χρονικὸν Δίφενημα κὰ λοιπὸν, ὁ τελακονθήμερ Ερόν Ε. Ως λέγομεν, μῆνα λίποδεδημηκένω, ἢ ἐπιδημεν, ἐ πάνως τὸ λίπο σωνόδε ἐπὶ σωνόδον λέγονθες, ἀκὶ ἀπλῶς, τὰ τελάκον α ἡμερῶν ἀελθμόν. Idem, lib. 1. cap. 3. Lunam ait σωνοδού ενν τοῦ ἡλίω Δίμ λ΄ ἡμερῶν.

ο Orus Apollo, lib. I. Hierogl. 4. Lunam ait ου τη λπκεβος τ αριθμον τ τριάκονω ημες ων πλης ώσασαν, είς το κάτω τοις κέρφοι νούεν.

P Achilles Tatius in Arati Phænomena, cap. 21. De Luna. Πενζεκαιδεκαταΐα γάς έςι ωληςωθείσα ὁ έςιν ήμισυ μίνος, δι-

q Augustin. de Trin. iv. 4. Annus etiam unus, si duodecim menses integri considerentur, quos triceni dies complent, talem quippe mensem veteres observaverunt; quem circuitus Lunaris ostendit, senario numero pollet. Quod enim valent sex in primo ordine numerorum qui constat ex unis ut perveniatur ad decem; hoc valent sexaginta in secundo ordine, qui constat ex denis ut perveniatur ad centum. Sexagenarius verò numerus dierum sexta pars anni est. Proinde per senarium primi versus multiplicantur, tanquam senarius secundi versus, & siunt sexies sexageni, qui sunt integri duodecim menses.

prius.

vide Not. Lunar Year, or 12 Lunar Months, to contain f. p. 158. just 360 Days. And even Dionysius Exiguus, above 500 Years after Christ, reproves many for this Error, of taking the Lunar Month to be just 30, and the Lunar Year just 360 Days. And it cannot be eafily imagin'd, how fo great an Error should so universally obtain, unless the most ancient Year and Month had been just 360 and 30 Days in Length respe-

ctively.

And thus, I think, I have clearly prov'd the first Particular which I undertook, namely, That the ancientest Year in Use in most Nations of the Postdiluvian World, was exactly 360 Days, and the Month exactly 30 Days. I come now to show, That even in the Antediluvian World, not only the Year in civil Use, but also the Solar Year, and the Lunar Year too, were each of them 360 Days in Length, and exactly commensurate to one another. And here, if the Reader will make Allowances for the Distance and Obscurity of the Times I am now about to treat of, and for the Scarcity of any Records belonging to them besides the Holy Scriptures; I believe he will find as much Evidence, even for this fecond Particular, as can reasonably be expected, and what is abundantly fufficient to fatisfy him of the Truth and Reality of it.

And, (1.) fince we have found, that the most ancient Postdiluvian Year in civil Use in most Countries, was exactly 360 Days, confist-

Dionyf. Exig. Epift. ad Petron. Sed non hoc prætereundum esse putavimus, quod nimis errant, qui lunam peragere cursum sui circuli triginta dierum spatiis æstimantes, duodecim lunares menses in trecentis sexaginta diebus annumerant.

ing of 12 equal Months of 30 Days apiece; ris a strong Presumption, that the Antediluvian Civil Year was of the same Length. For it cannot eafily be imagin'd, how this Year should so universally obtain after the Deluge, except it had been in Use before it; especially, fince it is neither equal to the present Solar Year, nor to the Lunar. If the first Nations after the Deluge had made any Change in their Year, they would certainly have endeavour'd to make it conformable to the Motions, either of the Sun, or of the Moon, or both; which appears to be the Practice of every Nation, when they undertake to correct or alter the Year in civil Use. And therefore, since neither the Year of 360 Days, nor the Month of 30 Days, is agreeable to any of the Celestial Motions; it must be granted, that the Postdiluvians were not the first Framers of this Year, and therefore, that it was us'd before the Deluge also.

(2.) This farther appears by that most ancient and most valuable Testimony of Moses; whereby we understand, that from the 17th Day of the 2d Month, when the Flood began, till the 17th Day of the 7th Month, when the Ark rested, were just 150 Days, or just 30 Days for every intervening Month. The Words are these: In the 600'h Year of Noah's Life; the se-Gen. vii. cond Month, the 17th Day of the Month, the 11. same Day were all the Fountains of the great Deep broken up, and the windows of Heaven were open'd .- And the waters prevail'd upon the earth * 24. 150 Days. - And after the end of 150 Days, the Chap. viii. waters were abated: And the Ark rested in the 7th 3, 4. Month, on the 17th Day of the Month, upon the Mountains of Ararat. So that hence 'tis evident, that 5 Months, viz. the second, third, S 2 fourth.

lily goo

2531003

fourth, fifth and fixth, had just 30 Days apiece; and, by Consequence, 'tis most probable, that all the rest had so likewise; and that therefore the whole Year had no more than 360 Days.

Lemma to the third Argument. The ancient Succession of Kings in Berosus and Abydenus, whose Reigns are counted by Sari, govern'd some Part of the Antediluvian World, and ended at the Deluge. All this is afferted by the Historians f themfelves. Nay farther, Xisutbrus the last King, appears evidently to be the same with Noah, since almost the whole History of the Flood, and of Noah's being fav'd in the Ark, may be found in the remaining Fragments of Berofus and Abydenus, if you only change the Name of Xi-Gen. vi. futbrus for Noah. As particularly, that "God " reveal'd to Xifuthrus, that a great Deluge 17. & vii. 11.66 should destroy Men from the Earth, and be-" gin on the 15th Day of the Month Defius; Chap. vi. " and therefore Xisuthrus was commanded to save 18, 19, " himself and his Family, by entring into an 20, 21, " Ark or Ship, and to take with him into the 22. & Chap. vii. " Ark all forts of Birds and Beafts, with ne-" ceffary Food for himself and them. Which " being done, the Deluge came, as predicted. Chap. viii. " And after the Rain had ceased, Xisuthrus sent 1, 3, 7, 8, " out a Bird, to see if the Waters were abated; 9. .. " which return'd to him again, having found y 10, 11. " nothing to rest upon. And after some Time, " he fent out another; which return'd likewife, but with dirty Feet, whereby he knew the Wa-

2 8

f Vide Berof. 1. 2. citat. ab Alex. Polyhist. apud Syncel. p. 30, 31. Et Abyden, apud Eufeb. Prapar. ix. 12. vel apud Syncel. p. 38, 39. Similia de Deucalione tradit Lucianus de Deâ Syriâ. cc ters

" ters were abated. Lastly, he sent one out the 12.

" third time, which return'd not to him again.

"That afterwards, Xisuthrus open'd the Ark, y 13.

" and faw the Ground was dry; fo he and his

"Wife came out, and rais'd an Altar, and fa-y 18, 20.

" crific'd to the Gods. His Children also came

" out and facrific'd, and found that the Ark rested \$ 4.

" on the Gordyean Mountains in Armenia, and Part of it still continued in being when this

" Account was written. Afterwards, Xifuthrus's Chap. xi.

"Children journey'd towards Babylon, built ma-2, 3, 4. &c

" ny Cities, and founded Temples, and particu-12.

" larly built Babylon." These Circumstances are so agreeable to the Scripture-History of the Deluge, that many have been tempted to think that Berosus transcrib'd this Account from thence. But that cannot easily be; because amongst these Truths, there are some Mistakes and Falsities intermixt, which I thought it not worth the while to relate. But from those Falfities, and from the Idolatry in this History, it appears, that it was collected and put into Writing some few Years after the Deluge, namely, after the Rife of Idolatry amongst the Postdiluvians. And yet, 'tis very probable, this was done long before the Lives of Men were fix'd to the present Standard, while fome that had convers'd with the Sons or Grandfons of Noab were still alive; because the Particulars of the Deluge are more accurately related therein, as we have feen, than could be supposed possible, had the Tradition pass'd through very many Hands before it was committed to Writing.

(3.) That the Antediluvian Year was just 360 Days long, appears from the Reigns of these Antediluvian Kings, which, as I said, are not reckon'd by Years, but by Sari. And our Au-

thors

thors tell us, 'a Sarus is 3600 Years; that is, (as some ancient Christian Writers understood vide Syn- them, and as appears by the great Length of the cel. p. 18. particular Reigns, some of them amounting even to 18 Sari apiece) 3600 Days, or ten Years of 360 Days each. And the Hebrew or Chaldee Expression of a Sarus confirms this Assertion. Hhasár is Ten; and the first Letter being such a Guttural as could not well be pronounced by the Greeks, they would naturally express the Word by Σάς &, which is therefore literally a Decad. For the Lives of the Antediluvians being generally at the least Ten times as long as ours, they found it more convenient to reckon their own Lives and the Reigns of their Kings, rather by Decads of Years, than by fingle Years. Now if a Sarus, or Decad of Years, contain'd 3600 Days before the Deluge; 'tis plain, that each Year contain'd just 360 Days.

(4.) If it be proved by the preceding Arguments, that the Civil Year before the Deluge was just 360 Days, and the Civil Month just 30 Days; 'twill be thence very probably concluded, that both the Tropical Year, and the Lunar Month, were each of the same Length respectively. The great Probability of this will appear, whether we suppose the Civil Year and Month to have been of Human, or of Divine Institution. For, 1st, if they were of Human Institution, what could induce the Antediluvians to make use of this Form of Year, if it varied

^{*} Syncel. pag. 17. 'Ο μ Βήςωστ Δα Σάςων κ Νήςων κ Σώσσων άνεγοά ψα ω δ μ Σάς τελεχιλίων κ έξακοσίων έτων χεόνον σημαίν , ο ο Νής είνα εξακοσίων ο ο ο Σωσσων έξηνονω. Καὶ σων ξε Σάς εκατὸν είκοσι Δα βασιλέων δέκα. — Ταῦ τα ο ἔτη τινὲς τη καθ κμᾶς ἰσος κῶν, ἡμές ας ἐλογίσαν σοχας ικῶς. Vide & Syncel. p. 32.

as much from the Motions both of the Sun and Moon, as it does at present? The Antediluvian Earth was extreamly fruitful, the Lives of its Inhabitants extreamly long, and the Air at that Time extreamly clear; so that the Inhabitants of the Old World wanted neither Leifure, nor Time, nor Opportunity, to make Multitudes of Observations, in order to discover the true Length of the Year and Month: which if they had discover'd, the great Conveniencies visibly confequent upon the Use of them, must needs have induced the Civil Powers to have enjoin'd and establish'd them accordingly. Now, since it appears by the former Arguments, that, in fact, the Civil Year before the Deluge was just 360 Days, and the Civil Month just 30 Days; 'twill be highly probable, from what is here alledg'd, that (if the fame Civil Year and Month were of Human Discovery and Institution) the Tropical Year and Lunar Month were of the same Length also. But, 2dly, if, on the other hand, God himself reveal'd to Mankind the true Length of the Year; 'twill be still more evident, that the Antediluvian Tropical Year was exactly 360 Days long, and the Lunar Month exactly 30 Days: For God cannot deceive his Creatures; nor would he institute a Form of Year which was less convenient and proper for attaining the End for which it was instituted, when nothing hinder'd but that the most convenient and most proper, that is, the true Tropical Year and Lunar Month, might have been as easily ascertain'd by Divine Revelation, as any others. Since therefore 'tis before prov'd, that the Civil Year was just 360 Days before the Deluge, and the Civil Month just 30 Days; if God taught Mankind this Length of the

the Year and Month; then it plainly appears, that the Tropical Year and Lunar Month were just 360 and 30 Days long respectively. And upon the whole, whether the Antediluvian Civil Year and Month were of Divine or of Human Original (and of one of the two they certainly were;) It appears either way highly probable, that both the Tropical and Lunar Year were just 360 Days each, and the Lunar Month exactly 30 Days.

(5.) And that the Primitive Solar Year was really no more than 360 Days, and contain'd just 12 Lunar Months of 30 Days apiece, appears farther, by the most ancient Division of the Solar .Course into just 360 Degrees, and those distributed into 12 Signs of 30 Degrees apiece. For the only natural Reason that can be given, why the Zodiack or Solar Circle was at first divided either into just 360 Degrees, or 12 Signs, and why just 30 Degrees were allotted to each Sign, must be, that when this Division was made, the Sun ran through the Zodiack in just 360 Days, which were also 12 Lunar Months, 30 Days being then the exact Length of every Month. And this Division of the Zodiack or Solar Circle into 360 Degrees, was so very famous and remarkable in old Time, that Aftronomers and all other Mathematicians have transferr'd that Number of Degrees to every other Circle which they confider'd; and have still suppos'd them divided, every one, great and small, into 360 Degrees. And this Division of a Circle has continued ever fince to this Day, as a standing Memorial of that most ancient Tropical Year which obtain'd when this Division was made. I called this Division of the Zodiack a most ancient one, because it appears to have been made long before the earliest Accounts of Astronomy that we have; they all still supposing it, and not

at all mentioning any thing of its first Introduction. And fince this Division was first made when the true Solar Year was no more than 360 Days in Length, and contain'd just 12 Lunar Months of 30 Days apiece; 'twas therefore older than the Deluge; since we are pretty certain that, generally speaking, since the Deluge, the Solar Year has been some Hours longer than 365 Days, and the Lunar Year some Hours shorter than 355. If then the Zodiack was thus divided before the Deluge, in Correspondence with the true Solar and Lunar Year; 'tis evident, that before the Deluge they were each of them just 360 Days, and subdivided into 12 Lunar Months of 30 Days apiece.

Lemma 1. to the fixth and seventh Arguments. Manetho's most ancient Succession of the Gods, as he calls them, reign'd before the Deluge, and ended at it. Manetho divides his Dynasties into those of the Gods, Demi-Gods, Heroes and Men. In this Place I only speak of the first of these, because none of the rest do contribute any thing to the present Argument. Now by Gods here, Manetho (as he elsewhere explains himself) means only mortal Men, who, for their Wisdom and Goodness, were severally promoted to the Regal Dignity, and afterwards made immortal. And Diodorus

ν Manetho ap. Euseb. Præp. ii. 1. pag. 45. Τθς 3 Θεθς άν-Αξώπες με τωάςξαι Ανητές, Δα 3 ζωνεσιν κε κοινων άιθεωπων ἐυεργεσίαν τυχείν τ άθανασίας, ων ενίκε κε βασιλείς χρέας.

W Diod. Sicul. lib. 1. p. 8. Περί μ δν τ ον θεσιώ Θεών κο γρίεσιν αίδιοι έγηκότων, τοσωύτα λέγθσιν Αιγύπλιοι. Αλλες ή οκ τέτε ἐπιγείες γρίοζ ζασίν, ὑπάρξανλας μι Ανητες, Δμό ή σιώεσιν κο κοινων ἀνθεώπων ἐυεργεσίαν, τετυχότας τ ἀθανασίας διν κόνες κο βασιλείς γεγονέναι κτο τ Αίγυπλον. Μεθερμενουρφών ή κύτων, τινάς μι ὁμωνύμες ὑπάρχειν τοῖς βρανίοις, τινάς ή ἰδίαν ἐχηκέναι προσηγορίαν, Ἡλιον κο Κρόνου, &C.

Siculus also speaks to the same Purpose. But I shall not take upon me to defend every thing that Manetho, or any other Writer has advanc'd concerning these very ancient Times. 'Tis sufficient for my Purpose, if I prove that these Kings, whom Manetho calls Gods, reign'd over some Part of the Antediluvian World, and ended at the Deluge; their Memory being preserv'd by the old Egyptian Records, and their History committed to Writing * not many Years after the Dispersion from Babel. I shall therefore endeavour to prove this Lemma, First, by the Authority of several ancient Christian Chronographers at least, if not by the direct Affertion of Manetho himself: Secondly, from a Confideration of the first King; and, Thirdly, from a Confideration of the last King in the fame Succession.

And, First, I am to shew, what Authority may be produc'd to prove that these Kings reign'd before the Deluge. I observe then, that both Vide Syn- Africanus in the Third, and Eusebius in the Fourth cel. p. 54. Century of Christianity, having spoken of the B. & 55. former Sorts of Manetho's Dynasties, and of the Gods among the rest, do each of them prefix this Title to the following Dynasties of Men; [Of the Egyptian Dynasties after the Deluge:] which clearly intimates, that the preceding ones (and therefore also the Gods) were before the Deluge. And Panodorus, in the Beginning of the Fifth

Vide Syncel. p. 40, 41.

A.

Century,

x For Thoth, the most ancient Egyptian Mercury, the same with Athothes, the second King of Egypt, who began to reign [by the Hebrew Chronology] within less than 200 Years after the Deluge, invented Letters: And from his Memoirs, Manetho compiled his History, or at least, that Part of it which relates to the Gods, &c. See Sir John Marsham's Canon Chronicus, Secul. 1. Tit. Thoth Mercurius. Dii Cabiri. And particularly observe what Syncellus says, p. 40. A. B.

Century, supposes both the Gods and Demigods to have reign'd before the Deluge. And Georgius Syncellus, tho' he rejects Manetho's Autho-Syncel. rity in this Particular; yet he every where al-P. 34. D. lows and takes it for granted, that they were to & 37. be taken for Antediluvian Kings, and supposed to be so even by Manetho himself. And indeed, the Length of some of their Reigns is entirely disproportionate to any Postdiluvian Times; and when Allowance is made for Manetho's Way of reckoning, (which I shall prefently explain) will be found very agreeable to the Longevity of the Antediluvian Patriarchs.

Secondly, The Succession of the Gods appears to have been before the Deluge; because Vulcan, the first King, was fo. Y Tzetzes says, he was contemporary with Noah, whom he supposes to be the same with Osiris; but by the same Argument he ought to have concluded, that the Egyptian Vulcan was long before Noah, fince he was long before Ofiris, as all will allow, and as it particularly appears from the very Succession of the Gods. And indeed, Vulcan feems to be no other than Tubal-Cain in Scripture. Their Names are near a-kin to each other: And the same Character belongs to both. The Scripture fays, that Tubal-Cain was the Instructor of every Artificer in Brass Gen. iv. and Iron: And Vulcan is famous in prophane Au- 22. thors, not only for his artificial working z in all

forts

y Tzetz. Chil. x. y 492, &c.

[&]quot;Ηραιεός τις 'ΑιγύπλιΦ', ου χρόνοις τοῖς Ε΄ Νῶε,
"Ος Νῶε τὰ ΔιόνυσΦ τὰ "Οσιρις καλέξ"),
"Ερεύςε τοῦς, τὰ τέχνας τὰ τὰ τουρός, ὁπόσαι.

Vid. Homer. Il. Σ y 370, &c. Et Virgil. Æn. viil. * 400, &c. Apud Homerum Vulcanus appellatur xaxxsus. κλυτοτέχνης, κλυτοεργός, &c. Apud Orpheum (Hymn. in Vulcan.) φωσφός Φ, κας Ιερόχεις, τεχνοδίαντ Φ, έργας εξ, ότι.

forts of Metals, but also for his instructing * Mankind therein. And 'tis remarkable, that this is the more peculiar Character of this *Vulcan* here, in the * Egyptian Succession of the Gods, than of any other.

Homer. Hymn. in Vulcanum, y 1, 2, 3.
"Ηραισον κλυτόμητιν ακίδεο, μεσα λίγκια,
"Ος μετ' Αθίωαίης γλαωκώπιδώ, αγλαα έργα Ανθεάπες εδίδαξεν έπι χθονός,

Et Platonis Convivium, Operum, pag. 325. D. Καὶ Μέσαι μεσικής [inventrices & διδάσκαλοι] κὰ Ηραις Το χαλκείας, κὰ Αθωᾶ ἰσειγίας, κὰ Ζοῦς κυβεξνήσεως Θεᾶν τε κὰ ἀνθεώπων.

Et ejusdem Politic. Operum, p. 177. A. [De temporibus aureum seculum proxime succedentibus verba faciens] "Οθεν ο τὰ πάλαι λεχθεν α τὸ Θεῶν δῶςα κμῖν δεδώςη) μετ ἀναγκαίας διδαχης κὰ παιδούσεως πῦς μὰ τὸ છે. Περμηθέως, τέχναι τὰ πας Ἡφαίς κὰ τὰ ζωτέχνε. σπέςματα τὰ αὐ κὰ φυτὰ πας ἀπων κὰ πάνθ ὁπόσα τὰ ἀνθς ώπινον βίον κατεσκούακεν, ἐκ τετων γέγονεν.

Et Diodorus Siculus, lib. 5. pag. 235. Ήφαισον ὁ λέγεσιν ἐυρετλω τ΄ τοῦ τ είδηρον ἐργασίας απάσης, ης τ΄ τοῦ τ΄ χαλκον κς χρυσὸν ης ἀργυρον, ης τ΄ αλων ὅς α τ΄ κα ε΄ τουρος ἐργασίαν ἐπιθέχε ς Καὶ τὰς αλλας ἡ χρικας ε΄ τυρος ἀπάσας προσεξεύρειν, ε΄ Τοῦς ἀλλοις ἀπασιν ἀνθρώποις. Διόπερ οἱ τε τ΄ τεχνῶν τέτων δημιφργοὶ τὰς ἐυχὰς κς θυσίας τέτω τῷ Θεώ μάλισα ποιεσι, ε΄ το πύρ ε΄τοὶ τε κς πάνθες οἱ ἀνθρωποι προσαγορεύμουν Ἡραισον, εἰς μνημίω κς τιμίω ἀθάνα εν

πιθέμθροι τ' έξ άξχης τω κοινώ βίω δεδομθρίτν ευεξγετίαν.

b Diodor. Sicul. lib. 1. pag. 8, 9. Ενιοι 5 τω Ιερίων Φασί περώτον Ήραισου βασιλεύσαι, πυρος έυρετω χωόρμον, κ λίοι τ ἐυχερισίαν ταύτω, τυχόνω τ πρεμονίας. Γενομφικ τω τοῖς ἐρεσι θεραυνοδόλω δένδεω. κ τ πλησίον ελης καιομφης, περσελθόνλα τ Ἡραισον κ, τ χειμέρλου ωραν, ποθέναι Δίαθερόντως ἐπὶ τῆ θερμασία. λήγονθο 3 δ πυρός, αἰκ τ υλης ἐπιδάλλειν. Και τωτο τω τρόπω Δίατηρωνω το ποῦς, περσκαλείας τως άλλως ἀνθεώπως προς τ ἐξ αὐτω γινομφην ἐυχερισίαν. Similia de aris & ferri inventione tradit Seneca, Epift. 90. In hoc quoque dissentio, sapientes fuisse, qui ferri metalla & æris invenerunt: cum incendio sylvarum adusta tellus, in summo venas jacentes liquesacta sudisset.

Ετ Chron. Alexandrin. pag. 106. Περλ σιδής 8 τίς πεῶτΟς εφεῦς εν. ΄Ο ζ αὐτὸς Ἡραις Φ [Ægyptiorum Rex] λπὸ μυς ικής τινὸς ἐυχῆς τ ὀξυλάδω ἐδέξαις και Ε ἀξο. εἰς τὸ κατασκουάζειν και σιδής 8 ὅπλα. ΄Οθεν κὰ ἐπιπρατής σιδής 8 ἡυςίθη εἰς τὰς πολέμες. ΄Αποθέωσαν εν αὐτὸν ώς — τροφήν ἀνθεώποις Αφ

Thirdly,

Thirdly, The same Thing may be prov'd from fome Considerations upon Typhon, the last King of this Succession; namely, that he reign'd immediately before the Deluge, and perish'd therein. This will clearly follow from what is before prov'd, if compar'd with the following Lemma. For if Vulcan be Tubal-Cain, this Succession must necessarily end at the Deluge; the Number of Years it contains not permitting us to suppose it could possibly end any considerable Time before it. But this will farther appear, 1st, Because many Circumstances of the Deluge are mention'd in the History of Osiris and Typhon, in Plutarch and others; as particularly the very Day when the Deluge began, or when Osiris, (who is taken Not. y, for Noah) was shut up in the Ark, viz. the 17th pag. 170. Day of the 2d Month after the Autumnal Equi- prius. nox, as has been observ'd before. And other Arg. 7. Circumstances of the Deluge there are in Typhon's vi. prius. History, some of which I shall have occasion to Arg. 7. mention presently, and others will be produc'd infra. under the following Hypothesis. 2dly, The very P. 185, Name of Typhon also, according to some learned ' Men, fignifies a Deluge or Inundation; whence the Egyptian Priests (as a Plutarch fays) called the

κατασκούῆς ὅπλων ἐυςηκότα, κὰ εν τοῖς πολέμοις διώαμιν κὰ σωτηείαν ποιήσανῖα. Πεὰ κῶ αὐτῶ, ἐοπάλοις κὰμ λίθοις ἐπολέμεν. Similia de Vulcano Ægyptiorum Rege, de ὀξυλάδη seu forcipe, & de ferri inventione & usu, reperiuntur apud Cedrenum, p. 19. D. & apud Suid. voce "Ηραις Φ. Vide etiam Not. y, p. 171. prius.

C See Jurieu's Doctrines and Worship of the Church. Part iii. Treatise iv. [Of the Golden Calf.] chap. viii. Vol. ii. p. 208.

d Plutarch de Iside & Osiride, Operum Moral. p. 363. Δοως Ελλίως Κορνον άλληγος εσι τ κρόνον, "Ηραν ζ τ άξοα, γίεσιν ζ Ηραίς ε, τ είς ωυς άξο μεταδολήν έτω ωας Αγυπίως Νείλον ε) τ "Οσιελν, "Ισιδί σωνόνλα τη γη Τυζώνα ζ τ βάλασσα", κς ην ο Νείλ εμπίπων άξανίζε) κ λίασσα].

Sea Typhon. 3dly, Typhon (whom the Latin Poets more frequently call Typhoeus) is erepresented as a monstrous Giant who fought against Heaven, and was at last overcome by Jupiter, and, as one says, thes now submers'd in Water. From all which it appears very probable, that he was one of those

Gen. vi. 4. Giants who, as the Scripture fays, were in the

Earth before the Flood; one of those mighty Men

\$ 5, 6, 7, which were of old, Men of Renown, whose Wicked-11, 12,13 ness was so exceeding great, as might easily give

Occasion to the ancient Tradition of their fighting against God. And lastly, Typhon's being said to be overcome and submers'd in Water, seems evidently to proceed from his perishing in the Deluge, which was brought upon the Earth by the great Wickedness wherein gether, and indeed all the Antediluvian World had involv'd themselves. So that upon the whole, it cannot easily be denied that this Succession of the Gods ended at the Deluge, and that Typhon, the last King of it, perish'd therein. [See another Notion of Typhon, in the III^d Appendix to the Essay for Restoring the True Text of the Old Testament.]

Lemma 2. to the 6th and 7th Arguments. The Reigns of the Gods in Manetho, are not express'd by

Years,

e Vid. Æschyl. in Prometh. vincto, * 351-365. Et Apollodori Bibliothec. lib. 1. cap. 6. § 3. Et Antonini Liberalis, c. 28. Et Diodor. Sicul. l. 1. p. 16. A. B. Et alios passim.

f Apollonii Argonaut. lib. 2. * 1215, &c.

"Ενθα Τυφάονα φασι Διὸς Κρονίδαο κεραυνό
Βλήμθρον, όππότε οἱ ειδαρὰς ἐπορέξαθ χεῖρας,
Θερμὸν λπὸ κρατὸς εάξαι φόνον, ἵκετο δ΄ αὕτως
Οὔρεα κὰ σεδίον Νυστίον, ἔνθ΄ ἔτι ναῦ σερ
Κεῖ ὑποδρύχι Ερβωνίδ Ος ὕδασι λίμνης.

B Diodor. Sicul. lib. 1. pag. 12. Φατί — νομίμως βασιλούον & Αιγύπλε τ΄ Ότιον, των Τυρῶν ἀναιρηθίωσι Ε άδελφε, βιαίε κὰ ἀσεδες ὅντ Φ. Vide etiam Eufeb. Præp. ii. 1. p. 46. D. Et confer Gen. vi. 11, 13.

Years, but partly by Lunar Months, and partly by Egai, or Seasons. The Probability of this Lemma h Diodorus affures us of; that when 'tis faid that some of the first Kings of the Succession of the Gods reign'd about 1200 Years, so many Lunar Months are understood thereby: And when 'tis said that the latter Kings of the same Succession reign'd 300 Years or more, there the Seasons of the Year are understood, reckoning 4 Months in every Season, and 3 Seasons in every Year, namely, Spring, Summer and Winter. And these two sorts of Egyptian Computations for Years are also observ'd by Plutarch. And particularly as to the former, * Varro,

h Diodor. Sicul. lib. 1. p. 15, 16. Μυθολογέσι 3 ['Aιγύπίοι] κ τ Θεών τες μ άςχαιοτάτες βασιλούσαι πλέω το χιλίων κ Σζακοσίων ετών, της ή μεταγριες έρης ηκ ελάτλω τ τελακόσίων ἀπίεε δ' Ένη Ε Ελήθες Τ ἐτῶν, ἐπιχειρεσι τινὲς λέγειν, ότι το σαλαίον, έπω τ σει Τ ήλιον κινήσεως επεγνωσμόρης, σιωίεαινε χτ τ τ σελάνης τείοδον άγεος τ ενιαυτέν. Διότοβ της έτων τριακονθημέρων δύλων, σοκ άδιματον εί) βεδιωκέται τινάς έτη χίλια κ Δακόσια κ ης νωυ, δυωκαίδεκα μένων όνηων τ όνι-αυτών, σοκ όλίγες ύπες εκατον έτη ζην. Παραπλέσια 5 λέγεσι κ ωθεί τ τερακόσια έτη δοκένθων άςξαι. Κατ οπείνες γδ τες χεόνες, τ ενιαυτόν απαρλίζεος τέτλαςσι μποί, τοις χυομθύοις εξ τὰς τ χρόνων ώς μς, οἶον ἔαρΦ, Θέρες, χαμῶνΦ. Αρ της αἰτίας κ παρ κνίες τ Ελλήνων, τες κνιαυτες ώς ες καλείως, κ τὰς κατ हैं कि केरबम्ह्यमिक कं हुप्रस्कृतिक क्रहु क्या करू

i Plutarch. in Numa. Vitarum, p. 72. Aiyumliois 3 pluiαι 🕒 ήν ο εκιαυτός, είτα τετράμω 🕒, ως φασι. Διο κ νεωτάτω χώραν οίκενθες, αρχαιότατοι δοκθσιν ΕΒ, η ωληθώ αμήχανον έτων έπε τους Χρεοιλογίους καταφέρυσα, άτε δή της μήνας είς έτων

« Esquor Tibépapos.

k Lactan. Institut. ii. 12. [Speaking of Mankind immediately after the Fall.] Sic facta hominis vita est temporaria, sed tamen longa, quæ in mille annos propagaretur. Quod, divinis Literis proditum, & per omnium scientiam publicatum, cum Varro non ignorer, argumentari nixus est, cur putarentur antiqui mille annos victitasse. Ait enim, apud Ægyptios pro annis menses haberi, ut non Solis per 12 signa circuitus faciat annum, sed Luna, quæ orbem illum signiserum 30 dierum Spatio illustrat, &c.

1 Pliny, m Macrobius, and " Suidas, do all agree, that the Egyptians of old computed a Lunar Month for a Year. And o Julius Africanus speaks also of several that computed the Reigns of the most ancient Kings of Egypt upon this Hypothesis. And P Eusebius also afferts, that this Method of reckoning a Month for a Year, was practis'd by the most ancient Egyptians. Add, that q Eudoxus also afferts, that the Egyptians formerly us'd a Month for a Year. And fome ancient Christian Chronographers were so fully perfuaded of this, that they have extended it too far,

vide Syn- and suppos'd, that all the Reigns of the Gods in cel. p. 19. Manetho were reckon'd by Months only; and on that Supposition, have reduc'd them to Tropical

m Macrob. Saturnal. i. 14. [Apud Ægyptios] Lunaris annus mensis est, quia Luna paulo minus quam mensem in

Zodiaci circuitione confumit.

" Suid. in "Haio, de regno Solis, Vulcani Fil. verba faciens, Oi il of ras nuivas cuaures ithougor oi 3 ras aleides ב שנושה בדבפסו ל דצי ל ממופציק.

· African. apud Syncel. p. 17. 'Aιγύπ λιοι μ οιώ ωθεί τας ωθείοδες κη μυριάδας έτων, κατάθεσεν τινα τ ωας αύτοῖς ἀς ρο λογεμθώων έξέθεν 6 · άς τινες Τ΄ ταῦτα ἀκρλδεν δοξάνζων

συς έλλον ες, σελίωται ες είπον ενιαυτές, &c.

P Euseb. apud Syncel. p. 40. 'Airon lioi 3 Ocar of Huidewr, κ τέτοις νεκύων κ θνητών έτερων βασιλέων, σολλήν κ φλύαρον σωνέρεσι μυθολογίαν. 'Οι ηδ τας αυτοίς παλαιότατοι σελωιαίες έφασκον εθ, ηγεν μωιαίες τες ανιαυτές, έξ ημερών τελάκον α σιωες ώτας.

9 Proclus in Timæum, lib. 1. pag. 31. lin. 50, oc. E. 3 κ δ Φησιν Εύδοξ Θ άληθες, ότι Αιγύπ τοι τ μίνα ένιαυτίν έκάλεν, σοκ αν ή τ σολλών τέτων ενισυτών απαθίθμησις έχοι τέ

Dannason.

8 11113

Plin. Nat. Hist. vii. 48. Annum enim alii æstate unum determinabant, & alterum hieme: alii quadripartitis tempobus, ficut Arcades, quorum anni trimestres fuere: quidam Lunæ senio, ut Ægyptii: itaque apud eos aliqui & singula millia annorum vixisse produntur. This Passage is quoted by St. Austin, de Civit. Dei, xv. 12. where for [Lunæ senio] he reads [Lunæ fine.]

or Julian Years: Whereas it appears from Diodorus, that only the long Reigns of the first Kings are to be computed by Lunar Months, and those of the rest by Seasons of sour Months apiece, or the third Part of a Year. And this Computation of sour Months for a Year, is not only attested by Diodorus and Plutarch as before, but also by 'Censorinus, Solinus, and 'St. Austin, who each of 'em affirm, that the Egyptians of old used this way of reckoning. [But see the Essay on the Old Testament.]

(6.) That before the Deluge, the Lunar Year at least, of 12 Lunar Months, and very probably the Solar Year too, was just 360 Days, and each Month just 30 Days, will appear from some Reigns in this Antediluvian Dynasty of the Gods. This I shall prove by showing first, that the Lunar Year was then exactly 12 Lunar Months, or 12 Synodical Revolutions of the Moon, without any Embolimary Month: Secondly, That the Tropical Solar Year contain'd 12 Months also; and Thirdly, That each Lunar Month contain'd exactly 30 Days. And First, The Lunar Year was exactly 12 Lunar Months long. For Vulcan in Manetho is

f Solin. Polyhist. c. 3. [Annus] apud Ægyptios quatuor menfibus terminabatur. Quoted also (but without naming the Author)

by St. Austin, de Civ. Dei, xv. 12.

t Augustin. de Civit. Dei, xii. 10. Perhibentur enim Ægyptii quondam tam breves annos habuisse, ut quaternis mensibus sinirentur. Unde annus plenior & verior, qualis nunc & nobis & illis est, tres eorum annos complectebatur antiquos.

ν Syncel. p. 18. ΠεῶτΟ, φησίν [Manetho] Θεὸς Ἡραις Θεὰτη ἐνακιχίλια εδασίλουσεν. Ταῦτα τὰ ἐννακιχίλια ἔτη σάλιν τινὲς τὸν καθ' ἡμᾶς ἰσορικῶν, ἀνδι μίωῶν λογισάμψοι κὰ μερίσαν-

ferunt annum bimestrem suisse; post deinde ab Isone Rege quadrimestrem factum: novissime Arminon ad tredecim [lege duodecim] menses & dies quinque perduxisse.

prius.

DIST

faid to have reign'd 9000 Years; that is, as I Lem: 2. to have prov'd, 9000 Revolutions of the Moon, this and the which make up 750 Years of 12 Months each, next Argu- or if you please, 75 Sari. From whence it appears, that each Year had in it 12 Lunar Months exactly; no Embolimary Month being taken in for 750 Years together. 2dly, The Tropical Year contain'd 12 Months also; as appears from the Years of the latter Kings of this fame Succession of the Gods, which are faid to be each of the three Ibid. Seafons of the Year, viz. Spring, Summer and Winter, each containing four Months. From whence it follows, that the Tropical Year (for 'tis a Year determin'd by the Seasons) was exactly 12 Months also: Which Months must in all reason be suppos'd to be of the same fort with those which were before spoken of, namely, Lunar Months. So that 'tis highly probable, the Tropical Year at that Time was just 12 Lunar Months in Length. 3dly, Each Month at the fame Time contain'd exactly 30 Days. This is vide Not. attested by many ancient Authors. Thus Varro, k, p. 175. speaking of these large Numbers in the Records of ancient Time, fays, the Egyptians therein do reckon Lunar Months for Years, and allow thirty Days to the Time in which the Moon finishes Vide Not. its menstrual Course. And Diodorus Siculus, b, p. 175. speaking of those who reckon'd the Reigns of the Gods in Egypt by Lunar Months, expresly afferts, that they computed 30 Days to a Month. vide Not. And in like manner, when Eusebius (speaking p. p. 176. alfo of the long Reigns in the Egyptian Success-

τες το τ΄ ήμεςων ωλήθου τ΄ αυτών είνακιχιλίων σελίων ωνος τας τεκακοσίας έξήκου ω ωθε ήμεςως Ε΄ επιαυτέ, σαυήξαν έτη επλακόσια είκοσι έπλα κρήμισυ, κρίσσας κρέςως. [Hic quædam correxere Joseph. Scaliger & Jac. Goar.]

sion of the Gods) says, that the most ancient Egyptians reckon'd by Lunar Months instead of Years; he adds in the same Place, that those Lunar Months consisted of thirty Days apiece. And * Panodorus feems to intimate, that before the Deluge, not only the Civil, but also the Lunar Month was exactly 30 Days; and that the Reigns of the Gods in Manetho were computed by Lunar Months of thirty Days apiece. To these Testimonies I need not add St. Austin vide Not. here, as having already produc'd what he has f. p. 158. spoken on this Subject. Since then it appears Et Not 9, by the first Part of this Argument, that, during p. 161. the Antediluvian Succession, there were exactly Et Arg-12 Lunar Revolutions in the Year; and fince it ult. partis appears by the fecond Part, that there were ex-primæ, p. actly twelve (and those very probably Lunar) 161, 162. Months in the Tropical Year also; and fince it appears by the third Part, that there were just 30 Days in each Lunar Revolution at the same Time: 'Tis evident from all three taken together, that before the Deluge, the Lunar Year at least, and very probably the Solar also, consisted exactly of 12 Lunar Months of 30 Days apiece, or of 360 Days in the whole.

(7.) That not only the Civil, but also the Tropical Year of the Sun, and the Lunar Year of 12 Synodical Lunar Months too, were each of

them

^{*} Panodorus apud Syncel. p. 41. ait Egregoros Solarem periodum & Lunarem hominibus oftendisse: Οι ή ἀποδλέψαντες εἰς τὸ τὸ εἰνειότερον, μιπροτερον, κὶ ἐυδηλότερον, τελακοθημερον σελίωιακὸν κύκλον ἐθέστισαν εἰς ἀνιαυτὸν ἀριθμείος Δία τὸ κὰ δ κίκα κύκλον ἀν τοῖς αὐτοῖς δώδεκα ζωδίοις πληρκάς ἀν ἰσαρίθμοις μοίραις τζ. Όθεν σωνεθη τὰς βασιλείας τ΄ παρ' αὐτοῖς βασιλουσάνων Θεῶν χίνεων εξ ἀν δωνασείως τζ, κατ ετη ἀν σελίωιακοῦς τριακοθημέρος κύκλοις παρ' αὐτοῖς άριθμείος τὰ κὰ σωνηξαν σελίωια Μα ητή ετη, κλιακά ηξή.

them 360 Days, and exactly equal to each other before the Deluge, is farther attested by a famous Piece of ancient Mythology preserv'd in Vid Not. b, Plutarch, which I have had Occasion to mention pag. 146. before: That about the Times of Osiris and Ty-Lem. 1 to Color, that is, about the Deluge, there happen'd this and the such an Alteration both in the Month and the last Argu- Year, that the Moon lost a 70th Part of each Day, and the Sun gain'd it; whereby the Lunar Year became above 5 Days shorter, and the Solar Year above 5 Days longer than each of them were before. Wherefore, fince the Solar Year is now fomewhat more than 365 Days, and the Lunar Year somewhat less than 355 Days; 'tis most evident, that before this Change, both the Solar and the Lunar Year were just 360 Days, and exactly equal to each other: Nay more, 'tis evident also, that the Change made in the Solar and Lunar Revolutions, from their Original to

Deluge.

(8.) All this will be abundantly confirm'd, if a Natural, Eafy, and Philosophical Account can be given of this Change of the Solar and Lunar Revolutions at the Deluge. I fay, if the fame Caufe, which alone appears sufficient to drown the World, and to folve all the numerous Phænomena relating to the Deluge, will also necessarily produce the aforefaid Changes in the Solar and Lunar Revolutions; then I think this Proposition will have all the Evidence for it, that any one can defire. And that all this may be effected by the Approach of a Comet to the Earth, will, I believe, appear fully to the Satisfaction of those who shall carefully read and digest the present Theory, or even the following Hypothesis, only; to which therefore the Reader is referr'd. Upon

their present State and Periods, happen'd at the

Upon the whole, fince the Year of 360 Days, and the Month of 30 Days, appear to have been originally in use in so many Parts of the Postdiluvian World; fince all the Accounts of the Antediluvian World that are extant, namely, that of the Holy Scriptures, and those of the Chaldeans and Egyptians, do each of them respectively give Evidence for the Civil Use of this Year and Month before the Deluge; fince some of them go farther still, and prove that the Tropical Solar Year, and Lunar Month, were then of the same Length respectively: If, lastly, the natural and necessary Cause of these remarkable Changes in the Solar and Lunar Year at the Deluge, is in the following Hypothesis effectually prov'd, not only from Historical Evidence, but also from Natural Philosophy and the present State of the World; I cannot well perceive, how this Proposition comes short of Physical Demonstration: But this I am fure of, that it has a much greater Degree of Evidence than most Propositions of this Nature can pretend to.

Coroll. Since therefore we have such abundant Evidence, that the Civil Year in so many Places, both before the Deluge, and for many Ages after it; and that even the Tropical and Lunar Year before the Deluge, were respectively, just 360 Days in Length; 'tis very probable, that the ancient Kings who reign'd in any Age and Nation where this Year was in Civil Use, computed the Years of their Reigns by this Standard of 360 Days to a Year. It may therefore very well deserve our Enquiry, whether several Difficulties in the ancient Postdiluvian Chronology may not sometimes be taken away, by substituting this Primitive Year of 360 Days, instead of the Julian or Tropical Year, now commonly made use of by Chronologers. I say, sometimes;

for it may bappen, that the Years propos'd might formerly have been reduc'd by ancient Authors, from the Primitive Form to the Tropical or Nabonassarean, or Julian Form: Or 'tis possible that the Primitive Year might sometimes have been in Civil Use as to some Instances only, and yet at the same Time, the Tropical, Nabonassarean, or some other Form of Year might have been made use of in the given Instance. But otherwise, the Use of the Julian Year (without a previous Reduction) in those Instances where the Primitive Year is meant, must certainly breed much Confusion in Chronological Computations, fince 487 Primitive Years are no more than 480 Julian ones.

XI. A Comet, cutting the Plane of the Ecliptick, in its Descent towards its Perihelion; on the first Day of the Deluge, pass'd before the Body of our Earth.

That fuch a Position of a Comet's Orbit, and fuch a Paffage by as is here suppos'd, are in themselves possible, and agreeable to the Phanomena of Nature, all competent Judges, who are acquainted with the new and wonderful Disco-Lem. 45, veries in Astronomy, according to the Lemmata &c. prius. hereto relating, must freely grant. But that it really did fo at the Time here specified, is what I am now to prove. 'Tis true, when upon a mere Supposition of such a Passing by of a Comet, I had in my own Mind observ'd the Phanomena relating to the Deluge to answer to Admiration, I was not a little furpriz'd, and pleas'd at fuch a Discovery. It gave me no small Satisfaction to fee, that, upon a possible and easy Hypothesis, I could give so clear an Account of those Things, which

which had hitherto prov'd fo hard, not to fay inexplicable; and could show the exact Coincidence of the Particulars with the facred Hiftory, and the Phanomena of Nature. I thought to be able to proceed fo far, was not only more than had been yet done, more than was generally expected ever would be done; but abundantly fufficient to the best of Purposes, to clear the Holy Scriptures, from the Imputations of ill-disposed Men, and to demonstrate the Account of the Deluge to be in every Part neither impossible nor unphilosophical. But proceeding in some farther Thoughts and Calculations on the faid Hypothesis, to my exceeding great Content and Admiration, I found all Things to correspond so strangely, and the Time of the Year by feveral concurring ways to be fo exactly fix'd, agreeably to the facred History thereby; that, as I saw abundant Reason my self to rest satisfied of the Reality, as well as Probability of what I before barely suppos'd; fo I thought the producing the Particulars I had discover'd, might afford Evidence to the Minds of others, and go a great way to the entire Establishing the Certainty of that, of whose great Probability the Correspondence of the several Phanomena of the Deluge had before afforded sufficient Satisfaction. But before I come to the Arguments to be here made use of themselves, give me leave, by way of Preparation, to shew what fort of Evidence such Assertions as this before us, when good and valid, are capable of; and how great or fatisfactory it may be in any other, and so may be expected to be in the present Case.

'Tis evident, that all Truths are not capable of the same Degree of Evidence, or Manner of Probation. First Notions are known by

Intuition, or fo quick and clear a Perception, that we scarce observe any Deduction or Ratiocination at all in our Affent to them. Some principal Metaphyfical Truths have fo near a Connexion with these, that the Manner of reafoning or inferring is fcarce to be trac'd or describ'd; a few obvious and quick Reflections enforcing our hearty Acquiescence: Among which, the best of Metaphysicians, Mr. Lock, in his Essay of Human Understanding, very rightly places the Being of God. Purely Mathematical Propositions are demonstrated by a Chain of Deductions, each of which is certain and unquestionable. So that on a clear View of the Truth and Connexion of each Link, or Member of the entire Argumentation, the Evidence may still be look'd on as infallible. Propositions in mix'd Mathematicks, as in Opticks, Geography, and Aftronomy, depending partly on abstract Mathematick Demonstrations, and partly on the Observations of the Phanomena of Nature; tho' not arriving to the strict Infallibility of the Evidence with the former fort, are yet justly in most Cases allow'd to be truly certain and indubitable. History is all that we commonly can have for Matters of Fact past and gone; and where 'tis agreed upon by all, and uncontroulable, 'tis esteem'd fully satisfactory, tho' not absolutely certain, in common Cases. And, Lastly, to come closer to the Point, the Knowledge of Causes is deduc'd from their Effects. Thus all Natural Philosophy, i. e. the Knowledge of the Causes of the several visible Phanomena of the World, is folely deriv'd from those Effects, or Phanomena themselves, their accurate Correspondence to, and necessary Dependance on certain supposed Causes, and their Infolubility on any other Hypotheles.

Lib. iv.

potheses, with the Coincidence of the particular Calculations of the Quantities of Motion, Velocity, Periods, and Species of Figures to be every where accounted for. On the universal Conspiration and Correspondence of which, with the Impossibility of producing an Instance to the contrary, depends what may be truly styl'd a Physical Demonstration. I mean, then, and only then, is a Physical Cause to be esteem'd Demonstrated, when all the Phanomena of the World may be certainly shewn to be just so, and no otherwise, as they necessarily would, and must be on Supposition thereof. This last Method is that which our best of Philosophers, Sir Isaac Newton, has taken in his Demonstration of the universal Affection or Property of Bodies, which he calls Mutual Attraction or Gravitation, and which accordingly he has establish'd beyond Possibility of Contradiction; and this is the fole way of bringing Natural Knowledge to Perfection, and extricating it from the little Hypotheses, which, in Desect of true Science, the World has till lately been forc'd to be contented with.

In the Point before us, there are only three possible Ways of proving the Truth of the Assertion here laid down. The first, that of Propositions in mix'd Mathematicks, by Calculation of the Motion of some Comet, as we do of Planets from the Astronomical Tables, and thence demonstrating the Certainty thereof: Which tho' I was destitute of in my two former Editions, yet have I now obtain'd, from later Observations: Which most convincing Evidence I shall at large give the inquisitive Reader in the very Words of that particular Dissertation which I have formerly publish'd under the Title of, The Cause of the Deluge demonstrated, a little corrected as sollows.

The

The Cause of the Deluge demonstrated. Before I proceed to my present Demonstration of the Cause of the Deluge, I must premise this; That in my New Theory of the Earth, especially as improv'd and corrected in the Second Edition, I have evidently shewn, that in case a Comet pass'd by, before the Earth, in its annual Course, on the 17th Day of the second Month, from the Autumnal Equinox, or November 28, in the 2349th Year before the Christian Æra, the Phænomena of Nature and History, and particularly the Mosaick Account of the Deluge of Noah, which are no otherwise to be accounted for, are exactly explain'd; that the Calculations and Proportions, where-ever we can come at them, are on that Hypothesis right, agreeable to one another, to ancient, especially facred History, and to the System of Astronomy; that there are Traces in ancient Books of a Tradition, that a Comet did appear at the very Beginning of the Deluge; that the very Month and Day mention'd by Moses for such its Beginning, is attested to by other old Records, and, on this Hypothefis, by Astronomical Calculations also: Whence I concluded, that it was most highly probable, or rather physically demonstrable, that a Comet did pass by at that Time; and was, under the Conduct of the Divine Providence, and as his Instrument in punishing a wicked World, the Cause of the Deluge. The only Thing wanting, was, to demonstrate from the Period of some Comet, and its Situation in the Heavens, Astronomically stated and computed, that such a Comet did actually come by at that very Time: Which if it could be once shown, the whole must be own'd as certain, and demonstrated, and all the natural Corollaries there-

from

from must be allow'd as true, even by the Obstinate and Incredulous. This indeed, at first, was look'd upon by me as not at all to be expected; fince we then barely began to know, or rather strongly to conjecture, that Comets did revolve about the Sun in settled Periods, but without being able to determine any one of those Periods. But of late God has fo blefs'd the Labours of the Learned; and this Part of Astronomy is fo much improv'd, especially by the farther Pains and Observations of the great Inventor himself, Sir Isaac Newton; whose Name will never be forgotten, while Mathematicks and Astronomy are preserv'd among Mankind; and by the laborious Calculations of the acute Dr. Halley, on the Principles laid down by the former; that what was a few Years ago almost despair'd of, is now in great measure discover'd, and we know, not only that one Comet has come round three or four times already in later Ages, viz. A. D. 1456, 1531, 1607, and 1682, and will no doubt come round again A. D. 1758, as making its Period in about 75 Years; that another has probably come round in the fame latter Ages twice already, viz. A.D. 1532, and 1661; and so is to return A. D. 1789, or 1790, as making its Period in about 129 Years: But, which is the greatest Discovery of all, that the last most remarkable Comet, whose Descent into our Regions has occasion'd almost all the modern folid Knowledge we have relating to the whole Cometick System it felf, has also several times been feen already, within the Time of certain Records; I mean, in the 44th Year before Christ, and again, A.D. 531, or 532; and yet again A.D. 1106, besides this its last Appearance A. D. 1680; whereby we know that it revolves in about 575 Years. This last Comet I may well call the most remarkable one that ever appear'd; fince besides the former Consideration, I shall presently shew, that it is no other than that very Comet which came by the Earth at the Beginning of Noah's Deluge, and which was the Cause of the same. Now considering the Premisses, I shall only have occasion, in order to my present Design, to prove these five Things concerning it. (1.) That no other of the known Comets could pass by the Earth at the Beginning of the Deluge. (2.) That this Comet was of the fame Bigness with that which pass'd by at that Time. (3.) That its Orbit was then in a due Position to pass by at that Time. (4.) That its descending Node was then also in a due Position for the same Passage by. (5.) That its Period exactly agrees to the same Time. Or, in short, that all the known Circumstances of this Comet do correspond, and that it actually pass'd by on or about that very Year, and on or about that very Day of the Year when the Deluge began. All which Things I shall demonstrate in their Order.

I. None of the other Comets yet known, I mean of the 21 in Dr. Halley's Table and my Solar System, could be that which pass'd by the Earth at the Beginning of the Deluge. This appears by these certain Arguments following.

New Theor. (1.) None of them appear to have been of a 2^d Edit. due Bigness: For the Phanomena of the Deluge, Coroll. 2. as I have elsewhere shew'd, require a small one Lem. 86. in Comparison of the Earth; whereas the rest of the Comets seem to have been commonly larger than it.

(2.) None

(2.) None of their descending Orbits are duly situate, I mean between 90 and 100 Degrees from Aries: Which Polition is yet absolutely necessary in this Case. For the Precession of the Equinox, which is about 50 Degrees, added to the 46 Degrees that the Earth was distant from Aries when the Flood began, must suppose the descending Orbit of the Comet to be now between 90 and 100 Degrees from Aries: At which Place none of the descending Orbits of the other Comets are now fituate; as Dr. Halley's Table, and my Solar System grounded thereon, will readily shew. (3.) None of the other's Nodes are so situate, as is necessary to bring the Comet near enough to our Earth; I mean, between 90 or 100 Degrees from Aries; and so as to cross the Plane of the Ecliptick very near to the Distance of the Earth from the Sun; as is alfo plain from the fame Table and System. Nay indeed, the wrong Situation of the descending Orbits, noted under the last Head, renders this due Situation of the Nodes plainly impossible. For it being necessary, that the Orbit it self intersect the Ecliptick it felf in the 17th Degree of Taurus; this cannot possibly be in such a Situation of the Orbit, as that we have already mention'd to belong to all the rest of the known Comets. So that these other Comets were utterly incapable of being instrumental in the Deluge, even tho' their Periods should any of them agree; which yet we know not that any of them do.

II. This Comet was of the same Bigness with Ubi supra. that which pass'd by at that Time; I mean a very small one, and only to times as large as the Moon. This appears by Mr. Flamstead's Determination of its apparent Diameter, about 20" when it was nearly as far off as the Sun: Where-

as he supposes that of the Moon at the same Distance to be about 6". So that if the Allowance be made for that large and dense Part of the Atmosphere, which hides the Nucleus or Comet it felf from us, suppose 7", the Diameter of the folid Body it felf will be only 13". Now the Cube of 13, or 2197, is to the Cube of 6, or 216, as about 10 to 1. Whence it appears, that this Comet is about 10 times fo big as the Moon, or i fo great as the Earth, as the real Comet that occasion'd the Deluge ought to be.

III. The descending Part of the Orbit of this Comet was about the 17th Degree of Taurus at the Time of the Deluge, as that of the Comet at the Deluge must have been. For this descending Orbit is now in the 2d Degree of Cancer; and if we allow 46 Degrees for its apparent Motion fince the Deluge, which is very little different from the real Precession of the Equinox, the main, if not only Occasion of it; it will appear to have been in the 17th Degree of Taurus at that Time, according to the foregoing Computation.

IV. The descending Node of this Comet, which is of the greatest Consideration here, and liable to the greatest Variety of all, does also exceeding well agree in the prefent Case. For this is now in the 3d Degree of Cancer; and if we allow, as before, 46 Degrees for its apparent Motion since the Deluge, or for the real Precession of the Equinox, the main, if not only Cause of it, it will appear to have been in the 17th of Taurus at that Time also. Nay, if we allow the least Inequality in these two Motions, or the least Alteration of the Planes either of the Ecliptick or of the Comet's Orbit, or of both, as we justly may, dod at was nearly as far our as the Sun: Where-

both from the Physical Causes, and Astronomical Observations, we may suppose them still nearer the Earth's Distance from the Sun, and so more exactly suitable to the Case of the Deluge.

V. The Period of this Comet most exactly agrees to the same Time, I mean to 7 Revolutions in 4028 Years, the Interval from the Deluge till its last Appearance 1680. For, as Sir Isaac New-Princip. ton first observ'd, from its Elliptick Curvature 2d Edit. before it disappear'd, that its Period must be in P. 465. general above 500 Years; fo has he and Dr. Halley fince observ'd, that the same Comet has been seen sour times; viz. the 44th Year before Christ; A. D. 531 or 532, A. D. 1106, and A. D. 1680; and that by consequence, it makes a Revolution in about 575 Years. Now if we make but a very small Allowance for the old Periods before Christ, and suppose that, one with another, it has revolv'd in 575 Years, we shall find that 7 such Periods amount to 4028 Years, exactly, according to that Number fince the Deluge. This is fo remarkable an Observation, and so surprizing, that it will deserve a particular Demonstration from the original Authors themselves. To begin then with the first of the Appearances recorded in later Hi- Sen. Nat. story, I mean that in the 44th Year before Christ, Quast. the Year that Julius Cæsar was slain; we have no sueton. in fewer nor lesser Persons than Seneca, Suetonius, Jul. c. 88. Plutarch and Pliny, to attest it; and the last, as Plut. in bringing Augustus's own Words for his Voucher. Cafar. Take the Account in those Words, as being the Nat. 1. 2. most authentick and remarkable. "On those ve-c. 24. " ry Days, fays Augustus, when I was exhibiting Grut. ap. " fome Games to the People, [begun about Sept. Uffer. "26,] a Comet appear'd for 7 Days, and was seen Annal. in the Northern Part of Heaven. It rose about

the 11th Hour of the Day: It was a remarkable one, and visible all over the World. The com-" mon People believ'd, that it fignify'd the Re-"ception of the Soul of Casar into the Number of " the immortal Gods. On which Account, the "Image of this Star was added to that Statue reor presenting Cesar's Head, which we a while after " confecrated in the Forum." Accordingly it is known, that some of Cæsar's Coins have a Star upon them, for a Memorial of this Comet; and observable that Virgil hints at the same also, Patrium aperitur vertice sidus. Plutarch's, Seneca's, and Suetonius's Words are almost the very same that are included in the Passage from Augustus, and so need not be distinctly set down. Only the Time of its Rifing is by Suetonius fet down about the 11th Hour, without the Words of the Day, which the other two have; and its Northern Polition is only mention'd by Augustus himself. Now if we interpret the 11th Hour, or 11th Hour of the Day, to be either 11-a-clock before Noon, or an Hour before Sun-fet, this will render the whole almost incredible: it being next to impossible, that this Comet should be seen in the Day-time. But the Romans then accounting Midnight the Beginning of their Day, as is well known by Chronologers, we may reckon this 11th Hour to be 11 at Night, and all will agree to the Comet before us; and it will shew, that as it had been conceal'd by cloudy Weather for some Time, so it now appear'd ascending from the Sun, with its long and fplendid Tail, for a Week before the like cloudy Weather, or the Comet's too great Remoteness render'd it no longer observable. Accordingly the Northern Position of this Comet, noted here by Augustus, secures us still farther, that it must have been the same with that A. D. 1680, which is ever in the fame

Æneid. VIII.

fame Position, at the same Place of its Orbit: To fay nothing of its remarkable Brightness, which I take to belong to its Tail, and which render'd it so very remarkable then in the World: In which Point it as well or better agrees with this, than with any other in the whole Cometary System. So that on all these Accounts, the Comet seen then by the Romans, and that feen A. D. 1680, must have been one and the same Comet. The next Period when this Comet might be feen again, according to the foregoing Time of its Revolution, was A. D. 531, or 532. When yet we hear nothing of it in Hevelius's History of Comets. But then we have it in Lubienietz's more exact Catalogue, out of Zonaras, the original Historian, whose Words are these, Annal. L. xiv. p. 61. " In " the 5th Year of the Emperor Justinian [A. D. 66 531, or 532.] a Comet appear'd, of that fort " which is called Lampadias. It fent its bright " Tail upwards, and continued to shine 20 Days." Which Words exactly agree to this Comet. The next Period when it was to be expected, was A. D. 1106. at which Time the Historians are full of their Accounts of it. Take those Accounts in their own Words, as they stand in Hevelius and Lubienietz, who have given us a most compleat Collection of them in their Histories of Comets.

A. D. 1106. We saw a Comet of wonderful Brightness, from the first Week in Lent, until the Passion of our Lord. An extraordinary Star was Lavath. ex seen to shine this Year on Friday in the Evening, Urspurg. Southward and Westward, and appear'd bright for Lavath. ex 25 Days together, and always at the same Hour. Chron. No. A. D. 1106. in the Month of February, 2 Days rimb. vel after the New Moon, a great Comet appear'd altunde. South-Westward. A. D. 1106. a Comet appear'd Calvis. ex South-Westward. A. D. 1106. a Comet appear'd Tr.

like a Fire, almost all the Month of February. Myzald.

A very great Comet was seen in the Time of p. 149.

HYPOTHESES. Book II. 194

Sigebert. Func.

Lent. Prætorius adds, That the Emperor Hen. IV. died the same Year; which Calvisius also agrees to.

A. D. 1106. A Star, which we call a Comet,

appear'd.

3030

Append. Marian. Scoti. Eastorm. ex Chron. Saxon. Hift. Eccl. ex Simeone Dunelmen.

A. D. 1106. A dreadful Comet appear'd, from the first Week in Lent, till the Vigil of Palm-Sunday. The same Year the Emperor Henry IV. died.

On the Year of our Lord 1106, the 14th of the Calends of March [Feb. 16.] a certain strange Star was discover'd, and was seen to shine between the South and West for 25 Days, after the same manner, and at the same Hour. It seem'd to be fmall and obscure; but that Light which went out from it was exceeding bright, and a Splendor, like a great Beam, proceeded from the East and North, and shot it self upon the same Star.

In these Testimonies, we may see that all the Circumstances of this Comet agree to that of A. D. 1680. I mean the Smallness and Obscurity of its Nucleus, the Brightness and Remarkableness of its Tail, its Position South-West, and the Direction of its Tail North-East. So that there is no Reason to doubt, but it was the very Only we must here note, that these two Periods were, one with another, three Quarters of a Year shorter than the last Period. For from September, in the 44th Year before Christ, till February or March A. D. 1106. are but 11481 Years, or two Periods of 5744 apiece, one with another: Whereas from the same February or March, A. D. 1106. till February or March 1687, when this Comet was about the fame Polition again, there are just 575 Years. It is rather a Wonder, that the three last Periods of our famous Comet are fo very nearly equal, than that there is this small Inequality among them. Nor is it, by the way, any Wonder therefore, that the four first Periods after the Deluge are to be suppos'd

pos'd one with another rather above 576 Years, to agree exactly to that Time. 'Tis rather a Question, whether the rest of the Comets Periods will prove any of them near fo equal in Proportion, as even that Allowance makes these to be? Ac-Princip: cordingly, Sir Isaac Newton and Dr. Halley right- p. 480. ly observe, that these Cometary Orbits are the Pralect. most easily and sensibly disturb'd, by the occasional Physico-Nearness of their Comets to other Bodies of all Math. others; and so considerable Inequalities are to be 359.

expected among them.

Note, (1.) That it is highly remarkable, that this is the only Comet yet known, whose Node renders it capable of approaching very near the Body of the Earth, and that the same Node is still so little remote from the Earth's Orbit, as Dr. Halley well observes, that it brought this Comet about as near to the same as the Moon this very last Time. Hear his remarkable Words, and consider the Consequence of them in this Matter. " No Comet, says synops. "he, has hitherto threaten'd the Earth with a Comet.in " nearer Appulse than that of 1680. For by Cal-calce. " culation, I find that Nov. 11. 1h 6' after Noon, "that Comet was not above a Semidiameter of " the Sun, (which I take to be equal to the Di-" stance of the Moon) to the Northwards of the "Way of the Earth. At which Time, had the " Earth been there, the Comet would, I think, " have had a Parallax equal to that of the Moon." Nor can I pass over his following Words without fetting them down, they are so apposite to my present Purpose. "The former Observations, says

"he, are to be suppos'd as spoken to Astrono-" mers. But what might be the Consequences of 46 fo near an Appulse, or of a Contact, or lastly,

" of a Collision of these celestial Bodies, (which

" are none of them impossible) I leave to be dif-

" cufs'd by the Philosophers.

(2.) Since

(2.) Since this Comet's Period is 575 Years, its middle Distance must be about 5,600,000,000 Miles from the Sun; its longer Axis and greatest Distance twice so long, or nearly 11,200,000,000 Miles; its Aphelion Distance about 14 times as great as the Distance of Saturn; its greatest Distance to its least, as above 20,000 to 1: And so its greatest Light and Heat to its least, as above

400,000,000 to 1.

(3.) Since 575 Years appear to be the Period of the Comet that caus'd the Deluge, what a Learned Friend of mine, who was the Occasion of my Examination of this Matter, fuggefts, will deserve to be consider'd, viz. Whether the Story of the Phœnix, that celebrated Emblem of the Refurrection in Christian Antiquity; [that it returns once after 5 Centuries, and goes to the Altar and City of the Sun, and is there burnt; and another arises out of its Ashes, and carries away the Remains of the former, &c.] be not an Allegorical Representation of this Comet; [which returns once after 5 Centuries, and goes down to the Sun, and is there vehemently heated, and its outward Regions disfolv'd; yet that it slies off again, and carries away what remains after that terrible burning, &c. and whether the Conflagration and Renovation of Things, which fome fuch Comet in its Ascent from the Sun may bring upon the Earth, be not hereby prefigur'd, I will not here be positive; but I own, that I don't know of any Solution of this famous Piece of Egyptian Mythology and Hieroglyphicks, as this feems to be, that can be compar'd with it.

Note, (4.) That none of those Comets whose Orbits are yet known, can come near enough to our Earth in their Ascent from the Sun, to cause the Constagration. This is evident to those who consider Dr. Halley's Table, or my Solar System built

upon

upon it; since none of them move in or very near the Plane of the Ecliptick; and those four which have their Nodes nearest the Earth's Orbit, and so might approach nearest to the Earth, are either such as have these Nodes so near only in their Descent to the Sun; as that in 1472, and that in 1618, and that in 1680; or go not any time much nearer to the Sun than the Earth it self, as that in 1688, and so are on all Accounts utterly incapable of affording Heat enough for such a Constagration,

Note, (5.) That therefore the Period of Time New Theofor that Conflagration, upon the Supposition that 77, P. 450, it is to be caused by a Comet, cannot now be dif-453. cover'd by any natural Means; but must still remain, as formerly, only knowable from Divine

Revelation.

Note, (6.) That hence those remarkable Corol-Jaries, drawn from the accurate Solution of fuch Difficulties now, as formerly were plainly infoluble; I mean, the great Regard due to the ancientest facred and prophane Records, and to the inspir'd Method whence they must have been deriv'd; the Imperfection of Human Knowledge; the Folly of rejecting reveal'd Truths, out of regard to uncertain Human Reasonings; the Wisdom of adhering to the most obvious Sense of Scripture; the Reasonableness of believing Scripture-Accounts and Scripture-Mysteries, tho' not fully comprehended by us; the Justness of expecting Satisfaction in moral Difficulties in due Time, from the like Satisfaction afforded already in those that are Philosophical, and the like, do all receive a new and furprizing Confirmation; and will therefore deferve a new and ferious Confideration.

N.B. Dr. Halley baving himself given an Account of this Comet lately in Dr. Gregory's English Astronomy, p. 901, 902, 903; I here present it to the U 2 Reader

Reader verbatim, that he may compare the two Accounts together, for his more entire Satisfaction.

"But as far as Probability from the Equality of "Periods, and fimilar Appearance of Comets, " may be urged as an Argument, the late won-"drous Comet of 1682, feems to have been the " fame, which was feen in the Time of our King " Henry I. Anno 1106, which began to appear in " the West about the middle of February, and con-"tinued for many Days after, with fuch a Tail as " was seen in that of 168?. And again in the Con-" fulate of Lampadius and Orestes, about the Year " of Christ 531, such another Comet appear'd " in the West, of which Malela, perhaps an Eye-" witness, relates, that it was μέγας η φοθερός, a " great and fearful Star; that it appear'd in the "West, and emitted upwards from it a long white "Beam; and was feen for 20 Days. It were to " be wish'd, the Historian had told us what Time of the Year it was feen; but 'tis however plain, " that the Interval between this and that of 1106, is nearly equal to that between 1106 and 168%, " viz. about 575 Years. And if we reckon back-" ward fuch another Period, we shall come to "the 44th Year before Christ, in which Julius " Cæsar was murder'd, and in which there ap-" pear'd a very remarkable Comet, mention'd "by almost all the Historians of those Times, " and by Pliny, in his Natural History, l. 11. c. 24. " who recites the Words of Augustus Cæsar on "this Occasion, which lead us to the very Time of its Appearance, and its Situation in the Hea-"vens. These Words being very much to our "Purpose, it may not be amiss to recite them. " In ipsis Ludorum meorum diebus, sydus crinitum ce per septem dies, in regione Cæli quæ sub Septenss trionibus est conspectum. Id oriebatur circa unde-66 cimans

" cimam boram diei, clarumque & omnibus terris conspicuum suit. Now these Ludi were dedicated « Veneri genetrici, (for from Venus the Cæsars " would be thought to be descended) and began " with the Birth-day of Augustus, viz. Sept. 23. as " may be collected from a Fragment of an old « Roman Kalendar extant in Gruter, p. 135. and " continued for 7 Days, during which the Comet " appear'd. Nor are we to suppose that it was feen " only those 7 Days, but possibly both before and " after. Now are we to interpret the Words sub " Septentrionibus, as if the Comet had appear'd in " the North, but that it was feen under the septem " triones, or brighter Stars of Urfa major. And as " to its Rifing bora undecima diei, it can no ways " be understood, unless the Word diei be left out, " as it is by Suetonius; for it must have been very " far from the Sun, either to rife at 5 in the Af-" ternoon, or at 11 at Night; in which Cafes it " must have appear'd for a long Time, and its Tail " have been fo little remarkable, that it could by " no means be call'd, Clarum & omnibus Terris " conspicuum Sydus. But supposing this Comet " to have traced the same Path with that of the "Year 1680, the afcending Part of the Orb will " exactly represent all that Augustus hath said concerning it; and is yet an additional Argument " to that drawn from the Equality of the Pe-" riod. Thus'tis not improbable but this Comet " may have four times visited us at Intervals of " about 575 Years: Whence the Transverse "Diameter of its Elliptick Orb will be found " 13 575 x 575 times greater than the annual Orb; or 138 times greater than the mean Di-" stance of the Sun; which Distance, tho' im-" mensely great, bears no Proportion to that of 66 the fix'd Stars.

The second Way of Probation, is that of Historical Relation, That at the Deluge a Comet did fo pass by. And of this fort of Evidence we are not wholly destitute; For (1.) that a Comet did really appear at the Deluge, we have the Testimony of feveral Authors in Hevelius's Cometographia. Nay, a Pliny also, a learned ancient Author, and probably from the Egyptian Records too, not only mentions a Comet that appear'd in the Reign of Typhon, (that is, at the Deluge, or immediately

P. 172,

Lib. xii.

P. 794.

before it, as has already been prov'd) but also 173. prius. speaks of the direful Effects it had. Which Testimony, confidering how few Remains we have of those so very ancient Times in prophane Authors, is very remarkable, and of great Weight: Especially when he fays, that Typhon gave it its Name; infomuch that the Mythology of Typhon, or Typhoëus in the Poets, may feem to have a plain Reference to the Comet, and that Deluge which was occasion'd by it; as indeed many of the Particulars are fo like, b that one can hardly avoid think-

> 2 Plin. Nat. Hist. ii. 25. Diraque comperta Æthiopum & Ægypti populis, cui nomen ævi Rex dedit Typhon, ignea specie, & spiræ modo intorta, visu quoque torvo, nec stella

verius quam quidem igneus nodus.

b Apollodor. Bibliothec. l. 1. c. 6. § 3. 'Ως δ' cued τησαν οί Θεοί τ Γιγά Ιων, Γη μαλλον χολωθείσα, μίνυ Τας Ιάςω, κ βονά Τυφω α ου Σικελία, μεμιτρομίου έχονδα φύσιν, ανδείς κ θηςίε. Οὖτο με κε μεγέθο κε δωνάμο σάνων διήνείκεν, όσες εβίνησε γη· ω β αὐτώ τὰ με άχει μηςών άπλετον μέγεθο άνδομμοςζον, ως ε τω εξέχειν με σάνων το όςων η β κεφαλή σολrans The asew Et aus. Xeigus 3 eixe, à pl ent à sarégar cuτειορθώλω, τ ή έπι τας ανατολάς. Έν τέτων ή έξειχον ένατον κεφαλαί δρακόν ων, τὰ ή ἀπὸ μηρών, απέρας έχεν τω ερμεγέθεις ἐχιδνών, ὧν ὁλκοί ωρος αὐτλιὸ ἐπλεινόμθροι κορυφην συριβμον πολύν έξιεσαν. Παν ή αυτό το σωμα κατεπίερω ο Αυχμηραί ή οπ κεφαλής η χυείων τρέχες εξίωεμενο. Πύρ ή εδέρκε σοις όμμασι. Τοι έτω ων ο Τυφών κο τηλικέτω, ημυρίας βάλλων σέτεας

ing there is some uncommon Relation between them. Particularly the Account which is given of Typhon's Death in prophane Authors, makes it probable, not only that he perish'd in the Deluge, but also that the Deluge it self arose from the Approach of a Comet, that is, from such a Cause as would necessarily produce the same Essects in the Earth, which we shall shew were produc'd at the Deluge by the Comet: For 'tis said by some, that Typhon, or Typhoëus, lies submersed in Water; and by others, that he was overwhelm'd with Vide Not. Mountains, Volcano's, or large Quantities of f, P. 174-Earth. Pindar says, all Sicily lies upon him: And Ovid follows him in afferting the same

ἐπ' κοιπὶν κεσινον, με συεκίμυμο όμε κὰ βοῦς ἐφέρει. Πολλη το κα εκ κοικος εξέρεισε ζάλη. Vide etiam Val. Flacc. Argon. lib. 4. * 236, 237. Et Plutarch. de Iside & Osiride passim.

c Virgil. An. ix. y 715, 716.

Tum sonitu Prochyta alta tremit, durumq; cubile Inarime, Jovis imperiis imposta Typhœo.

Et Lucan. v. y 200, 201. Et Ovid. Fast. iv. y 491, 492.

Alta jacet vasti super ora Typhoëos Æine, Cujus anhelatis ignibus ardet humus.

Ετ Schol. Pindari in Pyth. i. \$ 33, &c. Στασιάζε) κ ή τως Ετ Τυφώνω ισορία. Οι μ β αυτίν δες τ Βοιωτίας πωτακάδι ἔφασαν, κ ως είσιν αυτάθι πυρός αναδόσεις οι β ον Φευγία ἔτεροι β ον Λυδία Αρθέμων δέ τις ὶσορικός, πιθανώτερον λογοποιεί, καθάπαξ γάς Φησι παν δεω ἔχον πυρός αναδόσεις, ἐπὶ Τυφώνι καίε).

d Pindar. Pyth.i. y 29, &c. 'Oς τ' εν Αιτνά Ταςτάςω κεί), Θεών σολεμιω, Τυφώς εκατονλακάς ανω. τόν στο εκιλίκιον θεέψεν σολυώνυμον άνλερν νόν γε μαν ταλ θ΄ τσές Κύμας αλιέςκες όχθαι, Σικελία τ' αυτέ σιέζο εέςνα λαχνάενω κίων δ' έρανια σαμέχο,

viposos Airva, &c.

* Ovid. Metamorph. V. & 346, &c.

Vasta Giganteis ingesta est insula membris

Trinacris, & magnis subjectum molibus urget
Æthereas ausum sperare Typhoëa sedes.

Nititur ille quidem, pugnatq; resurgere sæpe:

Dextra sed Ausonio manus est extensa Peloro;

Læva, Pachine, tibi; Lilybæo crura premuntur;

thing: And laftly, Valerius Flaccus f more accurately fays, he was first overwhelmed with Waters, and then with Earth. Now as the Tradition of Typhon's being fubmers'd in Water, feems evidently to proceed from his perishing in the Deluge; so upon Supposition that the Deluge arose from a Comet, 'tis equally obvious why he is faid to be overwhelmed with Earth, when we confider that the Diluvian Matter from the Comet's Atmosphere contained in it a great Quantity of earthy and stony Particles, which made a Sediment upon the Face of the Antediluvian Earth, and buried all the Old World under it; as we shall shew hereafter. (2.) Likewise in that ancient and remarkable Tradition in Plato, concerning the Primitive State of the World, and the Change made at the Fall, there is not only a bare Notice taken of a great Catastrophe which happen'd some considerable Time afterwards, and brought the World into very great Danger, namely, the Deluge; but also 'tis plainly intimated, that it was brought about by the fame fort

Degravat Ætna caput, sub qua resupinus, arenas Ejectat; slammamq; sero vomit ore Typhoëus. Oppidaque, & magnos evolvere corpore montes. Inde tremit tellus, &c.

F Valer. Flace. Argon. ii. y 23, &c.

Horror abest, Sicula pressus tellure Typhoëus.

Hunc profugum, & sacras removentem pectore slammas

Ut memorant, prensum ipse comis Neptunus in alto

Abstulit, implicuitque vadis; totiensque cruenta

Mole resurgentem, torquentemque ignibus undas,

Sicanium dedit usque fretum; cumque urbibus Ætnam

Intulit, ora premens: trux ille, ejectat adesi

Fundamenta jugi; pariter tunc omnis anhelat

Trinacria, injectam sesso dum pectore molem

Commovet experiens, gemituque reponit inani,

of Cause, as that from which the Earth it self was originally formed, viz. in our Hypothesis, the Atmosphere of a Comet, and that this same Cause made the Earth move flower than it did before: Which is really true of its diurnal, and apparently so of its annual Motion; since 291 Postdiluvian Days contain as much absolute Time as 30 Antediluvian ones; and fince the Tropical Year, which was then but 360 Days, is now above 365, as will appear prefently. All which, and feveral other Phenomena of the Deluge, will best be feen in the Passage it self, which here follows: For some considerable Time after this, the Tumult, Perturbation and Earthquakes [caused by the Shock which was then given to the Earth, and by its commencing a contrary Motion to what it had before] baving ceased, and a Calm succeeding, the World went on in its settled Course; - but at last, more remissly, [or more flowly.] The Cause of this was that material Part of its Constitution, which anciently belong'd to it: [Here the Cause of the Earth's Retardation is affign'd to fuch Matter as belong'd to it of old, before its Formation, that is, to the Atmosphere of a Comet; which is

Β Platonis Politic. Operum, p. 176. D, &c. Μετὰ ἢ ταῦ α, περεκθον Ο ὶκανῶ χρόνε, Αρρύδε τε κὰ ταραχῆς ἤδη παιορήμω κὰ τῶν σεισμῶν, γαλήνης ἐπιλαδόμμω, εἰς τε τὰ εἰωθότα δρόμων τὰ ἐαυτῶ κατακοσμέμμω ἤει, — τελουτῶ ἢ ἀμιδλύτερον. Τάτων ἢ αὐτῶν τὸ σωματοειδὲς τὰ συ κράσεως αἰτιον, τὸ τὰ πάλαι ποτε φύσεως ξιώτροφον, ὅτι πολλῆς ἡν μέτοχον ἀταξίας, περιν εἰς τὰ νον κόσμον ἀφικέοχ. Παρρὰ μὰ βῶν σιωθέν Ο, παίνω καλὰ κέκλε το Αρὰ ἢ τὰ ἐμπροροτεν ἔξεως ὅσα χαλεπὰ κὰ ἀδικα ἀν εἰρενῶν γίνε), ταῦτα ἐξ ἀκείνης αὐτός τε ἔχει κὰ τοῖς ζώοις ἀπεργάζη) — Διὸ δὴ κὰ τότ ἤδη Θεὸς ὁ κοσμήσας αὐτιν, καθορῶν ἀν ἀπορέως ὅνλα, κηδόμμω Ἰνα μὴ χαμασθείς, τῶν ταρορῶν ἀν ἀπορέως ὅνλα, κηδόμμω Ἰνα μὴ χαμασθείς, τῶν ταρορῶν, αλφινάτες, εἰς τὰ ἀνομοιότητω ἀπερρον ὅνλα τόπον δύτ, πάλιν ἔφεδρω αὐτῶν τῷ ποδαλίων γιίνομμω, τὰ νοσήσανλα κὰ λυθένω εὐ τῆ καθ αὐτὸν προρτέρα περίδω ερέψας, κοσμεῖ τε, κὰ ἐπανορθῶν, ἀλάνατον αὐτὸν κὰ ἀγήρω ἀπεργάζη).

farther confirm'd from what follows: \] For this Matter was in great Confusion, before it was form'd into the present World. For all the Good and Regularity there is in the World, proceeds from bim that formed it; but all the Evils and Irregularities, in its self or its Animals, such a fort of Matter as belong'd to its former Constitution. [Here all the Inconveniencies and Irregularities of the Earth, in its Postdiluvian State, are justly attributed to this Chaotick Matter, deriv'd from the Comet's Atmosphere at the Deluge.] -Wherefore God, who first formed the World, being solicitous lest it should perish by fluctuating in this Storm, and should be dissolv'd and pass away into the infinite Spaces of Dissimilitude; He therefore sat again at the Helm, restored its diseased and disjointed Parts to their ancient Order and Place, and Gen viii. put it above the Reach of Death or Decay. This

21, 22. & whole Passage is so signal an Attestation to the ix. 8-17. present Hypothesis, and to the Phanomena of the Deluge depending thereon, as not to want any

other Comment than the present Account of the

Deluge.

The third and last possible way of proving the Truth of the present Hypothesis, is the Being of fuch plain and fenfible Effects, as must be undoubted Confequents of fuch an Affertion, and without the Supposal thereof were perfectly unaccountable; which is the very Method of Probation I shall here use, and do very much depend upon. There are feveral Degrees of Evidence, and Kinds of Proofs, very different from those made use of in the Mathematicks; which yet are little less satisfactory to the Minds of wise Men, and leave little more Room for doubting than they. Several Sorts of Propositions must be evinced by several Sorts of Arguments; and whatever possible and easy Assertion

has

has all the Proofs which its Nature requires, or could justly be expected upon Supposal of its real Existence, ought to be admitted for true and evident. Thus in that fort of Things we are now upon; if a certain real Cause be affign'd, which being suppos'd, would necessarily infer feveral plain and visible Effects, and occasion several fensible Phænomena; 'tis plain, if those Effects and Phanomena be upon Examination found to be correspondent, and as they must and would be on the real Being of fuch a Caufe, the Existence of that Cause is prov'd. And as where the Effects are few, ordinary, otherwise accountable and incapable of Reduction to Calculation, or Accuracy of Correspondence in the just Quantity and Proportion necessary; the Proof is weak, and only probable; and as where feveral of the Confequents of that Caufe agree well enough, yet some others disagree, the Disagreement of one or two, is a stronger Objection against, than the Coincidence of the rest an Evidence for the fame, and the Proof none at all: So on the other fide, where a Cause is affigned, whose certain confequent Effects must be very many, very furprizing, otherwife unaccountable, correspondent on the greatest Niceness of Calculation in the particular Quantity and Proportion of every Effect, and where withal no difagreeing Phanomenon can be urg'd to the contrary; the Evidence hence deriv'd of the Reality of the affign'd Cause, tho' of a different Nature, and, if you will, Degree too, from Demonstration, is yet little less fatisfactory to the Minds of wife and confidering Men, than what is esteem'd more strictly so. Thus, for instance, Astronomers at this Day find little more Inclination or Reason to doubt of the annual and diurnal Motions of the Earth, than

of any strictly demonstrated Proposition; and as much, in a manner, take it for granted in all their Reasonings, as they do the Propositions in Euclid, tho' the Evidence for the same be in its Kind different from, and inferior to the other. And thus, as I have before observ'd, Sir Isaac Newton has given fufficient Evidence of the Univerfal Law of Mutual Attraction, and Gravitation of Bodies; which accordingly there is no more Occasion to doubt of, than of those common Matters of Fact or History, of which no wife Man ever made any question. And thus it is that I hope to evince the Truth and Reality of that Cause assign'd in this Proposition, viz. by proving that those visible Effects or Phænomena relating to the Universal Deluge, which are very many, very furprizing, hitherto unaccountable, feveral of which are capable of Calculation as to the particular Time, Quantity, and Proportion of the respective Particulars are every one fo, and no otherwise, as on Supposal of the affign'd Cause they either certainly must, or at least probably would have been. And as upon a Demonstration of the Disagreement of any one Phænomenon, which were a necessary Consequence of the same, I must own the Falseness of the Proposition before us; so, I hope, if the Universality of Correspondence, even to the Exactness of Calculation in proper Cases be establish'd, and no contradictory Instance can be produc'd; it will be allow'd, that I have fufficiently evinced the Reality, and, in a proper Sense, Certainty of the same Assertion. This then being premis'd, 'tis plain, that every one of the particular Phænomena of the Deluge afterward accounted for, is a proper Argument of this Proposition, and might justly claim a Place here on that Account. But

But because such an Enumeration of them beforehand would prevent their own more peculiar Place hereafter, and disturb the propos'd Method of the ensuing Theory, I shall leave them to their proper Places; tho' with this Premonition, That feveral of them do fingly fo exactly fit the otherwife unaccountable Phanomena of Nature, and of the Deluge, and determine the Time and Circumstance of the latter so nicely, that their separate Evidence is very confiderable; and when taken conjointly with the rest, as satisfactory as I think the Nature of the Thing is capable of. But besides these particular correspondent Phanomena of the Deluge, and after the Discovery of the most of them, I found Proofs of somewhat another Nature; which not only confirm'd all that I had before observ'd, but enabled me to determine the Time when the Flood began, to the greatest Exactness possible; which therefore I shall alone produce here, referving those other for their own Places hereafter. Now, on the Hypothesis that a Comet pass'd by the Earth (till then revolving circularly about the Sun) at the Hypoth. 7: Time, and in the Manner affign'd by the Propo-trius. sition, the necessary Effects or Consequences of it are these Six. (1.) The circular Orbit of the Lem. 51. Earth would be chang'd into that of an Ellipsis; cum Coroll. and the Sun, which was before in the Centre of prius. the Circle, would be afterwards in that Focus of Lem. 54. the Ellipsis, which were nearest the Place at which the Attraction of the Comet happen'd. (2.) The Year, after fuch a Passing by of the Comet, would be increased ten Days, one Hour, twenty eight Minutes and an half. (3.) The Time of the Passing by of the Comet, or the Beginning of the Deluge, to be determin'd by the Place of the Peribelion, must be coincident with that asfign'd

fign'd in the Mosaick History. (4.) The very Day of the Comet's passing by, or of the Beginning of the Deluge, to be determin'd from the Astronomical Tables of the Conjunctions of the Sun and Moon, must be coincident with the Time determin'd by the faid Place of the Peribelion, and with the very Day affign'd in the Mosaick History. (5.) The Quantity of Acceleration to be determin'd à priori, from the Force of the Comet's Attraction, must correspond with that which the present Elliptick Orbit does require. I say nothing of the Retardation of the diurnal Rotation of the Earth here by this Matter from the Comet, as I did formerly; because it will appear, from what I have lately discover'd relating to Magnetism, that the Retardation is owing, in Part, to a Cause very remote from our prefent Business; and that till the other Cause can be stated, as to its Proportion of the Retardation, we cannot well estimate what Proportion thereof belongs to the Stoppage of the diurnal Motion at the Deluge, by the Quantity of adventitious Matter then gain'd. All which Effects or Confequents, that they are, de facto, true and real, I shall now prove.

I. The Orbit of the Earth is now Elliptical, and the Sun is in that Focus thereof, which was nearest the Place of the Earth, when the Deluge began. This Proposition is sufficiently known to Astronomers, as to the former Part of it: And if it be consider'd, That the Earth, when the Deluge began, was at or very near that Degree of the Ecliptick, where the Peribelion was afterward, as has already appear'd; the latter Part will be equally evident with the former.

II. The Year, before the Flood, was in absolute Duration ten Days, or more nicely, ten Days, one Hour, and twenty eight Minutes and an half shorter than the present; tho' it had just

360 Antediluvian Days then in it.

In order to the Proof of which, I shall shew first in general, that the Antediluvian Year was different from, nay, shorter than the present Year; and afterwards determine the particular Length thereof more exactly; and shall comprise what Reasons I have for these Assertions in the following Arguments.

(1.) The true Length of the Solar Year was fo long unknown after the Deluge, that there must have happen'd fome mighty Change and Lengthning thereof at the Deluge, or else no rational Account can be affign'd of fuch gross and so lasting an Ignorance. 'Tis not to be question'd, but the Antediluvian Patriarchs were perfectly acquainted vid. Phas with the Antediluvian Year; every one of those nom. 24. mention'd in Scripture having feen fo many Sum-infra. mers and Winters, or natural Solar Years, that himself were able to ascertain their Length, and correct any Mistake about them. 'Tis also not to be doubted, but the Postdiluvians would have retain'd the same Year, and determin'd it by the fame Number of Days as their Forefathers, had they found it to agree with the Course of the Sun and Moon then, as it did formerly. But 'tis evident from the ancientest Authors, as has been just now prov'd, that 'twas many Hundreds of Years after the Deluge, e're the most Learned Nations rectify'd their Year to the Sun's Courfe, or arriv'd at more than three hundred and fixty Days in their Accounts. Which Number accord-

X

ingly

ingly was the Measure of the Degrees of the Zodiack, or Ecliptick Circle, and thence of all other Circles among the Astronomers; and the Measure and Standard of a Year for many Ages; till Astronomical Observations forc'd Men to cor-

rect the fame.

Now all this, on the present Hypothesis, is easy and natural; That when the Antediluvian Year was just 360 Days long, and after the Deluge was infenfibly become above three hundred and fixty five Days, without the least Knowledge or Suspicion of any Change therein; 'tis, I fay, very easy and natural in this Case to suppose, that upon their observing, in Length of Time, the Seasons to be protracted, and return still later every Year than other; (as on the retaining the Antediluvian Year must needs happen) and consequently their ancient Standard of three hundred and fixty Days, to be too short for the Sun's Revolution; that they should lengthen their Accounts to three hundred and fixty five, and at last to 365 Days in the whole Year. And indeed, this most ancient Adjustment of the Year and Months, with the Degrees of a Circle, and of each Sign in the Ecliptick, was found fo eafy, ready, and ufeful on all Accounts, that even when the odd five Days were added afterward, they were not inferted into the Months, nor perhaps esteem'd Part of the Year, but look'd upon as Ἡμέροι Ἐπαγόμβυαι, adventitious or odd Days, or Days superadded to the old and establish'd Year of the World; as being of a quite different Denomination and Character from all the rest. However, 'tis very agreeable to Reason and ancient History, that on the Obfervation of the Protraction of the Seafons, and on the Improvement of Astronomy, the Year should be increas'd from three hundred and fixty

to three hundred and fixty five Days; and afterward, (the Observations of the more Learned Astronomers enforcing it) from three hundred fixty five to 3651, or the Julian Year, which with us is retain'd to this very Day. All this is, I think, easy and natural in the present Case, upon that Hypothesis which is here defended; but without it, 'tis very strange and unaccountable. 'Tis, I fay, very strange and unaccountable, either that the Antediluvian Patriarchs should not know the Length of their own Year; or that none of their Posterity, but fuch as were guided in it by Divine Revelation, should retain the same afterwards; but be forc'd to make use of one that was so far from corresponding to those Seasons, and that Revolution of the Sun, which a Year was on purpose defign'd to be commensurate to. Which Conclusion is farther confirm'd,

(2.) By the Essential Difference of the ancient Years among several Nations since the Deluge: Some of which made use of Solar, and others of Lunar ones, or endeavour'd to adjust their Periods to those of each of these Luminaries. This Difference of Years is known in Antiquity, has been the Occasion of great Disputes, and is not yet a Stranger to the World. Nay, fo far as I find, some of those Nations who agreed with the most general Standard of three hundred and fixty Days, suppos'd that Number agreeable in some measure to the Lunar, as well as to the Solar Course, as confisting nearly of 12 Synodical or Monthly Revolutions of the former, as well as of a fingle Annual one of the latter; and embrac'd it as much, if not more, on the Account of its imagin'd Correspondence with the Moon, as of a like imagin'd Correspondence

571123

dence with the Sun. Now this effential Difference of Solar and Lunar Years in the eldeft Antiquity after the Flood, is on no other Grounds fo accountable, as that the Antediluvian Year having been deliver'd down from their Forefathers to have agreed with the Courses both of the Sun and Moon, (as on the prefent Hypothesis it really did) some Nations followed one Branch, and others another of the fame Tradition: And when they no longer were commenfurate, accommodated their Accounts to the one or the other, according as the one or the other was most prevalent and universal among them. This is an easy and rational Account of this effential Difference of Solar and Lunar Years, fo variously followed by many Nations fince the Deluge: Which otherwife, if the Year was of the fame Length with the present, and fix'd before the Flood, 'tis hard to affign the Original of. But if that were, as in this Hypothesis, both a Solar and Lunar Year, all is very eafy, and what must naturally happen upon an imperceptible Change at the Deluge. Which will be still farther confirm'd, if we confider,

and Menstrual, are still so accurately adjusted and commensurate to each other, that 'tis very probable the Annual was alike adjusted and commensurate to those in the primitive Constitution of Nature. 'Tis certain, the Moon accompanies our Earth, and has her Annual Revolution exactly equal to that of the Earth. 'Tis also certain, as has been before observ'd, that her Menstrual Periodical Revolution about the Earth, is exactly equal to her Diurnal about her own Axis: Which wonderful and remarkable Coincidence

Lem. 42. prius.

dence or Correspondence of two such entire distinct Motions, renders it highly probable, that the third or Annual Revolution was not by Providence originally defign'd to be fo incommenfurate to those others, as fince the Deluge it most evidently has been; and that to the greatest Trouble and Perplexity of many Ages, and the entire Disturbance of the ancient Chronology. Where we cannot but in one Case acknowledge the most exact Interpolition of Providence, in the Equality of the Menstrual and Diurnal Revolutions; and the notable Effect thereof, the exposing of almost the same Hemisphere of the Moon to the Earth continually; we cannot fure be unwilling to own a like Interposition in the other, in the Commensurability and Correspondency of the same Menstrual and Diurnal Revolutions to the Annual one of it self, and of its Companion the Earth: Especially where the Reason and Advantage of fuch an Adjustment, (the easy and regular Accounts of Time through the World thence arifing) is much more plain and evident, than in that other Case, of which yet there can be no reasonable Doubt or Hesitation: Which therefore confiderably enforces the fore-mention'd Hypothesis; according to which, the wife and careful Interpolition of Providence in the Original Constitution of the World, appears to have been as accurately folicitous and engag'd in the Adjustment of the Annual Motion to the Menstrual, as 'tis unquestionably true in the like Correspondence of the Menstrual to the Diurnal, so worthy the prefent Confideration and Admiration of Astronomers: Which will be most of all confirm'd by the exact Agreement of the several Periods, to be taken notice of in the next Place.

(4.) The Eccentricity of the Sun is fo exactly coincident with the Epact of the Moon; or the annual Motion in the circular Orbit before the Deluge, fo nicely equal to thirteen Periodical, and twelve Synodical Revolutions of the Moon; that 'tis very improbable it should be wholly by Chance, or without any relation of one to ano-The Eccentricities of Planets are various, uncertain, and boundless; and 'twill be next to impossible, in fuch Cases, to observe accurate Coincidences, where nothing but Chance is concern'd, and there is no Analogy or Connexion in Nature for them. If there were a certain Watchword, out of 500, pitch'd upon among certain Conspirators, and a Person was taken on Suspicion, and prov'd to have nam'd that very Word to his supposed Partner; it were in Reason, and the Opinion of the World, 499 to one he before knew of it, and did not by Chance only hit upon it. If any ancient Historian should affert, that a certain remarkable Accident happen'd on fuch a Day, and fuch an Hour, of a given Year; and a Way was afterward discover'd of determining the Time on which, if it really did happen, it must have done so; tho' the Authority of the Author were not confiderable otherwise, no Doubt would be any more made of his Veracity in that Point, if the Coincidence was fo exact as to determine the fame Hour mention'd by the History. Thus if on other Intimations it be conjectur'd, that the Earth mov'd circularly before the Deluge, and the Year was both a Solar and Lunar one; and if afterwards the Eccentricity of the Earth's Orbit, and the Lunar Epact, or Difference between the Solar and Lunar Year, be reduc'd to Calculation, and found accurately coincident, when when the Eccentricity of no other of the Planetary Orbits, is at all fo; there is, I think, very great Reason to believe that Coincidence to be founded in Nature, and that the Alteration of the Year, just so much as those agreeing Quantities require, was the true Occasion thereof. The mean Eccentricity requisite to corre-Lem. 58. spond to the Lunar Epact, must be about 18 cum Ceroll. of the entire middle Distance: That of Saturn prins. is 55, that of Jupiter 48, that of Mars 93, that of Venus -?, that of Mercury 210, that of the Moon 55; which all widely differ from the Quantity here necessary. But when we consider the Eccentricity of the Magnus Orbis, or Orbitof the Earth's and Moon's annual Course, it exactly accords, and is about 18 of the entire middle Distance; as we have before particularly observ'd, and as the Moon's Epact most nicely requires. 'Tis, I confess, not impossible that Calculations and Numbers, in which there is all imaginable Room for Diversity under or over, may be coincident, without any natural Dependance or Analogy one to another. 'Tis possible, that I may feveral times by Guess, or at a Venture, hit upon any Number which another Person has in his Mind. 'Tis possible, a Gamester may, without any foul dealing, throw all Sizes or Aces, be the Dice never fo many, a hundred times together. These Things, it must be own'd, are possible; and fo no Compact or Collusion can be demonstrated by fuch Coincidence; neither, confequently, do I pretend that this, or any of the like Coincidences in the present Theory, do absolutely demonstrate that Assertion they are brought to prove. But as in the former Cases, the Observation of the mention'd Coincidences would afford Evidence fully satisfactory of some Mystery, Cunning, X 4

ning, or Artifice us'd therein; fo I think it ought to be in the present Case: I mean, where all Things else are rightly correspondent, and no contradictory Instances to be alledg'd, the nice and accurate Coincidences of Calculations in this, and the other proper Cases through the present Theory, ought to satisfy the Minds of considering Men, of the real Truth and Evidence of the Proposition on which they all depend, and from which they are deriv'd; and particularly, that the Lunar Epast, and Sun's Eccentricity, which are so nicely equal to each other, must have a natural Relation and a common Occasion, viz. the Alteration of the Year at the Deluge.

III. The Time of the Passing by of the Comet, or of the Beginning of the Flood, determin'd by the Place of the Peribelion, is agreeable to that mention'd in the Mofaick History. 'Tis certain, that the Place of the Peribelion of the Earth's Orbit, from Mr. Flamsteed's latest Obfervations, is now in the latter End of the 8th Degree of Cancer; and tho' by Mr. Flamsteed's Table of its Motion, it go forward in 4070 Years above 56 Degrees, yet that Number being a few Degrees more than either Mr. Street's or Tycho's Tables, or indeed than Sir Isaac Newton's Calculation à priori corrected, does allow; we may take 50 Degrees, or thereabouts, being Tycho's Number, and near enough to the other Calculations also; and then we shall find, that the Peribelion of the Earth's Orbit, or the Point B in the Figure, was at the Deluge from the present Hebrew Chronology, on or about the 17th Degree of Taurus, answering to the 17th Day of the second Month from the Autumnal Equinox, ar the Beginning of the ancient Year: On which very Day, by the express

Fig. 3.

express Testimony of the sacred Historian (a-Gen. vii. greeing within a Day or two with the corrected 11. Testimonies of Berosus and Abydenus, and to a single Day with the express Testimony of Plutarch) the Deluge began. Which Exactness of Coincidence I look upon as not a little remarkable.

And Note, That as one or two Coincidences under a former Head, are somewhat exacter to the present Tables of Astronomy in the present Hebrew, than in the other exacter Chronology; so does the Coincidence before us agree better with the exacter Chronology than with the present Hebrew, as allowing 52 Degrees to the Precession of the Equinox, while the Hebrew allows but 46.

IV. The very Day of the Comet's Passing by, or of the Beginning of the Deluge, determin'd from the Astronomical Tables of the Conjunctions of the Sun and Moon, is exactly coincident with that before nearly determin'd by the Place of the Peribelion, and exactly by the Mosaick History. It has been before prov'd, that seeing the Moon still accompanies the Earth, it must needs

Σισίθεω δη Κράν Φυρσημαίνο έσεας ωληθο δμεςων Δε-

ole is. Abydenus apud Euseb. Chron. lib. 1. p. 8.

Έδδομη έπὶ δέκα τ΄ Οσίελο Χυέοζ τελουτην ᾿Αιγύπλιοι μυθολογθοι. — διὸ τὰ τὰ μέραν ταύτην ἀνλίφεαξιν οἱ Πυθαγό- εποι καλθοιν, τὰ ολως τὰ ἀελθμὸν τῦτον ἀφοσιδν), p. 367.

h Επὶ Εισέθευ μέγαν κατακλυσμον χωέδζ άναγεώφεδζ το λόγον έτως. Τον Κεάνον αυτώ εξ το ύπνον ἐπις άνω φάναι. μλωδς Δεσίυ ιέ. τὸς ἀνθεώπυς των κατακλυσμο φθαείσεδζ, &c. Berofus apud Syncel. pag. 30.

k Ταῦτα ἢ πραχθίῶαι λέγεσι [de ingressu Osiridis in Arcam loquitur] ἐδδόμη ἐπὶ δέκα μέωὸς ᾿Αθῦς, ἐν ῷ ϶ Σκοςπίοι ὁ κλιΦ διέξεισι, ὀγδοὸν ἔτΦ κ) είκος ον εκένε βασιλούον Ὁ 'ΟσίρελοΦ. Plutarch. de Iside & Osiride, p. 356.

Lem. 57. prisss.

have been about three Days, or three Days and a half past the New or Full, at the Passing by of the Comet. It has also been before prov'd, that the Flood began either in the Year of the Julian Period 2365, and the 2349th before the Christian Æra, according to the present Hebrew Chronology; or in the Year of the Julian Period 1788, and the 2926th before the Christian Æra, according to the other more exact Chronology. Now it appears by the Astronomical Tables of the Conjunctions of the Sun and Moon, that the New Moon happen'd at the Meridian of Pekin in China, whereabout probably Noah liv'd immediately before the Deluge, or about two-o'-Clock on November the 25th (in the Julian Year) in the Morning: And fo, at about two-o'-Clock on November the 28th in the Afternoon, 'twas about 3 Days and a half after the New. Which being the 17th Day of the Second Month from the Autumnal Equinox, is the very same pitch'd upon from the Place of the Peribelion, and exprefly mention'd in the facred History: And by fo wonderfully corresponding therewith, gives the highest Attestation to our Hypothesis that could, for the Completion and Confummation of the foregoing Evidence, be reasonably desir'd. Nor does the other Chronology answer much worse. For it appears by the same Astronomical Tables, that the Full Moon happen'd, at the same Place, in the 1788th Year of the Julian Period, or the 2926th before the Christian Æra, on November 29th about Noon: And fo on December the 2d was three Days past the Full; which was then also the 17th Day of the Second Month from the Autumnal Equinox, when the Flood began.

V. The Quantity of Acceleration determin'd à priori from the Force of the Comet's Attraction, does very well correspond with that which the present Elliptick Orbit does require. Upon Calculation, according to the Lemma quoted in the Lem. 27. Margin, the Velocity acquir'd by the Earth on prius. its first Change, from a Circular to an Elliptick Orbit, appears to have been about 488 of the entire Velocity; or fuch as would carry it in 52 1 Minutes about 468 Miles. 'Tis also upon Calculation evident, from what has been already ob-Lem. 55. ferv'd, that in case the Comet's nearest Distance cum Coroll. were a 24th Part of the Moon's, or 10000 Miles, prius. and it felf a little less than a Quarter of the Bigness of the Earth, or about 6 times so big as the Moon; (two very probable and eafy Hypotheses;) the Time of the Comet's Attraction to be folely confider'd is about 35 Minutes, and the Quantity of Velocity therein produc'd, is the requisite Quantity 468 of the entire Velocity, or fo much as carries a Body 468 Miles in the fore-mention'd Space of 52 - Minutes. And in case the Comet's nearest Distance were more or less, if the Comet withal be supposed in the same Proportion greater or less also; the Effect will be the same, and the fore-mention'd Velocity equal to what the former Calculation affign'd, and the Elliptick Orbit of the Earth does exactly require. Which Accuracy of Correspondence, in the due Quantity of Velocity, added to the former Arguments, cannot but be esteem'd a mighty Evidence for the Reality of our Hypothesis: All whose Consequents are so surprizingly true, and so fully bear witness to one another.

VI. The

VI. The Quantity of new or foreign Matter, deriv'd from the Comet upon our Earth, must be fufficient to retard the Earth's diurnal Motion in the Proportion of the Lunar Year of 355 Days, 4 Hours, and about 20 Minutes, to the Antediluvian one of 360 Days. For feeing the Antediluvian Years were just 360 Antediluvian Days, and yet equal to only 355 Days, 4 Hours, and about 20 Minutes of our present Days, it is plain, that the additional Waters and Matter, deriv'd from the Comet's Atmosphere and Tail at the Deluge, must have retarded the Earth's diurnal Motion, and so lengthen'd the Day in that Proportion: Which that on an exact Computation it would do, I am now to prove. The Comet, by our present Hypothesis, was a little more than a third Part so big as our Earth, or about 6 times as big as the Moon, and came 24 times as near as the Moon; whence the Tide caused by it, would, if the Earth were wholly fluid, and the Comet had been all the while at the nearest Distance, be equal to 24×24×24×6=82944 times as great as that of the Moon with us; which being about 6 Feet above the mean Elevation; this Tide or Elevation of the longest Semidiameter above the mean, would be 497664 Feet, or near 100 English statute Miles, i. e. about the 40th Part of the whole Semidiameter. But because the Comet did not stay long enough at the nearest Distance to have its entire Effect, neither would the upper Crust of Earth yield so easily as a Fluid, nor indeed would the utmost Elevation continue at all, but be gradually finking towards its old Position again; on these Considerations, we need fcarcely allow fo much as one half of this Elevation at the Time when the Wa-

the

ters lay upon the Face of the Earth; Suppose about 47 Miles, which in this Hypothesis is the Elevation of the Basis of the Gordyean Mountains themselves, and suppose about 3 for the proper Height of the highest of those Mountains, namely that whereon the Ark rested; so that the Waters might cover the Earth in general about 50 Miles deep one Place with another. I do not mean, that ever they did really at once cover it all so deep together, but that if all which came from the Comet had been kept from running into the open Fissures, as they fell and dispers'd themselves, and if they had been together on the Earth after it was return'd almost to its Spherical Figure again, it would have made an Addition every way of 50 Miles. Now this Addition of Water would retard the Earth's diurnal Motion in a sesquialteral Proportion of its Quantity of Matter compar'd with that of the whole Earth, as we have formerly prov'd, i. e. in case Water were as dense as the whole Mass of Earth, one Part with another, in a fefquialteral Proportion of the Cube of 4050 to the Cube of 4000, i.e. in the Proportion of 360 to about 340. This would be the Proportion, I say, in case the Denfity of the whole Earth were no greater than that of Water. But because the Density is certainly somewhat more than four times the Denfity of Water, as we have formerly observ'd; this Proportion will be reduc'd somewhere nearer than that of 360 to 355, which is the very Proportion of Retardation which we feek for, and which was to be accounted for in this Place. I mean all this, without the Allowance for that Alteration of the Length of the Day, which has arisen from the Inequality of the Influence of the Central Loadstone upon the diurnal Motion of

the Earth in the feveral Ages past; of which at large, in my Discovery of the Longitude by the Dipping-Needle, which would require a somewhat lesser Alteration of that Motion of the Deluge by the Cause here assign'd: But because I want sufficient Data, to determine the Quantity of the Difference at the Deluge, I let this Calculation stand as before.

Coroll. 1. Since the Number 360 is not only almost a middle Proportional between the Days in the Solar and Lunar Year; is not only the Number of Degrees in the Ecliptick, and in every Circle or Orbit; but was the just Number of Days in a Year every where before the Flood, and after it also among so many Nations, for so many Ages, as we have seen; The Reason of that Prophetick Style, in which a Day, or Year thereby meant, does signify 360 Days, and no more, is evident. What Difficulties the Want of this Observation, that Daniel's Prophetick Year consisted of 360 Days, bas left unsolv'd, and what Light may be afforded to some Places of the highest Importance thereby; I had rather the Reader should be left to his own Observations, and my Lord Bishop of Worcester's Explication of Daniel's 70 Weeks, publish'd in Mr. Marshal's Tables of Chronology, than prepossess bim with any more particular Instances thereof in this Place.

Coroll. 2. Since the very Day of the Beginning of the Deluge, nearly determin'd by the Place of the Perihelion, and exactly by the Astronomical Tables of the Conjunctions of the Sun and Moon, is the very same individual Day with that mention'd by the sacred Writer, and by Plutarch also; I mean, the 17th Day of the Second Month from the Autumnal Equinox;

Equinox; hence arises a very surprizing and unexpetted Confirmation of the Verity of the Scripture-History. Here is a great and signal Instance of the wonderful Providence of God indeed, and of his Care for the Credit and Establishment of the Holy Books; that he has left us Means sufficient, after above 4000 Years, of examining and ascertaining the Veracity of the most ancient of its Writers, and in one of the most scrupled and exceptionable Points of bis Narration, that of the Universal Deluge; and that from unexceptionable Principles, the Astronomical Tables of the Celestial Motions. To how great a Degree this Thing will deserve the most serious Consideration of every one, especially in this our Sceptical Age, I need not determine. The Importance of the Concern, and the Greatness of the Evidence bence afforded, sufficiently enforcing this Point, without any farther Application.

Coroll. 3. Hence the Chronology of the Bible is establish'd, and all the pretended immense Numbers of Years, which some Nations recount, are consuted. For as, the Year of the Deluge from the sacred Chronology being given, the Day of the Beginning of the Deluge therein assign'd is fully attested to, and determin'd on our Hypothesis, from Astronomy; so, vice versa, the Day of the Beginning of the Deluge from the same sacred History being given, (and within a Day or two confirm'd from Plutarch) the Number of Years thereby assign'd is, at the same Time, within some Latitude establish'd also. The Methods before-mention'd of fixing that Day, not permitting the Addition or Substraction of very many Hundreds, much less of many Thousands of Years, to or from those which the Holy Scripture requires us to account fince that Time: Which therefore ought to be fully acquiesc'd in; and all other wild and extravagant Numbers be utterly rejected.

Scholium. Having thus establish'd this main Proposition, 'twill here be proper to describe the particular Trajectory of the Comet, or that Part of it which was concern'd with us, and our lower Planetary Regions; which being the very Trajectory of the samous Comet delineated by Sir Isaac Newton, (which Comet I my self saw when I was young;) I shall here make use of. And because verbal Description in such Cases are of small Advantage, compar'd to Schemes and Graphical Delineations; I shall wave more Words about it, and draw an entire Figure of the same from Sir Isaac Newton's Original, for the View and Consideration of the Reader.

Fig. 1.

Scholium. If it be expected that I give an Account of the Eccentricity of the Moon's Orbit about the Earth, as well as of the Earth's about the Sun from this Account of the Deluge; The Reader is to know, that I rather suppose that Eccentricity to have been occasion'd at the Commencement of the diurnal Rotation, than at the Deluge.



赤灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰灰

BOOK III.

ף凝凝察療機機構發展療養療養養養養養養養養養養養養養養養養

PHENOMENA.

CHAP. I.

Phænomena relating to the Mosaick Creation, and the Original Constitution of the Earth.

of which our habitable Earth is now compos'd, were originally in a mixed, confused, fluid, and uncertain Condition; without any Order or Regularity. It was an Earth without Form, Gen. i. z. and void; had darkness spread over the face Grot. Ver. of its Abyss; and in reality was, what it has 1.1. § 16. been ever styl'd, a perfect Chaos.

Burn.

The Testimonies for this are so numerous, and l. 1. c. 4. the Consent of all Authors, Sacred and Pro- and l. 2. phane, so unanimous, that I need only refer the c. 7, 8. Reader to them for the undoubted Attestation c. 1. of it.

II. The Formation of this Earth, or the Change of that Chaos into an habitable World; was not a mere Result from any ne-

cessary Laws of Mechanism independently on the Divine Power; but was the proper Effect of the Influence and Interpolition, and all along under the peculiar Care and Providence of God.

The Testimonies for this are so numerous, and fo express, both in the Mosaick History it felf, in the other Parts of Scripture relating thereto, and in all Antiquity, that I may refer the Reader to almost every Place where this Matter is spoken of, without quoting here any Particulars. He who is at all acquainted with the Primitive Histories of this rifing World, whether Sacred or Prophane, can have no Reason to make any doubt of it.

III. The Days of the Creation, and that of Rest, had their Beginning in the Evening.

The Evening and the Morning were the first Day. Gen. 1. 5, 8, 13, 19, And so of the rest afterward. 2 23, 31.

- IV. At the Time immediately preceding the Six Days Creation, the Face of the Abyss, or superior Regions of the Chaos, were involv'd in a thick Darkness.
- Darkness was upon the face of the Deep. Gen. i. 2. which Testimony, the Prophane Traditions do fully agree; as may be feen in the Authors before referr'd to.

Lon Bos one

V. The visible Part of the first Day's Work, was the Production of Light, or its fuccessive Appearance to all the Parts of the

² Thales wegs & wordowlyor, to wegteege everyover, vit n κιμερα. Η νύξ, εφη, μια κμέρα πρότερον. Diogen. Laert. l. 1. Segm. 36.

Earth; with the consequent Distinction of Darkness and Light, Night and Day upon the Face of it.

God said, Let there be Light; and there was Gen. i. 3, Light: And God saw the Light, that it was good; 4, 5, and God divided the Light from the Darkness: And God called the Light, Day; and the Darkness he called, Night: And the Evening and the Morning were the first day.

VI. The visible Part of the Second Day's Work was the Elevation of the Air, with all its contained Vapours; the spreading it for an Expansion above the Earth; and the Distinction thence arising of Superior and Inferior Waters: The former consisting of those Vapours, rais'd and sustain'd by the Air; the latter of such as either were enclosed in the Pores, Interstices and Bowels of the Earth, or lay upon the Surface thereof.

God said, Let there be a firmament, or Expan- \$6,7,8. sum, in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which were under the firmament, from the waters which were above the firmament: And it was so. And God called the firmament Heaven. And the Evening and the Morning were the second day.

VII. The visible Parts of the Third Day's Work were two; the former, the Collection of the inferior Waters, or such as were now under the Heaven, into the Seas, with the consequent Appearance of the dry Land; the latter, the Production of Vegetables

Y 2

out of that Ground fo lately become dry.

\$9,10,11, God said, Let the Waters under the Heavens be gathered together unto one place, and let the dry land appear; and it was so. And God called the dry land, Earth; and the gathering together of the Waters called he Seas: And God saw that it was good. And God said, Let the Earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after his kind, whose seed is in it self upon the Earth; and it was so. And the Earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in it self after his kind; and God saw that it was good. And the Evening and the Morning were the third day.

VIII. The Fourth Day's Work was the placing the Heavenly Bodies, Sun, Moon, and Stars, in the Expansum or Firmament, i.e. the rendring them visible and conspicuous on the Face of the Earth: Together with their several Assignations to their respective Offices there.

God said, Let there be Lights in the Expansum, 16,17,18, or, firmament of Heaven, to divide the day from the night; and let them be for signs and for seasons, and for days and years; and let them be for lights in the firmament of Heaven, to give light upon the Earth; and it was so. And God made two great lights; the greater light to rule the day, and the lesser light to rule the night; be made the stars also. And God set them in the firmament of the Heaven, to give light upon the Earth; and to rule over the day, and over the night, and to divide the light from the darkness; and God saw that it was good. And the Evening and the Morning were the fourth day.

IX. The Fifth Day's Work was the Production of Fish and Fowl out of the Waters; with the Benediction bestow'd on them, in order to their Propagation.

God said, Let the waters bring forth abundantly, \$20,21, the moving creature that hath life, and fowl that 22,23. may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly after their kind; and every winged sowl after his kind; and God saw that it was good. And God blessed them, saying, Be fruitful and multiply, and fill the waters in the seas; and let fowl multiply in the earth. And the Evening and the Morning were the fifth day.

X. The Sixth Day's Work was the Production of all the Terrestrial or Dry-land Animals; and that in a different manner. For the Brute Beasts were produc'd out of the Earth, as the Fish and Fowl had been before out of the Waters: But after that, the Body of Adam was form'd of the Dust of the Ground; and by the Breath of Life breath'd into him in a peculiar manner, he became a Living Soul. Some Time after which, on the same Day, he was east into a deep Sleep, and Eve was form'd of a Rib taken from his Side. Together with several other Things, Hypoth. 3. of which a more particular Account has been production.

God said, Let the earth bring forth the living \$ 24, 25, creature after his kind, cattle and creeting things, 26, 27.

and beast of the earth after his kind; and it was so.

And God made the beast of the earth after his kind,
and cattle after their kind, and every thing that creepeth upon the earth after his kind; and God saw that
it was good. And God said, Let us make Man in
our Image, after Our Likeness; and let them have
dominion over the fish of the sea, and over the sowl
of the air, and over the cattle, and over all the
earth, and over every creeping thing that creepeth
upon the earth. So God created Man in his own
image; in the image of God created he him; Male
and Female created he them, &c. Vide \$\frac{1}{2}\$ 28, 29,
30, 31. & Cap. II. 7, 15, &c.

XI. God having thus finish'd the Works of Creation, rested on the Seventh Day from the same; and sanctified, or set that Day apart for a Sabbath, or Day of Rest, to be then and afterward observ'd as a Memorial of his Creation of the World in the six foregoing, and his Resting or Keeping a Sabbath on this seventh Day. Which Sabbath was reviv'd, or at least its Observation anew enforc'd on the Jews, by the Fourth Commandment.

Gen. ii. 1, Thus the Heavens and the Earth were finished,
2, 3. and all the host of them: And on the sixth day God
ended his work which he had made; and he rested
on the seventh day from all his work which he had
made. And God blessed the seventh day, and santtified it, because that in it he had rested from all his
work which God created and made.

Exod. xx. Remember that thou keep holy the Sabbath-day.

8, 9, 10, Six days shalt thou labour, and do all thy work: But

the seventh day is the sabbath of the Lord thy God;
in it thou shalt do no manner of work, thou, nor thy

Ton,

fon, nor thy daughter, nor thy man-servant, nor thy maid-servant, nor thy cattel, nor the stranger which is within thy gates: For in six days the Lord made heaven and earth, the sea, and all that in them is, and rested the seventh day; wherefore the Lord blessed the seventh day, and hallowed it.

XII. There is a constant and vigorous Heat diffus'd from the Central towards the Superficiary Parts of our Earth.

Tho' I might bring feveral Arguments from ancient Tradition, the Opinion of great Philofophers, and the present Observations of Nature for this Affertion; yet I shall chuse here, for Brevity fake, to depend wholly on the last Evidence, and refer the inquisitive Reader to what the Learned Dr. Woodward fays in the Effay, present Case; which I take to be very fatisfa-Part 3. ctory. And indeed, as to this internal Heat it 1. felf, whether it be allow'd the Origin of Springs or not, (for some deny the latter, and yet affert the former,) it must however be accounted for. And if some may think it more easily ascrib'd to the Mixture of Sulphureous, Nitrous and Mineral Principles, than to a hot central Solid; they must give me leave to diffent from them for these two Reasons; viz. Because the Earth, at any great Depth, cannot be probably suppos'd cavernous or hollow enough for the making of fuch Mixtures; and, Because such a Mixture it self supposes that Heat and intestine Motion of Parts as Causes, which ought only to be Effects thereof. Besides, there is one Argument for the Rife of Springs from this internal Heat, which feems to me unanswerable; viz. That the Springs break forth extraordina-See Mr. rily, and run the fastest in a Frost, as they ought Ray's Dife. to do on this Hypothesis, when the Evaporation p. 109. Y 4

& 11. &

1. 2. c. 7,

10.

or Exit of their Steams in the Form of Vapour, is hinder'd: But which feems impossible, if they only arose from the Current of Vapours in the Air; those being at that Time certainly at the greatest Rest and Quiet, and also smaller in Quantity than at other Times.

XIII. The Habitable Earth is founded or fituate on the Surface of the Waters; or of a deep and vast subterraneous Fluid.

This Constitution of the Earth is a natural Refult from fuch a Chaos as we have already affign'd; affords Foundation for an easy Account of the Origin of Mountains; renders the Histories of the several States of the Earth, and of the Universal Deluge very intelligible; is as Philofophical, and as agreeable to the common Phænomena of Nature, as any other. Without this Supposition 'twill be, I believe, impossible to vid. Theor. explain what Antiquity, Sacred and Prophane, l. 1. c. 5. assures us of relating to the Earth, and its great Catastrophe; but this being allow'd, 'twill not be difficult to account for the same to the greatest Degree of Satisfaction, as will appear in the Progress of the present Theory. And, Lastly, The fame Affertion is most exactly consonant to, and confirm'd by the Holy Scriptures; as the following Texts will fairly evince.

When the Lord prepared the heavens, I was there: Prov. viii. 27, 28,29. When he set a compass (Circle or Orb) on the face of the deep: When he established the clouds above; when be strengthened the fountains of the deep: When be gave to the fea his decree, that the waters should not pass his commandment; when he appointed the foundations of the earth.

Chap. I. PHÆNOMENA. 233

He bath founded the earth upon the seas, and esta-Psal. xxiv. blish'd it upon the floods.

To bim that stretched out the earth above the wa- & cxxxvi.

ters: for his mercy endureth for ever.

This they willingly are ignorant of, that by the 2 Pet. iii. word of God the heavens were of old, and the earth, 5, 6. standing out of the water, and in the water; whereby the world that then was, being overflowed with waters, perished.

The fountains of the great deep were broken up. The fountains of the deep were stopped.

Gen. vii. 11. & viii. 2.

XIV. The interior or entire Constitution of the Earth is correspondent to that of an Egg.

'Tis very well known, that an Egg was the fo-vid. Theor. lemn and remarkable Symbol or Representation 1. 1. c. 5. of the World among the most venerable Anti- & 1. 2. quity; and that nothing was more celebrated than the Original "Ωον 'Ορφικον, Orphic Egg, in the most early Authors; which, if extended beyond Lem. 70, the Earth, to the System of the Heavens, is & 71. groundless and idle; if referr'd to the Figure of cum Coroll. the Earth, is directly false; and so is most reafonably to be understood of the entire and internal Constitution thereof.

XV. The Primitive Earth had Seas and dry Land, distinguish'd from each other in great measure as the present; and those situate in the same Places generally as they still are.

This is put past doubt by Part of the third, the Gen. i. 9, entire fifth, and Part of the sixth Day's Works. 10.

One half of the third being spent in distinguish. ½ 20, 21, ing the Seas from the dry Land; the entire fifth 22, 23. in the Production of Fish and Fowl out of the Waters, and in the assigning the Air to the latter

Sort,

1 26, 28. Sort, and the Seas to the former, for their respective Elements; and on the fixth, God bestows on Mankind the Dominion of the Inhabitants, as well of the Seas, as of the dry Land. All which can leave no doubt of the Truth of the former Part of this Affertion. And that their Disposition was originally in the main much what it is at prefent, appears both by the Rivers, Tigris and Euphrates, running then into the same Persian Sea Essay, p. that now they do; and by the Observations of 252, 253. Dr. Woodward, fully confirming the same.

XVI. The Primitive Earth had Springs, Fountains, Streams and Rivers, in the fame manner as the present; and for the main, usually in or near the same Places also.

> This is but a proper Consequence of the Distinction of the Earth into Seas and dry Land; the latter being uninhabitable without them; and fuch Vapours as are any way condensed into Water on the higher Parts of the dry Land, naturally descending and hollowing themselves Channels, till they fall into the Seas. However, the other direct Proofs for both Parts of the Affertion, are fufficiently evident.

I was set up from everlasting from the beginning, Prov. viii. or ever the earth was. When there were no depths, 23, 24. I was brought forth; when there were no fountains

abounding with water.

A river went out of Eden, to water the garden; Gen. ii. 10, &c. and from thence it was parted, and became into four beads; Pison, Gibon, Tigris, and Euphrates: The two latter of which are well-known Rivers to this very Day, tho' possibly not running in the very fame Channels as they did before the Deluge. And the same Thing is confirm'd by Dr. Wood-Estay, P. 255. ward's Observations.

XVII. The

XVII. The Primitive Earth was distinguish'd into Mountains, Plains, and Vallies, in the same manner, generally speaking, and in the same Places as the present.

This is a natural Consequent of the two former: The Caverns of the Seas, with the extant Parts of the dry Land, being in effect great Vallies and Mountains; and the Origin and Course of Rivers necessarily supposing the same. (For tho' the Earth, in the Theorist's way, were oval, which it is not; 'tis demonstrable, there could be no such Descent as the Course of Rivers requires.) However, the direct Proofs are evident.

The Lord possessed me in the beginning of his way, Prov. viii. before his works of old. I was set up from everlast-22,23,25, ing, from the beginning, or ever the earth was. Be-26: fore the mountains were settled; before the hills was I brought forth: While as yet he had not made the earth, nor the fields, nor the highest part of the dust

of the world.

Art thou the first Man that was born? or wast Job xv. 7:

thou made before the bills?

Lord, thou hast been our dwelling-place from one Pial. xc. generation to another. Before the mountains were 1, 2-brought forth, or ever thou hadst formed the earth and the world, even from everlasting to everlasting, thou art God. And indeed, these three last Phænomena are in their own Natures so link'd together, they so depend on, and infer one another mutually, that the Proofs of each of them singly may justly be esteem'd under the same Character to both the other; and all of them are thereby establish'd past all rational Contradiction. Of which Essay, p. whole Matter, Dr. Woodward's Observations are 249, 252, a sufficient Attestation also.

XVIII. The .czs.822

236 PHÆNOMENA. Book III.

XVIII. The Waters of the Seas in the Primitive Earth were Salt, and those of the Rivers Fresh, as they are at present; and each, as now, were then stor'd with great Plenty of Fish.

This appears from the Difference of the Species and Nature of Fishes; some being produc'd and nourish'd by Salt Water, others by Fresh; and yet all created on the fifth Day. And this, in all its Parts, is confirm'd by Dr. Woodward's Observations.

Esfay, p. 253, \$54, 254.

XIX. The Seas were agitated with a like Tide, or Flux and Reflux, as they are at prefent.

There is in it self no Reason to doubt of this; and 'tis moreover attested by Dr. Woodward's Ob-P. 254. servations.

XX. The Productions of the Primitive Earth, as far as we can guess by the Remainders of them at the Deluge, differ'd little or nothing from those of the present, either in Figure, Magnitude, Texture of Parts, or any correspondent Respect.

Essay, This is prov'd by Dr. Woodward's Observap. 22, 23, tions.

XXI. The Primitive Earth had such Metals and Minerals in it, as the present has.

Gen. ii. In the land of Havilah there was gold; and the 11, 12. gold of that land was good: There was Bdellium, and the Onyx-stone.

Gen.iv.22. Tubal-Cain was an instructor of every artificer Essay, in brass and iron. Which is withal attested by Vid. p. Dr. Woodward's Observation.

258, 259. XXII. Arts

XXII. Arts and Sciences were invented and improv'd in the First Ages of the World, as well as they fince have been.

Abel was a keeper of sheep, but Cain was a tiller Gen. iv. z. of the ground.

Cain builded a city, and called it after the name y 17.

of his son Enoch.

Jabal was the father of such as dwell in tents, * 20. and of such as have cattel.

Jubal was the father of all such as bandle the barp \$ 21.

and organ.

Tubal-Cain was an instructor of every artificer *1.22. in brass and iron. See also the Right Reverend Bishop Patrick, on Gen. iv. 20, 21, 22, 25. and *\forall 18. and Plat. Politic. Operum, pag. 177, A. citat. apud Hypoth. x. p. 172. Not. (a) prius.

CHAP. II.

Phænomena relating to the Primitive State of the Earth.

Earth admitted of the Primary Production of Animals out of the Waters and dry Ground, which the subsequent States, otherwise than in the ordinary Method of Generation, have been incapable of b.

b EEN. Καὶ μίω αι κὰ τέν γε βασιλείαν ἡν ἦςξε Κεψν. Φολλων ἀκηκόαωφ. ΣΩ. Πλείσων μὰ ἐν. ΕΕΝ. Τὶ ȝ, τὸ τὰς ἔμπεροθεν φύεοζ γηγωθές, κὸμ μὰ ἰξ ἀλλήλων χωναοζ;

238 PHÆNOMENA. Book III.

Vide Grot. This appears from the History of the Crea-Verit. Rel. tion, compar'd with that of Nature ever since. Christ. 1. 1. By the former of which, (agreeing with the old-§ 16. Theor. est Traditions) 'tis evident, That the Fishes and 1. 1. c. 5. Fowls were the immediate Productions or Off-1. 2. c. 7. spring of the Waters, and the Terrestrial Animals of the dry Land, in the Primitive State of the Earth: And by the latter 'tis equally so, that neither of those Elements have afforded the like ever since.

XXIV. The Constitution of Man, in his Primitive State, was very different from that ever since the Fall, not only as to the Temper and Perfections of his Soul, but as to the Nature and Disposition of his Body also.

This the whole Drift and Series of the facred History of this Primitive State supposes; in which, these two Particulars may here be taken Gen. ii 25 notice of: (1.) Nakedness was on Inconvenience and iii. 7, and no Shame, and so no Sense of any need to cover it does appear. Those Inclinations which provide for the Propagation of Mankind, were, it seems, so regular, and so entirely under the Command of Reason, that not so much as an

ΣΩ. Καὶ τότο ἐν τω σάλαι λεχθένων. Platonis Politicus,

pag. 174. G. Edit. Lugdun. 1590.

Ούδε κίπσεις γυναικών κος παίδων οπ γκς γο ανεδιώσκονο

ωάνλις. Ibid. pag. 176. Α.

[°] Γυμιοί ή κὰ ἄτςωτοι θυρφυλώνλες τὰ πολλὰ ἀνέμονο. Τὸ γδ

[°] ώρῶν αὐτοῖς ἄλυπον ἀπέκρος ὁ μαλακάς ἡ ἐυνὰς εἶχον, ἀναΦυομβής ἀπ γῆς πόας ἀΦθόνω. Ibid. pag. 176. Α.

Apron

ΣΩ. Γένεσις δέ τις τοτ ω, ω ξένε, ζώων; Και τίνα τεάπον εξ άλληλων εγγονώντο; ΕΕΝ. Δηλοι, ω Σώκεμτες, ότι το μ έξ άλληλων σόκ ην εν εη τότε φύση γρονώμηνον το η γηγούς εθ ωστε γίω λεχθέν, τετ ην το κατ εκείνον τ χρόνον εκ γης σάλιν άνας ερφομίνου. Ibid. pag. 175. Ε.

Apron was esteem'd necessary to hide those Parts; which all the World have since thought proper to do. (2.) The Temper of the Human Body was more doft, pliable, and alterable than now it is: Some Sorts of Fruits and Food were capable Cap. ii. 9, of causing a mighty Change therein, either to six 16, 19. and adapt it to its present Condition, or discomendate and disorder it; i. e. in other Words, either to render it permanent and immortal on the one hand; or to devolve upon it Diseases, Corruption and Mortality, on the other. What concerns the Soul, or its Moral Persections, is without the Compass of this Theory, and not here to be consider'd.

XXV. The Female was then very different from what she is now; particularly she was in a State of greater Equality with the Male, and little more subject to Sorrow in the Propagation of Posterity than he.

(1.) Her Names were, as much as possible, the very same with his. The Husband was call'd Adam, the Wise Adamah; the Husband Ish, the Wise Ishah. God called their name Adam, in the Gen. v. 2. day that they were created. She shall be called Ishah, and ii. 23. because she was taken out of Ish. (2.) We find little to infer any Inequality, or Subjection, till after the Fall. Adam said, This is now bone of Chap. ii. my bone, and slesh of my slesh: Therefore shall a 23, 24. man leave his father and his mother, and shall cleave unto his wife; and they shall be one slesh. Unto the woman God said, (after the Fall) Thy de-Chap. iii.

ο Ἡν ἡλικίαν ἐκασον εἰχε τ ζώων, αὐτὰ πρῶτον μι ἔση πάντων, εἰ ἐπαύσαις πῶν δσιν ἔν Ανητον, ἐπὶ τὸ γεραιότερον ἰδεῖν πορεύομυρον, μεταδάλλον ζε πάλιν ἐπὶ τενανίου. οἶον νεώτερον ελ ἀπαλύτερον ἐφύετο. Plat. Politic. pag. 175. D.

Ibid.

sire shall be (subject) to thine busband, and be shall rule over thee. (3.) Her Pains in Conception and Childbirth were to be inconsiderable, in Comparison of what they since have been. Unto the woman God said, (after the Fall) I will greatly multiply thy forrow, and thy conception; in forrow thou shalt bring forth children.

XXVI. The other Terrestrial Animals seem to have been in a State of greater Capacities and Operations; nearer approaching to Reason and Discourse, and Partakers of higher Degrees of Perfection and Happiness, than they have been ever fince °.

This appears, (1.) From the Necessity or Occasion of a particular View, and distinct Consideration of each Species of Animals, before Adam was fatisfy'd that none of them were a Helpmeet for him, or fuitable to him. (2.) From the Serpent's Discourse with the Woman: In which, to argue from the common Opinion, tho' the Old serpent, the Devil, was principally concern'd, yet the

Gen. ii.

· Tòν δη βίον, ω Σωκρατες, ακέκις μ τ τ επί Κράνε τόνδε δ' ως λόγ Φ έπι Διος τη τ νωί, παζών αυτός ή οδησαι. Κείναι δ' αὐτοῖν τ' ἐυδαιμονές ερον ἀρ' ἀν διώ αιό τε κὰ ἐθελήσκας; ΣΩ. Ούδαμῶς. ΞΕΝ. Βέλο δήτα έγω σοι τρόπον τινά Δακρίνω; ΣΩ. Πάνυ μ έν. ΕΕΝ. Ει μ τοίνων οι τράριμοι & Κράνε, σε κάνες σύτοις έτω σολλές χολής κ διωάμεως σος το μη μόνον άνθεώ-Trois axxà x Ineiois Ala xò ywr duias oulyilves, xatexewile τάτοις σύμπασιν επί Φιλοσορίαν, μετά τε θηρέων κ μετ άλλήλων ομιλενίες, κο σωθανόμθμοι σε ομο σάσης φύσεως εί τινά τις ίδιαν διώαμιν έχεσα ήθετό τι Δάφορον τ άλλων, είς Δαγυρμόν Φρ9νήσεως έυχρετον ότι τ νου οι τότε μυρέω προς ευδαιμονίαν διέ-Φερον. Έι ή έμπιπλάρθμοι σίτων άδλω κό σοτών, διελέγοι σερός άλλήλες κ τὰ Ιπεία, μύθες οίοι δη κ τανον του αὐτο λί-γον), κ τέτο, ώσε κ τ το δόξαν δαρφήνας, κ μάλ ιθκελτον. Plat. Politic. p. 176. A.B. parti-

particular Subtilty of the Serpent is taken notice of as a means of her Deception, and a Curse denounced and inflicted on the fame Beaft upon account thereof. Now the Serpent was more subtil than any Gen. iii. 1. beast of the field, which the Lord God had made, &c. 2 Cor. x1. I fear lest by any means as the Serpent beguiled Eve 3. through his subtilty. The Lord God said unto the Ser-Gen. iii. pent, Because thou hast done this, thou art cursed above 14all cattle, and above every beast of the field; upon thy belly shalt thou go, and dust shalt thou eat all the days of thy life. (3.) From St. Paul's Discourse in the 8th Chapter to the Romans, to argue here also on a common Opinion, For the earnest expectation of Rom. viii. the creature waiteth for the manifestation of the Sons 19,20,21, of God. For the creature was made subject to vanity, not willingly, but by reason of him who hath subjetted the same in hope: Because the creature it self also shall be delivered from the bondage of corruption, into the glorious liberty of the children of God. For we know that the whole creation groaneth and travelleth in pain together, until now.

XXVII. The temper of the Air, where our first Parents liv'd, was warmer, * and the *Vid.Plat. Heat greater before the Fall than after it. Politic. p. 176. A.

This appears, (1.) From the Heat requifite Phænom. to the Production of Animals, which must have 24. citat. been greater than we are since sensible of. Of which the Wombs wherein the Fætus in viviparous Animals do lye, and the warm brooding of the Oviparous, with the hatching of Eggs in Ovens are good evidence. (2.) From the Na-Gen.ii.25. kedness of our first Parents. (3.) From that peculiarly warm Cloathing they immediately stood in need of afterwards, the Skins of Animals. Unto Adam also, (after the Fall) and to Chap. iii.

242 PHÆNOMENA. Book III.

bis Wife, did the Lord make Coats of Skins, and cloathed them.

XXVIII. Those Regions of the Earth where our first Parents were plac'd, were productive of better and more useful Vegetables, with less Labour and Tillage than they have been since f.

Gen. ii. 15. The Lord God took the Man, and put him into the Garden of Eden to dress it, and to keep it;

(before the Fall.)

Chap. iii. The Lord God said unto Adam, (after the Fall)
17,18,19. Cursed is the ground for thy sake; in Sorrow shalt
thou eat of it all the days of thy life. Thorns also
and Thistles shall it bring forth to thee, and thou
shalt eat the Herb of the Field. In the Sweat of
thy Face shalt thou eat Bread, till thou return unto
the Ground, for out of it wast thou taken.

XXIX. The Primitive Earth was not equally Paradifiacal all over. The Garden of Eden or Paradife being a peculiarly fruitful and happy Soil, and particularly furnish'd with the Necessaries and Delights of an innocent and blessed Life, above the other Regions of the Earth.

Gen. ii. 8, The Lord God planted a Garden Eastward in Eden, and there be put the man whom be had

"Ο δ΄ ήρε ωθὶ Ε΄ ωάνω αὐτόμαω γίνεος τοῖς ἀνθρώποις, Ήμισα τ νον ἐσι καθεσηκήας φορῷς, ἀλλ ἡν κὰ τέτο τ ἔμπροθεν.

Vid. pag. 175. G.

formed:

f Καςπες ή άφθόνες είχον δπό τε δευών κ τολλής ύλης άλλης, εχ΄ των γεωργίας Φυομβύες, άλλ' αυτομάτης άναδιδέσης τ γης. Γυμνοί ή κ άερωτοι Αυραυλέντες τὰ πολλὰ ενέμου 6. Τὸ ης τ ώρων αυτοίς άλυπον επέπρατο μαλακάς ή εμιας είχον, άναφυομβύης εκ γης πόας άφθόνει. Plat. Politic. pag. 176. A.

formed: And out of the Ground made the Lord God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the Garden, and the tree of Knowledge of good and evil.

The Lord God sent the Man forth from the Gar-Chap. iii. den of Eden to till the Ground from whence he was 23, 24. taken: So he drove out the Man.

XXX. The ancient Paradise or Garden of Eden, the Seat of our first Parents in the State of Innocence, was about the North-West Bounds of Assyria, at the Rivers Tigris and Euphrates: (for their Antediluvian Streams seem to have been united before they were come so far as Assyria:) a little below which place they were parted into four Branches, and so ran into the great Southern Ocean called by the Ancients the Red-Sea, at four Out-lets at no small distance from one another.

Of this see the fourth Hypothesis before laid down.

XXXI. The Earth in its Primitive State had only an Annual Motion about the Sun: But fince, it has a Diurnal Rotation upon its own Axis also: Whereby a vast difference arises in the several States of the World.

Of this, with its necessary consequents, see the third Hypothesis before laid down. Nay Plato will give us account of more Mutations than are there mention'd; Earthquakes and Destruction of Animals at first, till afterwards all went on

Z 2

244 PHÆNOMENA. Book III.

again in due order. Which are not hard to be folv'd on the prefent Hypothesis g.

XXXII. Upon the first commencing of this Diurnal Rotation after the Fall, its Axis was oblique to the Plane of the Ecliptick as it still is: Or in other Words, the present Vicissitudes of Season, Spring, Summer, Autumn, and Winter, arising from the Sun's Access to, and Recess from the Tropicks, have been ever since the Fall of Man.

Gen.i. 14. God said, on the fourth Day, Let there be lights in the Firmament of the Heaven, to divide the Day from the Night; which was their proper Office till the Fall. And let them be, ever after, for Signs, and for Seasons, and for Days, and Years. After the Flood, While the Earth ult.

Chap. viii. and Years. After the Flood, While the Earth remaineth, Seed-time and Harvest, and Cold and Heat, and Summer and Winter, and Day and Night shall not cease. Implying, that the the

ε ο ξ [κόσμω] μετατεεφόμμω κὰ συμδάλλων, ἀρχῆς τε κὰ τελουτῆς ανανίαν ὁρμιω ὁρμηθείς, σεισμὸν πολύν αν ἐαυτώ ποιῶν, ἄλλιο αὐ φθορὰν ζώων πανθοίων ἀπειργάσατο. Μετα ξ ταῦτα, πορεκθοίνω ἰκανε χρόνε, θορύδε τε κὰ ταραχῆς κόπ παυόμμω κὰ σεισμῆς, γαλιώνς ἐπιλαδόμμω, εἰς τε τ εἰωθό α δρόμον κὰ τουτε κατακοσμέμμω κει, εκτ. Plat. Polit. 176. D. Vide

& pag. 175. C. Στρεφθέν ΤΟ Νο πό τε κόσμε τ επί τ νον χόεσιν όδος, το τ κλικίας αὐ πάλιν ίτατο, κο καινά τανανδία απεδίδε τοῖς τότε.

Ibid. pag. 176. F.

Της ηδ & κεκηριμέ κὸ νέμον Φ τιμάς δαίμον Φ απερημωθέν ες

επιμελείας, τ΄ πολλών αὐ θηρέων, ὅσα χαλεπὰ τὰς ¢ύσεις ἦν,

ἀπαγριωθέν ων, αὐτοὶ τὸ ἀστενείς ἀνθρωποι κὸ ἀφύλακ οι γεγονό
τες, διηρπάζον Θ τῶ αὐτο, κὸ ἐτ ἀμηχανοι κὸ ἀπεχνοι κτὸ τὰς

πρώτες ἦσαν χρόνες, ἀτε τ΄ μὰ αὐτομάτης τρυρῆς ἐπιλελοιπήας,

πορίζεος τὸ σοκ ἐπισάμμοι πω, λὸ τὸ μηδεμίαν αὐτὰς χρείαν

πορίζεος τὸ σοκ ἐπισάμμοι πω, λὸ τὸ μηδεμίαν αὐτὰς χρείαν

πορίζεος τὸ το ἐπισάμμοι κου, λὸ τὸ μηδεμίαν αὐτὰς χρείαν

πορίτερον ἀνακαίζειν. Έκ τότων πάνθων ἐν μεγάλαις λπερίαις

ἦσαν. Ibid. pag. 177. Α.

Seafons,

Seasons, as well as Night and Day, had been, during the Deluge, scarcely distinguishable from one another; yet the former as well as the latter Distinction had been in Nature before: And surely the Spring, Summer, Autumn and Winter, with their Varieties of Cold and Heat, Seed-time and Harvest, were no more originally begun after the Deluge, than the Succession of Day and Night mention'd here together with them is by any supposed to have been. But of this we have at large discours'd under the third Hypothesis foregoing already; to which the Reader is farther referr'd for Satisfaction.

XXXIII. Since the Commencing of this diurnal Rotation, the inward and central Parts have not revolv'd quite so fast as the outward and superficial.

This appears by what has been faid under the

IIId Hypothesis already.

XXXIV. As a Consequence of the former it appears that the Cause of the diurnal Rotation was some Force impressed on the outward and superficial Parts, and thence communicated to the inward.

This appears from the same III Hypothesis.

21.

y 12. ¥ 32.

Gen. iv.

14, 15. with 25.

vii. 13.

CHAP. III.

Phænomena relating to the Antediluvian State of the Earth.

THE Inhabitants of the Earth were before the Flood vaftly more numerous than the present Earth either actually does, or perhaps is capable to contain and fupply.

In order to the Proof of this Affertion, I obferve, (1.) That the Posterity of Each Generation of the Antediluvians, is to be suppos'd much more numerous than of any fince, because their Lives were much longer. This is Gen. v. 15, but agreeable to the facred History, in which we find two at fixty five, and one at feventy Years of Age to have begotten Children: While the three Sons of Noah were not begotten till after their Father's five hundredth year: Whereas yet at the fame time the feveral Children of the fame Father appear to have succeeded as quickly one after another as they usually do at this Day. For as to Cain and Abel, they appear to have been pretty near of an Age, the World being at the Death of the latter, not without considerable numbers of People, tho' their Father Adam was not then an hundred and thirty Years old; and fo in Probability contain'd many of the Posterity of both of them. (Which by the way fully establishes the early begetting of Children just vid. Cap. now observ'd in the Antediluvian Patriarchs, and if rightly consider'd, overturns a main Argument

with v. 31. for the Septuagint's Addition of so many Centena-

ries

ries in the Generations before the Deluge.) And as to the three Sons of Noah, born after Gen. v.32. the five hundredth Year of their Father's Life, & vii. 11. 'tis evident that two of them at the least, Japhet & viii. 13. and Shem, were born within two Years one after with xi.10. another. All which makes it highly reasonable to suppose, that fince the Lives of the Antediluvians were much longer, their Posterity must have been much more numerous than that of the Postdiluvians. (2.) The Lives of the Antediluvians being pretty evenly prolong'd without that mighty inequality in the Periods of human Life, which we now experience, and commonly amounting to 800 Years at the least, whereas the Modern Age of Men at the utmost is not 80, the proportion between the Lives of the Antediluvians and those of the Postdiluvians, must at least be taken as about 10 to 1. And accordingly in any long space, the Antediluvians must double themselves at the least, in about the tenth part of the time in which they now double themselves. (3.) On account of the Co-existence of so many of such Generations as are but successive with us, we must allow the Antediluvian number of the present Inhabitants to have been fo much greater than it would otherwife have been, as to supply any defect which might arise from any other Circumstances not here particularly consider'd; that on all accounts the before-mention'd pro-Will Petportion for the doubling themselves ought to be ty's Essay esteem'd a very fair and moderate one in this tiplication case; which Præcognita suppos'd, in order to the of Manproof of this Affertion I observe, that 'tis now kind: And generally own'd, and this from good Observa-Philos. tions, that Mankind do double themselves in about N. 196. p. 360 or 370 Years; or, allowance being made for 597, &c. ZA all

all but very uncommon, and very rare Cases of general Wars, Famines, Plagues and fuch like fweeping Defolations, in about 400 Years; which therefore is to be suppos'd the Proportion ever fince the present Period of human Life was fix'd in the Days of David. 'Tis also evident that from the Creation to the Deluge, the Lives of Men were at the leaft ten times as long as they have been in these latter Ages of the World, as was just now observ'd; 'tis therefore evident that the Period for the Doubling of Mankind, from the Creation till the Deluge, must have been about ten times shorter than that which has of late obtain'd in the World, by reason of their ancient longer Lives in that proportion; fo that if we have a Series of 40 Numbers beginning at 2 (for fo many God created himself at first;) and doubling themselves in 40, or for convenience 41 Years in a mean, or one Age with another till the Deluge, i.e. for about 1556 or 1656 Years, we shall in some degree obtain the sum total of Mankind at the Deluge, and also in the several Ages before that time. (Tho' still this Period of doubling, must have been much shorter and longer in the earliest and latest times of the faid Interval.) Which Computation take in the following Table.

Number of Mankind.	Years of the World.	Years of Doubling.	Scries.	
4 8 16 32 64 128 256 512 1024 2048 4096 8192 16,385 32,768 65,536 131,072 [262,144 524,288 1,048,576 2,097,152 4,194,304 8,388,608 16,777,216 33,554,432 67,108,864 134,217,728 268,435,456 536,870,912 ,073,741,824 2,147,483,648 1,294,967,296 3,589,924,592	342 380 462 506 552 600 650 702 756 812 870 930 992 1056 1122 1132	40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 1 22 23 24 25 26 27 28 29 30 31 32 33 34 35 6 37	ľ
9,755,813,88		1 76	38	-

From which Computation it is evident that the Number of the Antediluvians before the Deluge would eafily amount to above 500,000 Millions, i. e. to 100 times as many as our present Earth has in all Probability now upon it; and indeed to 10 times so many as the present Earth can well be suppos'd capable of maintaining in its present Constitution since the Deluge. And that this vast number may not feem at all incredible, nor to be only built on precarious and imaginary Suppositions, I shall farther shew from a known Instance, built on matter of Fact, that the Antediluvians might eafily be rather more than fewer in number than those affign'd in the Exod. xii. foregoing Computation. For 'tis evident from the facred History, and not to be denied by Numb. i. those who forsake the Hebrew Chronology themfelves, or who would leffen the numbers of the Antediluvians; That in the Space of about two hundred fixty fix Years, the Posterity of Jacob alone, by his Sons, (without the Confideration of Dinab his Daughter) amounted to fix hundred thousand Males above the Age of Twenty, all able to go forth to War. Now by Mr. Graunt's Observations on the Bills of Mortality it appears that about 34 are between the Ages of fixteen and fifty fix: Which may be near the Proportion of the Males numbred, to the entire Number of them all. So that as thirty four to an hundred, by the Golden Rule, must fix hundred thousand be to the entire Number of the Males of Israel at that time: Which was therefore one Million seven hundred fixty four thousand and seven hundred. To which add Fe-- Pag. 104. males, near 1 fewer, as suppose, to make the Sum even, one Million fix hundred thirty five Num. iii. thousand, three hundred, the Total is, three

Millions

Pag. 85.

ENOUGH !

Millions, and four hundred thousand; add forty Num. i. three thousand for the Levites, (not included in 47, 48, 49. the former accounts,) the entire Sum will at last amount to three Millions, and four hundred forty three thousand Souls. Now if we suppose the Increase of the Children of Israel to have been gradual, and proportionable through the whole two hundred fixty fix Years, it will appear that they doubled themselves every fourteen Years at least; which Proportion, if we should continue it through the entire hundred and fourteen Periods, (which the space from the Creation to the Deluge admits) the product or number of People on the Face of the Earth at the Deluge would be at least the hundredth in a Geometrick double Proportion, or Series of numbers, two, four, eight, fixteen, &c. where every fucceeding one were double to that before it: Which to how immense a Sum it would arise, those who know any thing of the nature of Geometrick Progreffions will eafily pronounce, and may be foon tried by any ordinary Arithmetician. So that if the Antediluvians had only multiplied as fast before, as 'tis certain the Israelites did since the Flood for the affigned term; the numbers of Mankind actually Alive and Co-existing at the Deluge, must have been, not only more than the Earth now does or possibly could maintain, but prodigiously more than the whole number of Mankind can be justly suppos'd ever since the Deluge; nay indeed, with any degree of likelihood, ever fince the Creation of the World. On which Account this Calculation must not be at all esteem'd a real one, or to exhibit in any measure the just Number of the Posterity of Adam alive at the universal Deluge. However, this Calculation ferves to shew how vastly numerous, according to the

the regular Method of human Propagation, the Offspring of a fingle Person may certainly be; and this on a Calculation from undoubted matter of Fact, not from a meer possible Hypothesis, (according to which Numbers prodigiously greater would still arise:) It demonstrates the Probability, if not Certainty, of Mankind's Original from a common Head as well before as since the Deluge, and that within a sew Millenaries of Years: It, lastly, is more than sufficient to demonstrate the Proposition we are upon, that the whole Earth must have been peopled long before the Flood, and at its Approach have contain'd considerably more in Number than the present does.

Scholium. Since we have here suppos'd that the general Standard for the doubling of Mankind in these latter Ages of the World is about 400 Years, allowance being therein made for all but very uncommon and very rare Cases of general Wars, Famines, Plagues, and fuch like fweeping Desolations; and fince we have also suppos'd that the Period of Doubling must still be so much shorter, as the Lives of Men in different Ages appear to be longer, it will be proper and useful in this Place to examine this Matter a little farther, and to confirm both parts of the present Hypothesis by comparing it with the utmost ancient and authentick, nay indeed, with the only ancient and authentick Account of this Matter we have in the World; and that is with the time of Doubling among the Children of Israel from their Entrance into the Land of Canaan, till the Time of King David; at both which Points of Time their Numbers were exactly taken, and are as exactly recorded in the facred Scriptures. The whole Number

Number of the Children of Ifrael (excepting the Tribes of Levi and Benjamin, which were not numbred by Joab the second Time) above 20 Years old, counting only the Males, just before their entring into the Land of Canaan was Numb. 556,130. Between this Time of the numbring xxvi. 41, by Moses and that by David there were about 51. 430 Years. The usual Period of Human Life in a mean was then at the least longer than the prefent, in the Proportion of 100 to 75, or 4 to 3, as will eafily appear by the Table of the Postdiluvian Lives to be hereafter given; fo that if 400 Phanom. Years be the Period of Doubling with us, 300 Years 71. infra. must have been the Period of Doubling in the Interval we now speak of. Say therefore by the Rule of Three, If three hundred Years double the People, or produce 1,112,260 of Males above 20 Years of Age, how many by a proportionable Increase will 430 Years produce? The Product whereof is 1,594,236, or in a round Number 1,600,000, which therefore, according to the fore-mention'd rate, ought to be the Number of the Israelites at the Time when David numbred them about 430 Years afterward. Now the Number of the Israelites taken by Joab was expresly 2 Sam. 800,000 valiant Men that drew the Sword. Be-xxiv. 9. fides which there were 12 Companies of 24,000 I Chron.
Men apiece already numbered and appelled to xxvii. 1. Men apiece already number'd and enroll'd, to wait by turns on the King in the 12 Months of the Year: Which are therefore 288,000. So that the total Number of the Men of all Ifrael , Chron. was 1,088,000, or in a round Number 1,100,000 xxi. 5. Men: as 'tis expresly in the Book of Chronicles. Ibid. To which add the Men of Judah 470,000; or in a round Number, as the Second Book of Sa- 2 Sam. muel has it, whether including or not the finall xxiv. 9. Tribe of Benjamin does not appear, 500,000 Men.

Men. And fo at last the total Sum is in a round Number 1,600,000 Men, which is the very same Number with the former produc'd by the Arithmetical Calculation above, and fo highly worthy of our Regard and Admiration. We may therefore, upon the whole matter, reasonably conclude that, excepting only what Disturbance very rare and very uncommon Wars, Famines, Plagues and fuch other merciless destroyers of Men have given thereto, Mankind have generally increas'd in nearly the same determinate Proportion, and doubled themselves in 400 Years or thereabout for this 2,700 Years, fince the fixing the present Period of Human Life in the Days of David; and that in the former Ages the Period for fuch their doubling was still about so much shorter as their Lives were longer than that common Standard which has obtain'd in these latter Ages of the World: Upon which Hypothesis all the Com-Gen. xii.2. putations of this Nature are by me built, and are,

& xiii. 16. as far as appears, very agreeable to all the ancient

& xv. 5. Histories of Mankind.

& xvii. 2, Corollary. The Increase of the Children of Israel, during their abode in the Land of Egypt, was ex-4, 5, 6. & xxii.17. traordinary, and very much quicker than the common & xxvi. 4. & xxviii. rate of the Increase of Mankind in those Ages, nay than their own Increase afterwards; and was no 14. & xxxii. 12. other than a signal and remarkable fulfilling of those Exod. i. many Promises God had made to their Forefa-7, 9. & xxxii. 13. thers, concerning such their vast Multiplication and Increase, till by their frequent Murmurings, Dis-Numb. xxiii. 10. obedience, Idolatry, and Wickedness in the Wilder-Deut.i.10, ness and in the Land of Canaan, He took away his xlviii. 19. extraordinary Blessing from them, and left them to Jer.xxxiii. the common and usual Course of Nature ever after-22. Heb. wards. For though, as Sir William Petty has ob-Ezek. xvi ferv'd, in his small but excellent Essay, concerning the

the Multiplication of Mankind, The time of doubling without a Miracle might possibly be no longer than the space of 10 Years, according to the present Observations in some particular Families, even considering the shortness of the Period of Human Life now; and so at the time of the Egyptian Bondage might possibly bave been still almost as short again, because their Lives were then almost as long again; yet, as he also observes, the Increase of Mankind in general, or of any considerable Number of Families together, bas not actually been any where so great as to double it self in less than 120 Years time: Which is much the same as if the Israelites had doubled themselves in 60 or 70 Years only; whereas if we compute the Increase of the Israelites from those 70 Souls which came into Egypt till they became in all at their Exodus near three Millions and an half, i. e. in about 215 Years space, We shall find that they all along in a mean doubled themselves in 15 Years time; which very short Period of doubling, and the prodigious Increase thence arising, tho' it be by no means properly miraculous, yet was very unufual and extraordinary; and a most eminent instance of the peculiar Blessing and Providence of God towards that Nation, and of the fulfilling of his ancient Promises made to that People.

Coroll. 2. Since therefore the vast numbers of the Jews at the destruction of Jerusalem by Titus, and afterwards in the Days of Trajan and Adrian, notwithstanding the return of only a part of that People, after the Babylonish Captivity, attested to by all the profane Historians, does fully consirm and justify the facred Accounts of their Numbers in the elder Days of David and Moses, It is certain that there was a peculiar Providence toward that Nation from the eldest times of it, and such an one as is wholly unexampled among all the rest of the Nations of the Earth.

XXXVI.

256 PHÆNOMENA. Book III.

XXXVI. The Brute Animals whether belonging to the Water or Land, were, proportionably at least, more in number before the Flood than they are since.

This is I think generally look'd upon as no other than a reasonable Deduction from the last Proposition; and is very fully attested by Dr. Essay, p. Woodward's Observations, as far as the Remains of those Ages afford any means of knowing the same; and so ought in reason to be universally allow'd.

MXXVII. The Antediluvian Earth was much more fruitful than the present; and the multitude of its vegetable Productions much greater.

This is both necessary to be allow'd by reason of the Multitude of its Inhabitants, rational and irrational, maintained by them; of which bey, p. fore: And abundantly confirm'd also by Dr.

Woodward's Observations.

**, &c. & 257, 258.

XXXVIII. The Temperature of the Ante-diluvian Air was more equable as to its different Climates, and its different Seasons; hout such excessive, and sudden heat and cold; without the scorching of a Torrid Zone, and of burning Summers; or the free-zing of the Frigid Zones, and of piercing Winters; and without such sudden and violent Changes in the Climates or Seasons

Theor.l.2. from one extreme to another, as the present c. 1. & 10. Air, to our Sorrow, is subject to.

Archæol. These Characters are extremely agreeable to, l. 2. c. 5, and attested by, the ancient Accounts of the Golden

Golden Age. The Gentleness of the Torrid and Frigid Zones is necessary to be suppos'd in order to the easy Peopling of the World, with the Dispersion and Maintenance of those numerous Inhabitants we before prov'd it to have contain'd : Which, if they were as now they are, would be very difficultly accountable. The Gentleness of Summer and Winter, with the easy and gradual coming on, and going off of the same Seasons, are but necessary in order to the very long Lives of the Antediluvians; which else 'twere not fo easy to account for. And indeed the most of those Testimonies which have been suppos'd favourable to a perpetual Equinox before the Deluge, are resolv'd into this Proposition; and if it can be separately establish'd, need not to be extended any farther.

XXXIX. The Constitution of the Antediluvian Air was Thin, Pure, Subtile and Homogeneous; without such gross Steams, Exhalations, Nitrosulphureous, or other Heterogeneous Mixtures, as occasion Corruscations, Meteors, Thunder, Lightning, Contagions, and Pestilential Infections, in our present Air; and have so very pernicious and fatal (tho' sometimes almost insensible) Effects in the World since the Deluge.

This is the natural Consequent, or rather Original, of the before-mention'd Equability and Uniformity of the Antediluvian Air: This must be supposed on the account of the Longavity of the Inhabitants: And this is very agreeable to the last cited Descriptions of the Golden Age. The contrary Heterogeneous and gross Atmosphere, A a which

which now encompasses the Earth, is disagreeable to a regular State, (which an original Formation from the Chaos supposes,) as containing such dense and bulky Exhalations, and Masses, which at first must have obtain'd a lower Situation, and were not to be sustain'd by the primitive thin and subtle Air or Æther. Such Mixtures as this Proposition takes notice of, or those Effects of them therein mention'd, have no Footsteps in Sacred or Prophane Antiquity, relating to the first Ages of the World; there is no Appearance of them in the serene and pellucid Air of the Moon, or of the Generality of the heavenly Bodies, and so there can be little reason to afcribe them to the Antediluvian State.

XL. The Antediluvian Air had no large, groß Masses of Vapours, or Clouds, hanging for long Seasons in the same. It had no great round Drops of Rain, descending in Multitudes together, which we call Showers: But the Ground was watered by gentle Mists or Vapours ascending in the Day, and descending in great measure again in the suc-

* Vid. Hu- ceeding Night. *

This Affertion is but a proper Confequent of nom. 45. fuch a pure, thin, rare Æther as originally encitanda. compass'd the Earth. 'Tis very agreeable to the Theor. Descriptions of the Golden Age, and to the prell. 2. c. 1. sent Phænomena of most of the Planets (especially of the Moon, whose Face, tho' so near us, is never obscur'd or clouded from us.) 'Tis necessary to be suppos'd in an Air without a Rainbow, as the Antediluvian was; (of which presently;) and is indeed no other than the Words of the sacred History informs us of.

Chap. III. PHENOMENA. 259

The Lord God had not caused it to rain upon the Gen. ii. Earth, — But there went up a Mist from the 5, 6.

Earth, and watered the whole Face of the Ground.

The Clouds indeed are mention'd by Wisdom Prov. viii. in the Book of Proverbs as Coeval with the Crea-28. tion, which seems to contradict this Phanomenon.
But if we consider that in the first Constitution of the Expansum or Firmament on the second Day of the Hexaemeron there would be Clouds, and those probably thicker and denser than ever since; and that during the greatest part of 9 or 10 Months Space together, tho' after the clearing up of the Air on the fourth Day they would return no more, as will be easily understood hereafter; it will appear that the present Phanomenon, in the just Sense here intended, is still very true, and not at all disagreeable to the sacred Scriptures.

XLI. The Antediluvian Air was free from violent Winds, Storms, and Agitations, with all their Effects on the Earth or Seas, which we cannot now but be sufficiently sensible of.

This the foregoing *Phænomena* enforce: So homogeneous, pure, and unmix'd a Fluid, as that Air has been defcrib'd to have been, by no means feeming capable of exciting in it felf, or undergoing any fuch diforderly Commotions or Fermentations. Where no Vapours were collected into Clouds, there must have been no Winds to collect them; where the Climates preserv'd their own proper Temperature, no Storms must have hurried the Air from colder to hotter, or from hotter to colder Regions; where was no Rainbow, there must have been no driving together the separate Vapours into larger Globules

260 PHÆNOMENA. Book III.

or round Drops of Rain, the immediate requivid. Phx- fite thereto. This is also highly probable by nom. 55. reason of the perpetual Tranquillity of the Air infra. for the first five entire Months of the Deluge, (as will be prov'd anon,) which is scarce supposable if Storms and Tempests were usual before.

> XLII. The Antediluvian Air had no Rainbow; as the present so frequently has.

God said, (after the Deluge) This is the token Gen. ix. 12,13,14, of the Covenant which I make between me and you, 15,16,17. and every living Creature that is with you, for per-Vid. Theor. petual Generations. I do set my Bow in the Cloud; and it shall be for a Token of a Covenant between me and the Earth. And it shall come to pass when I bring a Cloud over the Earth, that the Bow shall be seen in the Cloud. And I will remember my Covenant, which is between me and you, and every living Creature of all Flesh; and the Waters shall no more become a Flood to destroy all Flesh. And the Bow shall be in the Cloud, and I will look upon it, that I may remember the everlasting Covenant between God and every living Creature of all Flesh that is upon the Earth. And God said unto Noah, This is the Token of the Covenant, which I have establish'd between me and all Flesh that is upon the Earth.

> XLIII. The Antediluvians might only eat Vegetables; but the Use of Flesh after the Flood was freely allow'd also.

Gen. i. 29, God said, (to our first Parents in Paradise) Be30. hold 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 to every beast of the
Earth,

Earth, and to every Fowl of the Air, and to every thing that creepeth upon the Earth wherein there is life; I have given every green Herb for Meat: And

it was fo.

God blessed Noah and his Sons, (after the Flood) Chap. ix. and said unto them, Be fruitful and multiply, and 1, 2, 3. replenish the Earth. And the fear of you, and the dread of you shall be upon every Beast of the Earth, and upon every Fowl of the Air, upon all that moveth upon the Earth, and upon all the Fishes of the Sea; into your hand are they deliver'd. Every moving thing that liveth shall be Meat for you; even as the green Herb have I given you all things. To which when the Prince of Latin Poets so exactly agrees, let us for once hear him in the present case.

Ante etiam sceptrum Dictai Regis, & ante Impia quam cassis gens est epulata juvencis, Aureus hanc vitam in terris Saturnus agebat. Virgil. Georg. lib. 2. fub calce.

XLIV. The Lives of the Antediluvians were more univerfally equal, and vaftly longer than ours now are: Men before the Flood frequently approaching near to a thoufand, which almost none now do to a hundred Years of Age.

This is both fully attested by the most ancient Grot. whi Remainders of prophane Antiquity, and will be supra. put past doubt hereafter by a Table of the Ages Theor. of the Antediluvians, out of the fifth Chapter 1. 2. c. 3. of Genesis. Semotique priùs tarda necessitas Leti Hor. Ode corripuit gradum.

3.

XLV. Though the Antediluvian Earth was not destitute of lesser Seas and Lakes, every where dispers'd on the Surface there-Aa a of;

PHÆNOMENA. Book III. 262

of; yet had it no Ocean, or large Receptacle of Waters, separating one Continent from another, and covering so large a Portion of it, as the present Earth has h.

Vid. etiam Solut. 7. infra. Archæol. p. 241. Theor. 1. I. c. b.

This is evident, Because (1.) the Number of Coroll. 2. the Antediluvians before affign'd, must have been too numerous for the Continents alone to main-(2.) That famous Tradition among the Ancients of the drowning a certain vast Continent call'd Atlantis, bigger than Africa and Asia, seems to be a kind of Relique of the Generation of the Ocean at the Deluge, and consequently of that Antediluvian State, where the greatest part of what the Ocean now possesses was dry Land, and inhabited as well as the rest of the Globe. (3.) The Generation of the Ocean, with the Situation of the present great Continents of the Earth will be fo naturally and exactly accounted for at the Deluge, that when that is understood, there will remain to those who are satisfied with the other Conclusions, small reason to doubt of the Truth of this before us, (4.) The Testimony of Josephus (if the Theorist hit upon his true Sense) is agreeable, who fays, At the Deluge God 'Eis θάλασαν τ ήπειρον μετέβαλε; chang'd the

Theor. 1. 2. c. 10. Continent into Sea, p. 280.

h Nam neque apud nos nisi summa maris superficie ac tenui veluti pellicula opus esset ad humorem terris satisque suppeditandum quem solis vis elicuisset; quique in rorem tantum, non vero in nubes condenfaretur. Hugen. Cofmotheor. P. 117.

CHAP. IV.

Phænomena relating to the Universal Deluge, and its Effects upon the Earth.

XLVI. IN the Sixteenth or Seventeenth Century from the Creation, there

happen'd a most extraordinary and prodi-Grot. ubi gious Deluge of Waters upon the Earth. fupra.

This general Affertion is not only attested by fleet's Orig. a large and special Account of it in the sacred 1.3. c. 4. Writings, but by the universal Consent of the Edward's most ancient Records of all Nations besides, as Authority of Script. may be seen in the Authors quoted in the Marphila. Series, and is put moreover past doubt by Dr. Wood- And Comward's Natural Observations*.

XLVII. This prodigious Deluge of Waters and vii. was in part occasion'd by a most extraordinary * Essay, and violent Rain, for the space of forty Days, Part 3. § 2. and as many Nights, without Intermission.

Yet seven Days, and I will cause it to rain upon the Gen.vii. 4.

Earth forty Days and forty Nights.

The Windows of heaven were opened, and the rain y 11, 12. was upon the Earth forty Days and forty Nights.

And the Flood was forty Days upon the Earth. y 17.

XLVIII. This vast quantity of Waters was not deriv'd from the Earth or Seas, as Rains constantly now are; but from some other Superior and Celestial Original.

This is evident, Because (1.) the Antediluvian Air (as was before prov'd,) never retain'd great Quantities of Vapours, or sustained any Clouds

Aa 4 capable

capable of producing such considerable, and so lasting a Rain, as this most certainly was. (2.) The Quantity of Waters on the Antediluvian Earth, where there was no Ocean, (as we saw just now) was very small in comparison of that at present, and so could contribute very little towards the Deluge. (3.) If the Quantity of Waters on the Face of the Earth had then been as great as now, and had all been elevated into Vapours and descended on the dry Land alone, it were much too small

vid. Theo. ed on the dry Land alone, it were much too small l. 1. c. 2. to cause such a Deluge as this was. (4.) But because, if the Waters were all rais'd into Vapours, and descended into Rain, they must either fall upon, or run down into the Ocean, the Seas, and those Declivities they were in before, they could only take up and possess their old places: they there-

take up and possess their old places; they therefore could not contribute a jot to that standing and permament Mass of Waters which cover'd the Earth at the Deluge. (5.) The Expression us'd by the facred Historian, that the Windows, Flood-

Gen. vii. gates, or Cataracts of Heaven were open'd at the first falling, and shut at the ceasing of these Waviii. 2. ters, very naturally agrees to this superior and

celestial Original.

XLIX. This vast Fall of Waters, or Forty Days Rain, began either on the fixth Day of the Week, or Friday the 28th Day of Navember, according to the present Hebrew Chronology; or on Monday December the 2d, according to the exacter Chronology, being the seventeenth Day of the second Month from the Autumnal Equinox.

Gen. vii. In the six hundredth Year of Noah's Life, in the second Month, the seventeenth Day of the Month, the Windows of Heaven were opened, and the Rain was upon the Earth forty Days and forty Nights.

Thus

Thus Abydenus and Berofus fay it began on the fifteenth Day of Desius, the second Month from Langius de the Vernal Equinox; which, if the Mistake, arising annis Chri-'tis probable from the ignorance of the change in fii, p. 255. the Beginning of the Year at the Exodus out of Egypt, or perhaps from the Copyers alone, by putting Defius instead of Dius, which was the second Month from the Autumnal Equinox, be but corrected, is within a Day or two agreeable to the Narration of Moses, and so exceedingly confirms the same. Thus also, what is still more remarkable, Plutarch tells us that Ofiris, or Noah went into the Ark exactly on the 17th Day of the Month Atbyr, in which the Sun passes through the Sign Scorpius, or the very fame 17th Day of the P. 124, fecond Month from the Autumnal Equinox which 125. we here affign, and which the facred Hiftory af- Prius. ferts; as we have already feen.

L. The other main Cause of the Deluge, was the breaking up the Fountains of the great Abys, or the causing of such Chaps and Fissures in the upper Earth, as might permit the Waters contain'd in the Bowels of it, when violently press'd and squeez'd upwards, to ascend, and so add to the Quantity of those which the Rains produced.

All the Fountains of the great deep were broken up. Gen. vii.

LI. All these Fountains of the great Deep were broken up on the very first Day of the Deluge; or the very first Day when the Rains began.

In the six hundredth Year of Noah's Life, in the Gen. vii. second Month, the seventeenth Day of the Month, the 11. same Day were all the Fountains of the great Deep broken

broken up, and the Windows of Heaven were opened.

LII. Yet the very fame Day, Noah, his Family, and all the Animals entred into the Ark.

Gen. vii. In the self-same Day, last mention'd, entred 13, 14. Noah, and Shem, and Ham, and Japheth, the Sons of Noah, and Noah's Wife, and the three Wives of his Sons with them into the Ark: They, and every Beast after his kind, and all the Cattle after their kind, and every creeping thing that creepeth upon the Earth after his kind, and every Fowl after his kind, every Bird of every sort.

LIII. The Waters of the Deluge increas'd by degrees five Months till their utmost height; and then decreas'd by degrees still longer till they were clearly gone off the Face of the Earth.

This is evident from the entire Series and Course of the Mosaick History, in the seventh and eighth Chapters of Genesis.

LIV. The Waters of the Deluge were Still, Calm, free from Commotions, Storms, Winds, and Tempests of all forts, during the whole time in which the Ark was afloat upon them.

Gen. vi.

This is evident from the Impossibility of the Ark's abiding a stormy Sea, considering the vast Bulk, and particular Figure of it. For since it was three hundred Cubits long, sifty Cubits broad, and thirty Cubits high; which is, according to the most accurate Determination of the Cubits length, by the Right Reverend the Lord Bishop of Peterborough, above sive hundred

and forty seven English Feet long, above ninety Bp. Cumone Feet broad, and near fifty five Feet high: berland's And since withal it appears to have been of the and Measigure of a Chest, without such a peculiar Bot-sures, tom, and Proportion of Parts, as our great Ships p. 34. are contrived with; 'tis evident, and will be allow'd by Persons skill'd in Navigation, that 'twas not capable of enduring a stormy Sea. It must, whenever either the Ridges or Hollows of vast Waves were so situate, that it lay over cross the one or the other, have had its back broken, and it self must have been shatter'd to pieces; which having not happen'd, 'tis a certain evidence of a calm Sea, during the whole time it was associated.

LV. Yet during the latter part of the Deluge, there was a confiderable Wind, if not Storms and Tempests also.

God made a wind to pass over the Earth, and the Gen. viii.

waters asswaged.

Thou coveredst the Earth with the deep, as with a Psalm civ. garment; the waters stood above the mountains. At 6, 7, 8. thy rebuke they sled; at the voice of thy thunder they hasted away. They go up to the mountains; they go vid. Philodown by the vallies, unto the place which thou hast nis descriptionem Diappointed for them.

LVI. This Deluge of Waters was Univer-Burnetium Archael. fal in its Extent and Effect; reaching to all p. 236. the Parts of the Earth, and destroying all the Land-Animals on the entire Surface thereof; those only excepted which were with Noah in the Ark.

The following Texts, especially if compar'd Essay, Pres. with the thirty sifth foregoing Phænomenon, and & Part 3. added to Dr. Woodward's Observations, attesting Theor. the 1. 1. c. 3.

the fame thing, will put this Affertion above ra-

tional Exception.

God looked upon the earth, and behold it was cor-Gen. vi. rupt; for all flesh had corrupted his way upon the 13. And God said unto Noah, The end of all flesh is come before me.

Behold, I even I do bring a flood of waters upon \$ 17. the earth, to destroy all flesh, wherein is the breath of life from under beaven: and every thing that is

in the earth shall die.

Every living substance that I have made, will I Chap. vii.

destroy from off the face of the earth.

* 19, 20, All the high hills that were under the whole heaven 21,22,23 were covered. — And all flesh died that moved upon the earth, both of fowl, and of cattle, and of beast, and of every creeping thing that creepeth upon the Earth, and every man. All in whose nostrils was the breath of life; all that was in the dry land died. And every living substance was destroyed which was upon the face of the ground, both man and cattle, and the creeping thing, and the fowl of the heaven, and they were destroyed from the Earth; and Noah only remained alive, and they that were with him in the Ark.

LVII. The Waters at their utmost height were fifteen Cubits above the highest Moun-Vid. Va- tains, or about 3 Miles above the neighbourren. Geog. ing Plains, or 6 Miles above the common Surface of the Earth.

All the high bills under the whole heaven were co-Gen. vii. 16, 20. vered. Fifteen cubits upwards did the waters prevail, and the mountains were covered.

LVIII. Whatever be the height of that Gordyean Mountain whereon the Ark rested Now; it was at that time the highest of

all

all others, at least in those parts of the World.

This is evident from what has been already vid. Hyobserv'd, That tho' the utmost height of the poth. 8.
Waters were sisteen Cubits above the highest prius.
Mountains, and so many hundreds, nay, thousands above the most of them; yet did the
Ark rest on the very first day on which the Waters began to diminish, more than two Months
before the emerging of the Tops of the other
Mountains; as is evident from the Texts sollowing.

The waters prevailed upon the earth (from the Gen. vii. feventeenth day of the fecond, to the feventeenth ult. (with day of the feventh month) an hundred and fifty 11.)

days. And God remembred Noah and all the cat

days. And God remembred Noah, and all the cat-1,2,3,4,5, the that was with him in the Ark; and God made a wind to pass over the earth, and the waters asswaged. The fountains also of the deep, and the windows of heaven were stopped, and the rain from heaven was restrained. And the waters returned from off the earth continually, and after the end of the hundred and sifty days the waters were abated. And the ark rested in the seventh month, on the seventeenth day of the month, upon the mountains of Ararat. And the waters decreased continually until the tenth month: in the tenth month, on the first day of the month, were the tops of the mountains seen.

LIX. As the Fountains of the great Deep were broken up at the very Beginning of the Deluge, so were they stopp'd at the end of 150 Days, on the seventeenth Day of the seventh Month.

The fountains also of the deep, and the windows Gen. viil. of beaven were stopped, and the rain from beaven 2. was restrained.

LX. The

LX. The Abatement and Decrease of the Waters of the Deluge was first by a Wind which dried up some; and secondly, by their descent through those Fissures, Chaps, and Breaches, (at which part of them had before ascended) into the Bowels of the Earth, which received the rest. To which latter also the Wind, by hurrying the Waters up and down, and so promoting their lighting into the beforemention'd Fissures, was very much subservient.

Gen. viii. God made a wind to pass over the earth, and the

2. waters asswaged.

¥ 3.

The waters returned from off the earth continually,

or going and returning.

Who shut up the sea with doors, when it brake forth xxxviii. 8, as if it had issued out of the womb? — When I brake up for it my decreed place, and set bars and doors, and said, Hitherto shalt thou come, but no further; and here shall thy proud waves be stayed.

Pfalm civ.
6,7,8,9. garment: the waters stood above the mountains. At they rebuke they fled: at the voice of thy thunder they hasted away. They went up by the mountains: they went down by the vallies unto the place which thou hadst appointed for them. Thou hast set a bound that they may not pass; that they turn not again to cover the earth.

LXI. The Antediluvian Year was, in abfolute Space of Time, nearly equal to our present and ancient Lunar one, or above 10 Days shorter than our present Solar Year.

P. 193, This has been prov'd under the XI. Hypothesis &c. priùs. already.

LXII. Yet

LXII. Yet the Antediluvians had, generally speaking, full 360 Days in their Year.

This has been also prov'd in the X. Hypothesis already.

LXIII. The dry Land, or habitable Part of the Globe, is, fince the Deluge, divided into two vast Continents, almost opposite to one another, which, as is most probable, are separated by a great Ocean interpos'd between them.

This every Map of the Earth is a sufficient Proof of.

LXIV. One of these Continents is considerably larger than the other.

This is evident the same way with the for-

LXV. The larger Continent lies most part on the North-side of the Equator, and the smaller, as far as is yet certainly known, most part on the South.

This (if we take South-America, the most considerable and entire Branch of the whole, for the Continent here referr'd to, as 'tis reasonable to do) is also evident the same way with the former.

LXVI. The Middle or Centre of the North-Continent, between the utmost Bounds, North and South, East and West, is about fixteen or eighteen Degrees of Northern Latitude; and that of the South about sixteen or eighteen Degrees of Southern Latitude.

272 PHÆNOMENA. Book III.

This may foon be found by measuring the Boundaries of the several Continents on a Globe or Map, and observing the Position of their Centres.

LXVII. The distance between the Continents, measuring from the larger or Northern South-Eastward, is greater than that the contrary way, or South-Westward.

This is evident by the like means with the former: It being farther from China, or the East-Indies to America going forward South-East, than from Europe or Africa going thither South-West.

LXVIII. Neither of the Continents is terminated by a round or even circular Circumference: But mighty Creeks, Bays, and Seas running into them; and as mighty Peninfula's, Promontories, and Rocks jetting out from them, render the whole very unequal and irregular.

This none who ever faw a Globe or Map of the World can be ignorant of.

LXIX. The depth of that Ocean which feparates these two Continents is usually greatest farthest from, and least nearest to either of the same Continents; there being a gradual descent from the Continents to the middle of the Ocean; which is the deepest of all.

This is a Proposition very well known in Navigation; and in several Sea-Charts relating thereto, may easily observed.

LXX.

LXX. The greatest part of the Islands of the Globe are situate at small Distances from the Edges of the great Continents; very few appearing near the middle of the main Ocean.

This the bare Inspection into a Map or Globe of the World will soon give Satisfaction in.

LXXI. The Ages of Men decreas'd about one half presently after the Deluge; and in the succeeding 1300 Years were gradually reduced to that Standard at which they have stood ever since.

This the following Tables will eafily evince.



PHÆNOMENA. Book III. 274

Ages of the Antediluvians in | Ages of the Postdiluvians in their Years: According to the Samaritan.

the present Years.

and the second second	of the same of
Adam	- 930
Seth -	- 912
Enos -	- 905
Cainan	-910
Mahalaleel ———	- 895
Fared —	- 847
Enoch (translated) -	- 365
Methuselah -	- 720
Lamech —	- 653
Noah-	-950
Sem -	- 600
	13373

Sem	- 600 Gen. x. 10,11.
Arphaxad	- 428 12 12
Salah	- 422 14 15
Heber	- 404 16 17
Heber — Phaleg — —	- 220 18 10
Reu	- 220 20, 21
Serug -	- 220 22 22
Nahor -	- 148 24. 25.
Terah -	- IAP 22
S Abraham -	- 175 XXV. 7
Sarah -	- 127 XXIII.
5 Isaac -	- 180 XXXV. 28.
[Ismael	- 127 XXV. 17.
Facob -	- 147 xlvii, 28.
Stoleth -	- 110 L. 26
Levi -	- 137 Exod. vi. 16.
Kohath -	- 132 18.
\ Hefron about	- 133 Job i. 1, 4.
706 about	- 180 & xlii. 16.
(Amram -	
Segub about -	- 137 Exod. vi. 20.
\ Izhar about	- 137
Pallu about -	- 137
Gocebede about -	
(Miriam about -	
Aaron	- 123 Num. xxxiii.
) Moses	- 120 39.
Corah -	- 125 Deut.xxxiv. 7.
Dathan —	125
(Abiram -	125
S Foshua	— 110 Jof. xxiv. 29. — 135
Rahab about -	- 135
Booz about -	125
(Ohed about -	- IIO I Sam iv 16-
Eli	— 98
Fesse about -	- 85
Barzillai above	- 80 2 Sem.xix. 32
David —	- 70 v. 4.

For the rest, Vide Usser. Chron. Sac. Cap. 8, and 12. & Annal. A. M. 2552.

LXXII.

LXXII. Our upper Earth, for a confiderable depth, even as far as we commonly penetrate into it, is Factitious, or newly acquir'd at the Deluge: The ancient one having been covered by fresh Strata or Layers of Earth at that time, and thereby spoil'd or destroy'd as to the use and advantage of Mankind.

Gen. vi. I will destroy them with the Earth.

Neither shall there any more be a Flood, Diaplagas, & ix. 11.

to destroy, corrupt, or spoil the Earth.

This is moreover evident by the vast numbers of the Shells of Fish, Bones of Animals, entire or partial Vegetables, and other very strange things buried at the Deluge, and enclosed in the Bowels of the present Earth, and of its most folid and compacted Bodies, to be commonly feen at this Day. Thus particularly we find both in Dr. Plott, and the Philosophical Transactions, a strange Passage relating to Switzerland. Take the Account in Dr. Plott's own Words, Hift. of Staff. Philos. Chap. 2. § 71. " Many Heterogeneous Bodies Trans. " belonging to the Sea --- are many times found N. 77-" by digging in the Bowels of the Earth. Such " was the Mast, the Ingenious Author of Mercu-" rius Centralis mentions, dug out of the Top of " an high Hill in Greenland, with a Pully hang-" ing to it. But the most prodigious Story we " have of this kind is that of Baptista Fulgosus, Ludovicus Moscardus, and Theodorus Moretus, who " tells us that at the Village of Bern in Switzerland, " Anno 1460, in a Mine 50 Fathoms deep, there was dug up a whole Ship with its Anchors and " broken Masts, in which were the Carcasses of " 40 Mariners, together with their Merchandise: " which Fulgosus more particularly tells us as a

" thing

"thing done in his own time, and feen by many " grave and fober Men, from whom (qui in re præ-" sentes fuere,) he says he receiv'd a personal Ac-" count of it." And what mighty Fish-Bones are found when the Mountain tops are wash'd down in Tartaria, I had rather the Reader should be inform'd by his Excellency the Muscovite Ambassador himself, who travelled in those Regions, than by any Account of my own from him. See Ysbrants Ides's Travels from Moscow to China, Pag. 25, 26. And this Phanomenon is fully attested not only by very many occasional Remarks of others, but more especially by the careful and numerous Observations of an Eye-Witness, the Learned Dr. Woodward. 'Tis true, this excellent Author was forc'd to imagine, and accordingly to affert, That the ancient Earth was diffolv'd at the Deluge, and all its Parts separatrd from one another; and so the whole, thus dissolv'd and separated, taken up into the Waters which then cover'd the Earth; till at last they together settled downward, and with the fore-mention'd Shells, Bones, and Vegetables, inclosed among the rest of the Mass, compos'd again that Earth on which we now live. But this Hypothesis is so strange, and so miraculous in all its Parts; 'tis fo wholly different from the natural Series of the Mofaick History of the Deluge; takes so little notice of the opening the Windows of Heaven, and the thence deriv'd forty Days Rain, the principal cause thereof; is so contrary to the Universal Law of mutual Attraction, and the specifick Gravities of Bodies; accounts for fo few of the before-mention'd Phanomena of the Deluge; fixes the time of the Year for its commencing fo different from the Truth; implies fuch a fort of new Formation or Creation of the Earth at the Deluge, without Warrant for the

Effay,

2.75.

the same; is in some things so little consistent with the Mosaick relation, and the Phanomena of Nature; and upon the whole is so much more than his Observations require, or will warrant, that I cannot but diffent from this particular Hypothesis, tho' I fo justly honour the Author, and so highly esteem, and frequently refer to the Work it felf. All that I shall say farther is this, That the Phanomena of the interior Parts of the Earth, by this Author fo exactly observ'd, are on the common Grounds or Notions of the Deluge, (which suppose the Waters to have been pure, without any other Mixtures) fo unaccountable, and yet fo remarkable and evident, that if no other rational Solution could be offer'd, 'twere but just and necesfary to admit whatever is afferted by this Author, rather than deny the Reality of those Phanomena or ascribe the plainest Remains of the Animal and Vegetable Kingdom to the sportings of Nature, or any fuch odd and Chimerical Occasions, as some Persons are inclinable to do. But withal, I must be allow'd to fay, and the Author himself will not Essay, disagree, That his Hypothesis includes things so P. 82. strange, wonderful, and surprizing, that nothing but the utmost Necessity, and the perfect Unaccountableness of the Phanomena without it, ought to be esteem'd sufficient to justify the Belief and Introduction of it. Which straits that Account of the Deluge we are now upon, not forcing me into, as will appear hereafter; I have, I think, but just Reasons for my Disbelief thereof; and as just, or rather the same Reasons to embrace that Affertion we are now upon, that this upper Earth, as far as any Shells, Bones or Vegetables are found therein, was adventitious, and newly acquir'd at the Deluge, and not only the old one disfolv'd, and resettled in its ancient Place again. LXXIII. Bb 3

278 PHÆNOMENA. Book III.

LXXIII. This Factitious Crust is universal, upon the Tops of the generality of Mountains, as well as in Plains and Vallies; and that in all the known Climates and Regions of the World.

Effay, p. 5, 6, 7.

77:

This is fully attested by the Observations of the same Author, and those which he procur'd from all Parts of the World conspiring together.

LXXIV. The Parts of the present upper Strata were, at the time of the Waters covering the Earth, loose, separate, and divided; and so floated in the Waters among one another uncertainly.

Pref. and This is proved by the same Author's Observa-

LXXV. All this Heterogeneous Mass thus floating in the Waters, by degrees descended downwards, and subsided to the Bottom, pretty nearly according to the Law of Specifick Gravity; and there compos'd those several Strata or Layers, of which our present upper Earth does consist.

P. 75. This is prov'd by the same Observations.

LXXVI. Vast Multitudes of Fishes belonging both to the Seas and Rivers, perish'd at the Deluge; and their Shells were buried among the other Bodies or Masses which subsided down, and compos'd the Layers of our upper Earth.

P. 75, 76, This is prov'd by the same Observations.

LXXVII. The same Law of Specifick Gravity which was observ'd in the rest of the Mass Mass, was also observ'd in the subsidence of the Shells of Fishes; they then in the main finking together with, and accordingly being now found enclos'd among those Strata or Bodies which are nearly of their own several Specifick Gravities: The heavier Shells being confequently still enclos'd among the heavier Strata, and the lighter Shells among the lighter Strata, in the Bowels of our present Earth.

This is prov'd by the same Observations. P. 75, 76,

LXXVIII. The Strata of Marble, of Stone, and of all other folid Bodies, attained their Solidity, as foon as the Sand, or other matter whereof they confift, was arriv'd at the Bottom, and well fettled there. And all those Strata which are folid at this Day, have been fo ever fince that time.

This is prov'd by the same Observations. Pag. 79.

LXXIX. These Strata of Stone, of Chalk, of Coal, of Earth, or whatever matter they confisted of, lying thus each upon other, appear now as if they had at first been parallel, continued, and not interrupted: But as if, after some time they had been dislocated and broken on all Sides of the Globe, had been elevated in some, and depress'd in other Places; from whence the Fishures and Breaches, the Caverns and Grotto's, with many other Irregularities within and upon our present Earth, seem to be deriv'd.

This is prov'd by the fame Observations. P. 79, 80,

LXXX. Great Numbers of Trees, and of other Vegetables were also, at this Subsidence of the Mass aforesaid, buried in the Bowels of the Earth: And such very often as will not grow in the Places where they are now lodg'd: Many of which are pretty entire and perfect, and to be distinctly seen and consider'd to this very Day.

P. 77, 78, This is prov'd by the same Observations.

LXXXI. It appears from all the Tokens and Circumstances which are still observable about them, that all these Vegetables were torn away from their ancient Seats in the Spring time, in or about the Month of May. But then this must be restrain'd to the Vegetables found in these Northern Climates; for otherwise, 'tis always all Seasons to one Place of the Earth or other. Otherwise we should have lost a great Part of the Antedivian Plants, even all those whose Seeds were not ripe at the Time when they were born away into the Water.

P2g. 274, This is prov'd by the same Observations.

LXXXII. All the Metals and Minerals among the Strata of our upper Earth owe their present Frame and Order to the Deluge; being reposed therein during the Time of the Waters covering the Earth, or during the Subsidence of the before-mention'd Mass.

Pag. 179, This is prov'd by the same Observations.

LXXXIII. These Metals and Minerals appear differently in the Earth, according to the different manner of their first Lodgment: For fometimes they are in loofe and small Particles, uncertainly inclos'd among fuch Masses as they chanc'd to fall down withal: At other times some of their Corpuscles happening to occur and meet together, affix'd to each other; and feveral convening, uniting, and combining into one Mass, form'd those Metallick and Mineral Balls or Nodules which are now found in the Earth: And according as the Corpufcles chanc'd to be all of a kind or otherwise, so the Masses were more or less fimple, pure, and homogeneous. And according as other Bodies, Bones, Teeth, Shells of Fish, or the like, happen'd to come in their way, these Metallick and Mineral Corpuscles affix'd to and became conjoin'd with them; either within, where it was possible, in their Hollows and Interstices; or without, on their Surface and Outfides, filling the one, or covering the other: And all this in different Degrees and Proportions, according to the different Circumstances of each individual cafe.

All this is prov'd by the same Observations. P.179 &c.

LXXXIV. The inward parts of the prefent Earth are very irregular and confused. One Region is chiefly Stony, another Sandy, a third Gravelly. One Country contains some certain kinds of Metals or Minerals, another another quite different ones. Nay, the same Lump or Mass of Earth not seldom contains the Corpufcles of several Metals or Minerals, confusedly intermix'd with one another, and with its own earthy Parts. All which Irregularities, with feveral others that might be observ'd, even contrary to the Law of Specifick Gravity in the placing of the different Strata of the Earth, demonstrate the Original Fund or Promptuary of all this upper factitious Earth to have been in a very Wild, Confus'd, and Chaotick Condition.

All this the fore-mention'd, and all other Ob-Effay, fervations of the like Nature fully prove. patinm & p.170, &c.

Varen.

LXXXV. The uppermost and lightest Geogr.I.1. c.7. Prop. Stratum of Soil or Garden Mould, as 'tis call'd; which is the proper Seminary of the Vegetable Kingdom, is fince the Deluge very thick spread usually in the Valleys and Plains, but very thin on the Ridges or Tops of Mountains; which last, for want thereof, are frequently Stony, Rocky, Bare and Barren.

> This easy Observations of the Surface of the Earth in different Places will quickly fatisfy us of.

> LXXXVI. Of the four ancient Rivers of Paradife there are still two remaining, tho' not exactly in the old Channels; but the other two are so utterly lost, that the Mofaick Description does not at all agree to them at present.

Chap. IV. PHÆNOMENA. 283

This the multitude of unsatisfactory Attempts Gen. ii. to discover all these Rivers, and their Courses; 10,11,12, with an impartial Comparison of the Sacred 13, 14. History with the best Geographical Descriptions of the Regions about Mesopotamia and Babylon, will convince an unbiass'd Person of.

LXXXVII. Those Metals and Minerals which the Mosaick Description of Paradise, Gen. ii. and its bordering Regions takes such partition, 12, 13, 14. cular notice of, and the Prophets so empha-Ezek. tically refer to, are not now met with so xxviii. 13. Apoc. xxi. plentifully therein.

Apoc. xxi. 18, 19,20.

This must be allow'd on the same grounds with with xxii.

the former.

LXXXVIII. This Deluge of Waters was a fignal Instance of the Divine Vengeance on a wicked World; and was the effect of the peculiar and extraordinary Providence of God.

God saw that the wickedness of man was great Gen. vi. 5. in the earth, and that every imagination of the 6,7. thoughts of his heart was only evil continually. And it repented the Lord that he had made man on the earth, and it grieved him at his heart. And the Lord said, I will destroy man whom I have created from the face of the earth; both man and heast, and the creeping thing, and the fowls of the air; for it repenteth me that I have made them.

The earth was corrupt before God, and the earth \$11,12, was filled with violence, and God looked upon the 13. earth, and behold it was corrupt; for all flesh had corrupted his way upon the earth. And God said unto Noah, the end of all flesh is come before me, for the earth is filled with violence through them;

and behold I will destroy them, with the earth.

Bebold

PHENOMENA. Book III. 284

\$ 17: Behold I, even I, do bring a flood of waters upon the earth, to destroy all flesh wherein is the breath of life from under beaven; and every thing that is

in the earth shall die.

God spared not the old world, but saved Noah, 2 Pet. ii.5. the eighth person, a preacher of righteousness; bringing in the flood upon the world of the ungodly.

LXXXIX. Since the Deluge, there neither has been, nor will be, any great and general Changes in the State of the World, till that time when a Period is to be put to the present Course of Nature.

The Lord smelled a sweet savour, and the Lord Gen. viii. said in his heart, I will not again curse the ground 21, 22. any more for mans sake; for (or altho?) the imagination of man's heart is evil from his youth: Neither will I again smite any more every thing living as I have done. While the earth remaineth, seed-time and barvest, cold and beat, and summer and winter, and day and night shall not cease.

And this, as to the Time past, is abundantly confirm'd by all the ancient History and Geography compar'd with the Modern; as is in feveral Particulars well observ'd by Dr. Woodward, Part 1. & against the groundless opinions of some others to the contrary.

play had park and the said bolder

Effay,

CHAP. V.

Phænomena relating to the General Conflagration. With Conjectures pertaining to the same, and to the succeeding Period till the Consummation of all things.

AS the World once perished by Water, so it must by Fire at the Conclusion of its present State.

The heavens and the earth which are now, by the 2 Pet. iii. word of God are kept in store, reserved unto fire, 7-against the day of judgment, and perdition of ungodly men.

The heavens shall pass away with a great noise, * 10. and the elements shall melt with fervent heat; the earth also, and the works that are therein, shall be

burnt up.

In the day of God the heavens, being on fire, shall y 12. be dissolved, and the elements shall melt with fervent beat.

But this is so fully attested by the unanimous Dr. Hac-Consent of both Sacred and Prophane Authority, well's Athat I shall omit other particular Quotations; the Power only refer the Reader where he may have more and Proviample Satisfaction.

Scholium. Having proceeded thus far upon God, 1.4. more certain Grounds, and generally allow'd Te-c. 13. ftimonies, as to the most of the foregoing Phano-1.3. c. 3. mena; I might here break off, and leave the following Conjectures to the same State of Uncertainty they have hitherto been in. But being willing

willing to comply with the Title, and take in all the great and general Changes from first to last; from the primogenial Chaos, to the Confummation of all things: Being also loath to defert my third Postulatum, and omit the Account of those things which were most exactly agreeable to the obvious and literal Sense of Scripture, and fully confonant to Reason and Philosophy: Being, laftly, willing, however, to demonstrate, that tho' these most remote and difficult Texts be taken according to the greatest Strictness of the Letter, yet do they contain nothing but what is possible, credible, and rationally accountable from the most undoubted Principles of Philosophy: On all these Accounts, I shall venture to enumerate, and afterward to account for the following Conjectures. In which I do not pretend to be Dogmatical and Positive; nay, nor to declare any firm Belief of the fame, but shall only propose them as Conjectures, and leave them to the free and impartial Confideration of the Reader.

XCI. The same Causes which will set the World on Fire, will also cause great and dreadful Tides in the Seas, and in the Ocean; with no less Agitations, Concussions, and Earthquakes in the Air and Earth.

Matt.xxiv. The Powers of Heaven shall be shaken.

29. The Lord shall roar out of Sion, and utter his Joel iii. voice from Jerusalem, and the heavens and the earth shall shake.

Luk. xxi. The sea and the waves roaring: Mens hearts fail-25, 26. ing them for fear, and for looking after those things Vid. which are coming on the Earth; for the powers of Theor. heaven shall be shaken. XCII. The Atmosphere of the Earth, before the Conflagration begin, will be oppress'd with Meteors, Exhalations and Steams; and these in so dreadful a manner, in such prodigious quantities, and with such wild confused Motions and Agitations, that the Sun and Moon will have the most frightful and hideous Countenances, and their ancient Splendor will be entirely obscur'd; the Stars will seem to fall from Heaven; and all manner of horrid Representations will terrify the Inhabitants of the Earth.

I will shew wonders in the Heavens and in the Joel ii. 30; Earth; Blood, and Fire, and Pillars of Smoak. 31. The Sun shall be turned into Darkness, and the Moon into Blood, before the great and terrible Day of the Lord come.

The Sun shall be darkened, and the Moon shall not Mat. xxiv:

give her Light, and the Stars shall fall from Heaven, 29.

and the Powers of Heaven shall be shaken.

There shall be Signs in the Sun, and in the Moon, Luke xxi. and in the Stars, and upon the Earth Distress of Na-25, 26. tions, with Perplexity: —— Mens Hearts failing them for fear, and for looking after those things which are coming on the Earth.

XCIII. The Deluge and Conflagration are referr'd, by ancient Tradition, to great Conjunctions of the Heavenly Bodies; as both depending on, and happening at the same.

Thus Seneca expressly: Berosus (fays he)

Berofus, qui Belum interpretatus est, ait cursu ista siderum sieri: & adeo quidem id affirmat, ut constagrationi

who was an Expositor of Belus, affirms, That these Revolutions depend on the Course of the Stars; insomuch that he doubts not to assign the very times of a Conflagration, and a Deluge: That first mention'd when all the Stars, which have now so different Courses, shall be in Conjunction in Cancer, all of them being so directly situate with respect to one another, that the same right line will pass through them all together: That last mention'd, when the same Company of Stars Shall be in Conjunction in the opposite Sign Capricorn. And again elsewhere d, When the Time for the Renovation comes, the Stars will exercise their hostile Force one upon another, and justle one another: Whereby the whole being on fire, all the parts which in their present Constitution have any sparks of light or fire in them, will kindle into one general Conflagration.

XCIV. This general Conflagration is not to extend to the entire Dissolution or Destruction of the Earth, but only to the Alteration, Melioration, and peculiar Disposition thereof into a new State, proper to receive those Saints and Martyrs for its Inhabitants, who are at the first Resurrection

atque diluvio tempus assignet: arsura enim terrena contendit, quando omnia sidera, quæ nunc diversos agunt cursus, in Cancrum convenerint, sic sub eodem posita vestigio, ut recta linea exire per orbes omnium possit: Inundationem suturam, cum eadem siderum turba in Capricornum convenerit. Illic Solstitium, hic Bruma consicitur. Senec. Quest. Nat. 1. 3. c. 29.

d Et cum tempus advenerit, quo se mundus renovaturus extinguat, viribus ista suis se cædent, & sidera sideribus incurrent: & omni slagrante materia, uno igne, quicquid nunc ex disposito lucet ardebit. Idem, de consol. ad Marciam. cap. ult.

Years upon it, till the second Resurrection, the general Judgment, and the final Consummation of all Things.

The Heavens being on fire shall be dissolved, and 2 Pet. iii. the Elements shall melt with fervent Heat. Never-12, 13. theless we, according to his Promise, look for new Heavens, and a new Earth, wherein dwelleth Righteousness.

Behold I create new Heavens, and a new Earth, Ifa.lxv. and the former shall not be remembred nor come into 17.

mind.

Verily I say unto you, That ye which have fol-Mat. xix. lowed me; In the Regeneration, when the son of Man Mat. x.29, shall sit upon the Throne of his Glory, ye also shall 30. Luke sit on twelve Thrones judging the twelve Tribes of Is-xviii. 29, rael. And every one that has for saken Houses, or 30. Brethren, or Sisters, or Father, or Mother, or Wife, or Children, or Lands, for my Names sake, shall receive an hundred fold, now in this time, Houses, and Brethren, and Sisters, and Mothers, and Children, and Lands, with (his present) Persecutions, and in the World to come eternal Life.

Of old thou hast laid the Foundations of the Earth; Ps. cii. 25, and the Heavens are the Work of thy Hand: They 26.

Shall perish, but thou shalt endure; yea all of them shall wax old like a garment; as a vesture shalt thou

change them, and they shall be changed.

I saw Thrones, and they sat upon them; and Judgment was given unto them: And I saw the Souls of Apoc.xx. them that were beheaded for the Witness of Jesus, 4. &c. and for the Word of God, and which had not worshipped the Beast, neither his image, neither had received his mark upon their Foreheads, or in their Hands, and they lived and reigned with Christ a thousand years. But the rest of the dead lived not again and years.

until the thousand years were finished: This is the first Resurrection. Blessed and holy is he that hath part in the first Resurrection; on such the second Death hath no Power: But they shall be Priests of God, and of Christ; and shall reign with him a

thousand Years, &c.

But so much has been said on this Head, to omit others, by the Theorist, that I shall refer the Reader thither, for the other Testimonies of the Holy Scriptures, and the unanimous Consent of the most Primitive Fathers: Both which he at large, and to excellent Purpose, (some Particulars excepted) has insisted on.

XCV. The State of Nature during the Millennium will be very different from that at present, and more agreeable to the Antediluvian, Primitive, and Paradifiacal ones.

Acts iii.

Whom the Heavens must receive until the time of the Restitution of all things, which God hath spoken by the mouth of all his holy Prophets since the World began. See more in the Theory, Book 4. Chap. 9. and in the Proofs of the former Proposition.

XCVI. The Earth in the Millennium will be without a Sea, or any large receptacle fill'd with mighty Collections and Quantities of Waters.

Apoc. xxi. I saw a new Heaven, and a new Earth; for the first Heaven, and the first Earth were passed away, and there was no more Sea.

XCVII. The Earth in the Millennium will have no fuccession of Light and Darkness; Day and Night; but a perpetual Day.

Apoc. xxi. The Gates of the new Jerusalem shall not be shut 25. at all by day; for there shall be no night there.

Cap. xxii. And there shall be no night there.

XCVIII.

XCVIII. The State of the Millennium will not stand in need of, and so probably will be without, the Light and Presence of the Sun and Moon.

And the City had no need of the Sun, neither of Apoc. xxi. the Moon to shine in it.

And they need no candle, neither light of the Sun. S. Cap. xxii.

XCIX. At the Conclusion of the Millennium, the Final Judgment and Consummation of all things, the Earth will desert its present Seat and Station in the World, and be no longer found among the Planetary Chorus.

I saw a great white Throne, and him that sat on Apoc. xx. it; from whose Face the Earth and the Heavens sted 11.

Theor. away, and there was found no place for them. 1.4.c.10.



◆桑奈葵茶茶茶茶茶茶茶茶香茶茶香茶茶茶茶茶茶茶茶茶茶茶茶

BOOK IV.

◆旅遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊遊

SOLUTIONS:

O R

An Account of the foregoing Phanomena from the Principles of Philosophy already laid down.

CHAP. I.

A Solution of the Phænomena relating to the Mosaick Creation, and the original Constitution of the Earth.

I. All those particular small Bodies, of which our habitable Earth is now compos'd, were originally in a mixed, confused, sluid, and uncertain Condition, without any Order or Regularity. It was an Earth without form, and void; had Darkness spread over the face of its Abys; and in reality was, what it has been ever styl'd, a perfect Chaos.

Hypoth. 1. I. HIS has been already sufficiently accounted for, and need not be here again insisted on.

II. The Formation of this Earth, or the Change of that Chaos into an habitable World, was not a meer Refult from any necessary Laws of Mechanism independently on the

the Divine Power; but was the proper Effect of the Influence and Interposition, and all along under the peculiar Care and Providence of God.

II. 'Tis not very easy, I confess, in such mighty Turns and Changes of the World, exactly to determine how far, and in what Particulars, a supernatural or miraculous Interposition of the Divine Power is concern'd; and how far the Laws of Nature, or Mechanical Powers ought to be extended. Nay indeed, 'tis difficult enough, in feveral Instances to determine what is the Effect of a natural and ordinary, and what of a supernatural and extraordinary Providence. 'Tis now evident, that Gravity, the vid Lem. most mechanical Affection of Bodies, and which 9. cum Cofeems most natural, depends entirely on the con-roll. prius. stant and efficacious, and, if you will, the su-Bentley, pernatural and miraculous Influence of Almighty Serm. 7. God. And I do not know whether the falling p. 26, &c. of a Stone to the Earth ought not more truly to be esteem'd a supernatural Effest, or a Miracle, than what we with the greatest Surprize should so style, its remaining pendulous in the open Air; fince the former requires an active Influence in the Cause, while the latter supposes Non-annihilation only. But besides this, tho' we were able exactly to distinguish in general the ordinary Concurrence of God from his extraordinary, yet would the Task before us be still sufficiently difficult. For those Events or Actions are in Holy Scripture attributed immediately to the Power and Providence of God, which yet were to all outward Appearance according to the constant Course of Things; and would, abstractedly from such Affirmations of the Holy Books, have been esteem'd no more miraculous than the other common Effects of Nature, or usual Accidents

Cc 3

of Human Affairs; as those who have carefully confider'd these Matters, especially the Historical and Prophetical Parts of the Old Testament, must be oblig'd to confess. Neither is it unreasonable that all things should in that manner be aferib'd to the supreme Being on several Accounts. Tis from him every thing is ultimately deriv'd: He preserves the Natures, and continues the Powers of every Creature: He not only at first produc'd, but perpetually disposes and makes use of the whole Creation, and every part thereof, as the Instruments of his Providence: He forefaw and foreadapted the entire Frame: He determin'd his Co-operation or Permission to every Action: He fo order'd and appointed the whole System, with every individual Branch of it, as to Time, Place, Proportion, and all other Circumstances, that nothing should happen unseasonably, unfitly, disproportionately, or otherwise than the Junctures of Affairs, the Demerits of his reasonable Creatures, and the wife Intentions of his Providence did require. In fine, he fo previously adjusted and contemper'd the Moral and Natural World to one another, that the Marks and Tokens of his Providence should be in all Ages legible and conspicuous, whatsoever the visible secondary Causes or Occasions might be. Seeing then this is the true State of the Case; and that confequently, Almighty God has fo constituted the World, that no Body can tell wherein it differs from one, where all were folely brought to pass by a miraculous Power; tis by no means untrue or improper in the Holy Books to refer all those Things which bare human Authors would derive from fecond Causes, the constant Course of Nature, and the Circumstances of human Affairs, to the

the first Cause, the ultimate Spring and Original of all; and to call Mens Thoughts (which are too apt to terminate there) from the apparent Occasions, to the invisible God, the Creator, Governor, and Disposer of the whole, and the sole Object of their Regard and Adoration. This is, I fay, a very proper and reasonable Procedure; this is usually observ'd by the facred Penmen, (who are thereby peculiarly distinguish'd from prophane Authors) and this is of the highest Advantage in Morality. But then it must be withal acknowledg'd, that this creates great Difficulties in the present Case, and makes it very hard in a philosophick Attempt of this Nature, to distinguish between those Parts of the Mosaick Creation, which are Mechanically to be accounted for, and those in which the miraculous Energy of God Almighty interpos'd it felf; which yet, if ever, is certainly to be allow'd in this Case, where a new World was to be form'd, and a wild Chaos reduc'd into a regular, beautiful, and permanent System. This being said in general, to bespeak the Reader's Candor in the present Case, and to forewarn him not to fear the most Mechanical and Philosophick Account of this Creation, as if thereby the Holy Scriptures were fuperfeded, or the Divine Power and Providence excluded; I come directly to the Point before us, and shall endeavour to determine what are the Instances of the extraordinary Power and Interpolition of God in this whole Affair. That as we shall presently see how Orderly, Methodical, and Regular this Formation was, fo we may before hand be duly fensible how Supernatural, Providential, and Divine it was also; and fo as well, like Christians, contemplate and adore the Omnipotent Creator in his Miraculous, Cc 4

raculous, as we, like Philosophers, shall attempt to consider and remark his Vicegerent Nature in her Mechanical Operations therein. For, notwithstanding what has been above insisted on touching the frequency and propriety of afcribing the Effects of Nature to the Divine Power; (the former being indeed nothing, but the latter acting according to fix'd and certain Laws;) yet, because more has been commonly, and may justly be suppos'd the importance of the Texts of Scripture hereto relating; because the Finger of God, or his supernatural Efficiency, is, if ever, to be reasonably expected in the Origin of things, and that in a peculiar and remarkable manner; because fome things done in this Creation are beyond the Power of Philosophy and Mechanism, and no otherwise accountable but by the infinite Power of God himself; because the Days of Creation are fignally diftinguish'd from those following, in which God is faid to have rested; (when yet his ordinary Concurrence with the Courfe of Nature was continu'd without Interruption,) and must therefore be reckon'd fuch, on which he truly exerted a Power different from the other: On all these accounts, I freely, and in earnest allow and believe, that there was a peculiar Power, and extraordinary Providence exercis'd by the great Creator of all, in this Primitive Origin of the Sublunary World, or Formation of the Earth, which we are a going to account for. The particular Instances I shall give of the same, without prefuming to exclude all others, are these following,

1. The Creation of the Matter of the Universe, and particularly of that of the Earth, out of nothing, was, without doubt, originally, the alone

fuch

and immediate Work of God Almighty. Nature (let what will be meant by that Name) could have no hand in this, from whence at the utmost she can but date her own Birth. This production of a real Being out of nothing; or, to fpeak more properly, the primary bringing any real thing into Being, is in the Opinion of all Men, the Effect of no less than an infinite and omnipotent Deity. I have already own'd this to be the import of the first Words of this Crea- Discourse tion we are now upon, In the Beginning God crea- p. 4, 5, 7. ted the Heaven and the Earth. And I think 'tis Gen. i. 1. here no improper Place to declare my Opinion, That confidering the Idea and nature of God includes Active Power, Infinite Perfection, with Necessity and so Eternity of Existence; whilst the Idea and Nature of Matter supposes entire Inactivity, no positive Perfection, and a bare Possibility or Capacity of Existence; 'tis as absurd and unreasonable to attribute eternity and necessity of Existence to the latter, as 'tis rational and natural to ascribe those Perfections, with a Power of Creation, to the former. The very Being and Nature, as well as the Properties and Powers of Matter being most justly and most philosophically to be referr'd to the Author of all, the Almighty Creator. And altho' our Imagination (a poor finite, limited, and imperfect Faculty,) be unable to have a positive Idea of the manner of the Production of a real Being at first; (as indeed 'twere sufficiently strange, if so confin'd a Power of so imperfect a Creature should adequately reach the highest point of Omnipotence it self;) yet seeing the Absurdities following the Eternity, and Vid. Dr. Self-subsistence of Matter on the other side are so Bentley, considerable; and the Certainty of the proper Serm. 6. Creation of Spiritual Beings nobler than Matter,

fuch as the Souls of Men are, as great, as 'tis utterly incredible they should have been ab æterno too, (for I take it to be almost demonstrable that Souls are immaterial:) I think 'tis far more reafonable to rest satisfied with our former Affertion, That God did truly bring Matter into being at first, than, its Eternity suppos'd, to make only the Modification and Management thereof the Province of the Almighty: And confequently, the first Instance of a Divine Efficiency with relation to the Subject we are now upon, and the highest of all other, was the original Production of the Matter of which the Earth was to confist, or the proper Creation of those inferior Heavens, and of the Earth which were to be the fole Object of the Divine Operations in the Six Days Work. This Particular, I confess, does not fo properly belong to our present Business, the Formation of the Chaos into a habitable World; but could not well be omitted, either confider'd in it felf, as it bears fo peculiar a Relation to our present Purpose; or with respect to that Misconstruction I might with some Readers have otherwise been liable to. But I proceed;

(2.) The changing of the Course and Orbit of the Chaos into that of a Planet (to omit the former Annual, and subsequent Diurnal Revolutions, which the equally from God, yet do not so fully belong to this Place,) or the placing of the Earth in its primitive smaller Elliptick, and after in its Circular Orbit at its proper Distance, therein to revolve about the Sun, was either an Instance of the immediate Power, or at least of the peculiar Providence of God. For if we should suppose, as 'tis possible so to do, that God did not by a miraculous Operation remove the Chaos or Comet

Comet from its very Eccentrick Ellipsis to that Circle in which it now began to revolve; but that he made use of the Attraction or Impulse of fome other Body; yet in this Case, (without confidering that one of those Powers at least is nothing but a Divine Energy) the Lines of each Bodies Motion, the Quantity of Force, the proper Distance from the Sun where, and the exact Time when it happen'd, (to name no other Particulars here,) must have been so precisely and nicely adjusted before-hand by the Prescience and Providence of the Almighty, that here will be not a much less remarkable Demonstration of the Wisdom, Contrivance, Care, and Goodness, than the other immediate Operation would have been of the Power of God in the World.

(3.) The Formation of the Seeds of all Animals and Vegetables was originally, I suppose, the immediate Workmanship of God. As far as our Vid. Dr. Microscopes can help us to discern the Make and Bentley, Constitution of Seeds; those of Plants evidently, Serm. 4. and, by what hitherto appears, of Animals too, are no other than the entire Bodies themselves in parvo; and contain every one of the same Parts and Members with the compleat Bodies themfelves when grown to Maturity. Since therefore, confequently, all Generation is with us nothing, fo far as we can find, but Nutrition or Augmentation of Parts; and that agreeably thereto no Seed has been by any Creature produc'd fince the Beginning of Things: 'Tis very Just, and very Philosophical to conclude them to have been originally every one created by God, either out of nothing, in the primary Existence of Things; or out of pre-existing Matter, at the Mosaick Creation. And indeed, fince the Origin of Seeds appears to be hitherto unaccountable by the mechanical Laws of Matter

Matter and Motion, 'tis but reasonable to suppose them the immediate Work of the Author of Nature: Which therefore I think the wariest Philosopher may well do in the present Case.

(4.) The Natures, Conditions, Rules and Quantities, of those several Motions and Powers according to which all * Bodies, (of the same general Nature in themselves,) are specify'd, diftinguish'd, and fitted for their several uses, were no otherwise determin'd than by the immediate Fiat, Command, Power, and Efficiency of Almighty God. 'Tis to be here confider'd, That tho' the Power of mutual Attraction or Gravitation of Bodies appears to be constant, and universal; nay almost effential to Matter in the present Constitution of the World; (the entire Frame of that System in which we are, if not of all the other Systems, so strictly depending thereon;) yet the other Laws of Nature, on which the particular Qualities of Bodies depend, feem not to be so; but mutable in themselves, and actually chang'd according to the Changes in the Figure, Bigness, Texture, or other Conditions of the Bodies or Corpufcles with which they are concern'd. Thus the Cobesion of the parts of Matter, and that in some with less, but in others with the greatest and most surprizing Firmness; the Fermentation of several heterogeneous Particles, when mixt together; the Magnetism of

^{*} Utinam catera Natura Phanomena ex principiis mechanicis eodem argumentandi genere derivare liceret. Nam multa me movent ut nonnihil suspicer ea omnia ex viribus quibusdam pendere posse, quibus corporum particula, per causas nondum cognitas, vel in se mutuo impelluntur, & secundum figuras regulares coharent, vel ab invicem sugantur, & recedunt: quibus viribus ignotis, Philosophi hactenus naturam frustra tentarunt. Newt. Philos. Nat. Princ. Math. Præf. ad Lector.

the Loadstone, with the various and very strange Phænomena of that wonderful Fossil; the Elasticity of certain Fluids and Solids; the contrary obstinate Inflexibility and Resistance of others; the different Density of several Collections or Masses of Fluids, (while yet the greatest part of their contained Space is Vacuity) not to be confiderably increas'd or diminish'd, without the Destruction of the Species: All these, and many other Phanomena shew, that there are various Rules and Laws of Matter and Motion not belonging to all, as that of Gravitation does, but peculiar to some particular Conditions thereof; which therefore may be chang'd, without any Damage to the Law of Gravity. In the impressing and ordering of which there is room for, if not a Necessity of introducing the particular and immediate Efficacy of the Spirit of God at first, as well as of his continual Concurrence and Confervation ever fince. When therefore, in a full Agreement with the ancient Traditions, 'tis said by Moses, Gen. i. 2. That the Spirit of God moved on the Face of the Wa-Vid. Loca ters; we may justly understand thereby his im-de Chao pressing, exciting, or producing such Motions, prius lau-Agitations, and Fermentation of the feveral Parts; fuch particular Powers of Attraction or Avoidance, (besides the general one of Gravity,) of Concord or Enmity, of Union or Separation; and all these in such certain Quantities, on such certain Conditions of Bodies, and in fuch certain distinct Parts and Regions of the Chaos, as were proper and necessary for that particular Course and Disposition of Nature, which it seem'd good to the Divine Spirit to introduce, and on which this future Frame of Things here below was ever after to depend.

(5.) The Ordering of all Things so that in

the space of fix successive Solar Revolutions the whole Creation should be finish'd, and each distinct Days Work should be confin'd to, and compleated in its own distinct and proper Period, is also to be ascrib'd to the particular Providence and Interposition of God. That every thing followed in its own order and place: As that the Seeds of Vegetables on the Third, those of Fish and Fowl on the Fifth, and those of the Terrestrial Animals on the Sixth Day, should be every one plac'd in their proper Soil, and fitly dispos'd at their proper time to accompany and correspond with the suitable Disposition of external Nature, and just then to germinate and fructify, when the order and process of the other parts of the Creation

were ready for, and required the same.

And here it will be fit to consider an Objection made against the present Hypothesis, viz. That if we proceed mechanically and gradually in the Formation of the Earth, from a Comet's Atmofphere, we must allow the whole Subsidence to be as leifurely, and to proceed by the same Steps that the Violence of its Heat decreases; which will then be compleated not in fix Days or single Years, but scarcely in as many Centuries. But in Answer to this, I deny that all the Confusions of a Comet's Atmosphere are owing to the Heat at the Peribelion; and I also affirm, that since Astronomers find by Observation, that upon a Comet's Return to the Solar Regions towards its Peribelion, its Atmofphere does still return therewith, and is not at all fettled and formed like a Planet, I must contradict that Observation, if I should ascribe the Formation of our Earth to fuch a gradual and tedious Operation. In my Opinion all the same Laws, Properties, and Operations of Bodies which we find establish'd here on Earth, do not fo

so universally obtain in the Atmospheres of Comets: But several new ones were, I suppose, introduc'd at the Mosaick Creation; such I mean (befides the Law of Gravity, and the general and mechanical Laws of Motion, which I look upon as universal, and some of them unalterable,) as were fit or necessary for the primary formation and continuance of that New World, which God's Providence was then introducing. I do not therefore say with some, That the Earth was not form'd according to the known Laws of Mechanism, but by the Efficacy of the Divine Spirit which moved on the Face of the Waters: But denying the Opposition, I affirm, that the Earth was form'd according to the known Laws of Mechanism, some of them introdu'd then by the Efficacy of the Divine Spirit which moved on the Face of the Waters, and ever fince continued among us. For, for the Almighty to introduce new and regular Laws at the Beginning of a new World which are to be ever after observ'd in it, I take to be a miraculous Interpolition very worthy of God, and very accountable to the Reason of Mankind. And to fome of these Laws duly tim'd and proportion'd, I refer the exactness of the present Observations; viz. That all things should in just 6 Days or Years time be finish'd and compleated, in the manner we have 'em mention'd in the Mosaick History. And truly every thing here does so suit together, that the plain Footsteps of particular Art and Contrivance are visible in the whole Conduct and Management of this Matter: Which therefore is not to be deriv'd from meer mechanical Laws of Brute Matter, but from a Supernatural and Divine Providence.

(6.) But principally, The Creation of our first

Parents is to be esteem'd the peculiar Operation of the Almighty; and that whether we regard the Formation of their Bodies, or the Forepast Creation and After-Infusion of their Souls. 'Tis evident from the Mosaick History of the Creation, that our first Parents were on the very same Day in which they were made, in a State of Maturity and Perfection, and capable of all Human Actions, both of Mind and Body. Now if they, like the other Animals, had been produc'd in the usual Time and Process of Generation, and come to Ripeness of Age and Faculties by degrees afterwards; that were plainly impossible. This Creation therefore must have been peculiar, and the immediate Effect of a Divine Power. And this is no less agreeable to Philosophy, than suitable to the Dignity of the Subject, and for the Honour of Mankind. It has been already observ'd that the Seeds of Plants and Animals must be allow'd to have been all the immediate Workmanship of God; and that they contain every individual Part or Member of the entire Bodies, in parvo; and that by consequence Generation is nothing else but Nutrition or Augmentation. Since therefore God by his immediate Power, created the entire Bodies of all Plants and Animals, 'tis by no means hard to conceive that he might create them in what Degree of Maturity and Perfection he pleas'd, without any manner of Infringement of the Order of Nature then to be establish'd: And if we have reason to believe, that the Bodies of brute Creatures were created in parvo, in a small State, fuch as we now call Seeds, and fo requir'd a proper Generation, i. e. Nutrition and Augmentation of Parts; (as the Mosaick History plainly describes them; and had it not done so, we could

could not with any Certainty have afferted it;) We have fure equal Reason to believe, from the Description of the same Author in this other case, that the Bodies of our first Parents were Originally created in their mature Bulk, and State of Manhood; so as immediately to be capable of the fame Operations which at any time afterward they might be thought to be. This miraculous Origination of the Bodies of our first Parents is therefore very rationally ascribed to the Finger of God by Moses: And we may justly believe that every Person in the Blessed Trinity, as 'tis reprefented in the Sacred History, was peculiarly concern'd in the Production of that Being which was to bear the Image of God, and be made capable of some degree of his Immortality. And then as to the Soul of Man, 'tis certainly a very distinct Being from, and one very much advanced above the Body; and therefore if we were forc'd to introduce a Divine Power in the Formation of the latter, we can do no less than that in the Creation and Infusion of the former. And indeed the Dignity and Faculties of the Human Soul are fo vastly exalted above all the Material, or merely Animal Creation, that its Original must be deriv'd from the immediate Finger of God, in a manner still more peculiar and divine than all the rest. That nearer Resemblance of the Spiritual Nature, Immortal Condition, Active Powers, and Free, Rational, and Moral Operations of the Divine Being it felf, which the Souls of Men were to bear about them, did but require fome peculiar and extraordinary Conduct in their first Existence, after-Union with Matter, and Introduction into the corporeal World. Agreeably whereto we may eafily observe a single Distinction in the Sacred History between the Formation Dd of

SOLUTIONS. Book IV.

306 of all the other Animals, and the Creation of Man. Gen. i. 20. In the former Case 'tis only said, Let the Waters bring forth the moving Creature that hath Life. Let ¥ 24. the Earth bring forth the living Greature after his But of the latter the entire Trinity confult: And God said, Let Us make man in our I-¥ 26. Chap. ii.7. mage, after our Likeness. And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a living foul. As therefore the several Parts of the Mosaick Creation before-mention'd are not to be mechanically attempted, but look'd upon as the Effects of the extraordinary and miraculous Power and Providence of God, so more especially the Formation of the Body of Man in its mature State, and most of all the primary Creation and after-Infusion of the rational human Soul, is to be wholly afcrib'd to the same wonderful Interposition and Efficiency of the Supreme Being, the Creator of all things, God bleffed for evermore. All which taken together and duly confider'd, is, I think, a fufficient and fatisfactory Account of the Proposition before us, and attributes as much to the miraculous and immediate Hand of God,

> III. The Days of the Creation, and that of Reft, had their Beginning in the Evening.

as either Tradition, Reason, or Scripture, require

III. This has been already accounted for, and Coroll. 1.

that Account need not here be repeated. Lem. 73. G Hypoth.

in the present Case.

roll. I.

prises.

Corollary 1. This Phænomenon in some measure 5. cum Coconfirms our Hypothesis, that the Primitive Days of the World were Years also. For otherwise the space of one single short Night seems too inconsiderable to have been taken such notice of in this History; and en, and ever after, made the first balf of the Natu-

ral

ral Day. But if it were equal to two or three Months, the time from the Autumnal till the Vernal Equinox, which may be called half a Year, it was too considerable to be omitted, and its Memory was very justly

preserved in succeeding Ages.

Corollary 2. We may here begin to take notice of the Regularity and Methodicalness of this History of the Creation: Which, tho' it principally intends the giving an account of the Visible Parts of the World, and how the state of Nature in each Period appeared in the Day time; yet omits not the foregoing Night: Which is very Mechanical and Natural. For in the preceding Night all things were so prepar'd and dispos'd, that the Work of each Day might, upon its Appearance, display it self; might be exhibited, not in its unseen Beginnings, or secret Workings, not in its previous Causes, and gradual Procedure, (which was not the Design of this History) but in that more distinct and perfect Condition in which things would in the Day time appear to the view of a Spectator, and under which chiefly they were to be described and recorded in this History.

IV. At the time immediately preceding the fix Days Creation, the Face of the Abys, or superior Regions of the Chaos, were involved in a thick Darkness.

IV. If we consider what has been already said tem. 45, of the Nature of a Comet, or peculiarly of that &c. and Atmosphere which has been before shewn to have 60, 61, &c. &c. been the ancient Chaos, we ought to represent it Hypoth. 1. to our selves as containing a Central, Solid, Hot prins.

Body, of many 100 or 1000 Miles in Diameter; and besides that, a vastly large, sluid, heterogeneous Mass, or congeries of Bodies, in a very rare, separate, and expanded Condition, whose Diameter were ten or eleven times as long as that of the central Solid, which is the Atmosphere or Chaos Dd 2

35.

now to be consider'd: In which we must remember was contain'd both a smaller Quantity of dry, folid, or earthy Parts, (with a still much smaller of aery and watery) and as large a Quantity of dense and heavy Fluids, of which the main bulk of the Atmosphere was compos'd, all confusedly mix'd, blended, and jumbled together. In which Theor. p. State the Theorist's First Figure, excepting the Omission of the Ceneral Solid, will well enough represent it; and in which State, tho' not in their due Proportions, we accordingly delineate it in

Plate IX. Fig. 1.

But upon the Change of the Comet's Orbit from a very Eccentrical to a moderate Elliptical one, the Commencing of the Mosaick Creation, and the Influence of the Divine Spirit, all things would begin to take their own Places, and each Species of Bodies rank themselves into that order, which, according to the Law of Specifick Gravity, were due to them. By which Method the Mass of dense Fluids, which compos'd one part of the entire Chaos, being heavier than the Masses of Earth, and Water, and Air, would fink downwards with the greatest Force and Velocity, and elevate those Masses inclosed among them upwards. Which Procedure must therefore distinguish the Chaos or Atmosphere into two very different and distinct Regions: The lower and larger whereof would be a Collection, or System of dense and heavy Fluids, or a vast Abyss immediately encompaffing the central folid Body: The higher and lesser would be a Collection, or System of earthy, watery, and aery Parts, confusedly mix'd together, and encompassing the said Abyss, in the same manner as that did the central Solid. And this I take to be the State of Darkness, which the Proposition we are upon mentions: And

And that the Chaos, particularly the Face or upper Regions of it, were at this time in fuch a dark and caliginous Condition, will eafily appear. For all those opake or earthy Corpuscles which before rov'd about the immense Regions of the Atmosphere, and frequently even then obscur'd the Central Solid to any external Spectator, were now crowded nearer together; and instead of flying up and down in, or possessing a prodigious Orb or Expansum, were reduc'd to a narrow Sphere, and confin'd within a Space not perhaps in Diameter the hundredth Part of the former; and must by Consequence exclude the Rays of the Sun in another-guess manner than before. We cannot but observe in our prefent Air, that the very fame Vapours which, when diffipated and fcatter'd through the Almosphere, (whose Extent yet is not so great,) freely admit the Rays of the Sun, and afford us clear and lightfome Days; when they are collected into Clouds, become opake Masses, and are capable of obscuring the Sky, and rendring it confiderably dark to us. In the fame manner tis easy to suppose, that those opake and earthy -Maffes, which in those vaster Regions would but in a lefs degree, and in fome places, exclude the Beams of the Sun, must, when collected and -crowded closer together on the Surface of the Abyfs, exclude them in a degree vaftly furpassing the former; must occasion an entire Darkness in all its Regions, and particularly in those upper ones, over which they were immediately collected. And if from the former Comparison we estimate how few Vapours collected into a Cloud with us will cause no inconsiderable degree of Darkness; and allow, as is but reasonable, a proportionably greater degree of Darkness to a proportionably Dd 3

portionably greater number of Earthy and Opake Corpufcles crowded together; we shall not doubt but all manner of Communication with the heavenly Bodies, and the external World, must be entirely interrupted; and the least imaginable Ray or Beam of Light from the Sun excluded, not only from the lowest but even all, excepting the very highest Regions of this superior Chaos. Which State of Nature, belonging to this Time, immediately preceding the Hexaemeron, is not amiss represented by the Theorist in

Theor. p. Plate IX. Fig. 2. 36.

> V. The visible Part of the First Day's Work was the Production of Light, or its successive Appearance to all the Parts of the Earth; with the consequent Distinction of Darkness and Light, Night and Day, upon the Face of it.

V. If we remember in what State we left the Chaos in the last Proposition, and suffer our Thoughts to run naturally along with its fucceeding Mutations, we shall find that the next thing to be here consider'd, (for the Subterraneous System of dense Fluids, or the great Abyss, not coming directly within the Design of Moses, is not here to be particularly profecuted any farther) is the Separation of this Upper and Elementary Chaos, or Congeries of Earthy, Watery and Aery Corpufcles, into two somewhat different Regions; the one a folid Orb of Earth, with confiderable Quantities of Water in its Pores; the other an Atmosphere in a peculiar Sense, or Mass of the lightest Earthy, with the rest of the Watry and the Aery Particles, still fomewhat confusedly mix'd together. For fince this Upper Chaos, (tho' in general much lighter) than the Abysis beneath) consisted of Parts very Heterogeneous, and of different specifick Gravities

ties (the Earthy being heavier than the Watery, and those yet heavier than the Aery Particles;) tis evident, that in the fame manner that this whole mix'd Mass was separated from the heavier Aby/s beneath, must it again separate and divide it self into two such general Orbs as were just now mention'd. The former confifting of the denfer and folider Parts, fuch as the Earthy, Claiy, Sandy, Gravelly, Stony Strata of the present Earth, with fo many of the Watery Particles as either being already in those Regions must be enclosed therein, or could descend from above, and have Admittance into the Pores thereof: The latter of the less Solid, and lighter Earthy; with the rest of the Watery, and the Aery Particles, not yet fufficiently diftinguish'd from each other. Process will I suppose easily be allow'd, excepting what relates to the enclosing of many of the Watery Parts within the Earth; with relation to which, 'tis commonly suppos'd that because Water is specifically lighter than Earth, it must, in the regular Digestions of a Chaos, take the Upper Situation, and cover that highest Orb, as that would others of greater Gravity than it felf. 'Tis also commonly imagin'd that the Mosaick Cosmogony favours fuch an Hypothesis, and supposes the Waters to have encompass'd the Globe, and cover'd its Surface, till on the third Day they were deriv'd into the Seas. Now, as I by no means apprehend any necessity of understanding the Mofaick Creation in this Sense; so I am pretty sure 'tis contrary to a Philosophical Account of the Formation of the Chaos; unless one of these two Things were certain, Either that the Quantity of Water were so much greater than that of the Earth, that all the Pores and Interstices of the latter could not contain it; or else that it was gene-Dd 4

generally elevated into the Air, in the Form of Vapour, and sustain'd there while the Earth settled and confolidated together, and did not till then descend and take its own proper place. The former of which is neither reconcilable to the Mosaick Creation, nor will be afferted by any who knows, even fince the Deluge, how small the Quantity of Fluids in Comparison to that of the Solids is in the Earth on which we live. And the latter is too much to be granted in the prefent Case by any considering Person, who knows that a Comet's Vapours constitute the main part of that Tail or Mist, which is sometimes equal to a Cylinder, whose Basis is 100,000 Miles in Diameter, and its Altitude as far as from the Sun to the Earth, or about 81,000,000 Miles; (as it was in the last famous Comet in 1681, represented in Sir Isaac Newton's own Scheme;) let the Rarity of the same be suppos'd as great as any Phanomena shall require. For to clear this Matter by a familiar Instance or Experiment; Take Sand or Dust, and let them fall gently into a Vessel, till it be near full: Take afterwards some Water, and pour it alike gently into the same Vessel: and it will foon appear, that, notwithstanding the greater specifick Gravity of the dry and earthy, than of the moist and watery Parts, (whence one might imagine that the Sand or Dust would be the lowest, and the Water swim uppermost on the Surface of the other, without mingling therewith,) yet will the latter immediately fink downwards, and fo throughly drench and fatiate the faid Mass before any will remain on the Top, that its Proportion to that of the Solid Parts will be very confiderable. Which bening apply'd to the Point before us, will take away all imaginable Difficulty in the Cafe: It be--9005 ing

ing evident, without this Comparison, that such watery Particles as were already intermix'd with the others would remain where they were; and with this, equally fo, that many of the rest, which were above the same, upon the first Subsidence of the earthy Strata would penetrate, pervade and faturate the same. So that on this first Day or Year of the Creation, the earthy and denfer Parts would take their Places lowest, on the Surface of the great Abyss; would fettle in part into the same, and compose an Orb of Earth; and in its Interstices and little Cavities all such watery Particles as were already in this Region, or descended upon it before its Consolidation, would be enclos'd; and that as far above the Surface of the Abyss, to which they would be contiguous, as their Quantity could enable them to reach. On this first Day or Year also the upper Regions of the Chaos, being now in some measure freed from those earthy and opake Masses which before excluded the fame, and caused the beforemention'd thick Darkness; would in some degree admit the Rays of the Sun. Now therefore that glorious Emanation, Light, the visible Part of this Day's Work, would begin to appear on the Face of the Earth: Now would it, by the annual Motion, fuccessively illuminate the several Parts of it: And now would it consequently cause that natural Distinction between Darkness and Light, Night and Day round the whole Globe, which was to be accounted for in this Proposition. Which Progress of the Chaos, and State of Nature is well enough exhibited by the Theor. p. Theorist in Plate X. Fig. 3.

Corollary. Hence we may observe the Justness of the Mosaick Creation, and how fitly it begins at the Production of Light; without taking notice of such

prior Conditions, and such Preparations of the Chaos which have been before explain'd, and were in order of Nature previous to this Day's Work. For this Account reaching only to the visible World, and the visible Effects in it; and keeping still within the Bounds of Sense, and of common Observation, could not better be accommodated to the Truth of Things, and the Capacities of all, than by such a Procedure. The ancient Condition of the Chaos in former Ages was no way bere concern'd, and so was entirely to be omitted. The State of Darkness which immediately preceded the fix Days Work, and which, with relation thereto, was necessary to be mention'd, made a very proper Introduction, and so very fitly was to be binted at by way of Preface thereto. Both which Cases are accordingly by Moses taken care of. And so the first Period was the Production of Light, the Admission of the Rays of the Sun, and the Origin of Day and Night depending thereon; as the Method and Decorum of Things, with the Apprehensions of the People, did both very naturally require. For fince in this Sacred History of the Origin of Things, not only the Visible World, and the Visible Parts of it were singly concern'd; But principally the Effects to be enumerated were such as requir'd the Light and Heat of the Sun, the one to be View'd, the other to be Produc'd by; and without the latter could no more bave Been at all, than been Conspicuous without the former; 'Twas very suitable, and very natural in the first place to introduce the Cause or Instrument, and afterwards in the succeeding Periods, to recount the Effects thereof in the World: First to acquaint us that the Light and Heat of the Sun were in some meafure admitted into the upper Regions of the Chaos, and then to relate those remarkable Consequences thereof, which the succeeding Periods of the Creation exbibited on the Face of the Earth. Which Order of Nature,

Nature, and Succession of Things, is accordingly very prudently and fitly observed, and kept pace with, in this sacred History.

VI. The visible Part of the Second Day's Work was the Elevation of the Air with all its contain'd Vapours; the spreading it for an Expansum above the Earth; and the Distinction thence arising of Superior and Inferior Waters; the former consisting of those Vapours, rais'd and sustain'd by the Air; the latter, of such as either were enclosed in the Pores, Interstices and Bowels of the Earth,

or lay upon the Surface thereof.

VI. When at the Conclusion of the former Day the Heat of the Sun began confiderably to penetrate the Superior Regions of the Chaos, and the two different Orbs, the folider Earthy, and the fluider Aery Masses, began to be pretty well diftinguish'd, the same things would proceed still on this succeeding Day. The lower Earthy Strata would be fettling somewhat closer together; the Watery Parts would subside, and where they could get Entrance, would faturate their inward Pores and Vacuities, and the Atmosphere would free it self more and more from the heaviest and most opake Corpuscles, and thereby become in a greater degree tenuious, pure, and clear than before. Whereupon, by that time the Night, or first Part of this Second Day or Year was over, and the Sun arose, the Light and Heat of that Luminary, would more freely and deeply penetrate the Atmosphere, and become very fenfible in these Upper or Aery Regions; which being suppos'd, the proper Effects which were to be next expected, must be, that vast Quantities of Vapours would be elevated into, and there fustain'd by the now better purify'd Air, and so increase the vast Quantities which were already there; while in the mean time all the Earthy Corpufcles which were uncapable

capable of Rarefaction, and with them all fuch Watery Particles as were fo near the Earth that the Sun's Power could not fufficiently reach them, were still finking downwards, and the former increasing the Crassitude and Bulk of the solid Earth; and the latter, if the Earth was too folid to admit them, as by this Time it would probably be, flowing down apace, and covering all its Surface with Water. From all which, 'tis eafy to account for the Particulars of this Day's Work. The Expansum or Firmament which was this Day spread out above the Earth, was plainly the Air, now truly fo called, as being freed from most of its Earthy Mixtures. The Superior Waters, all those fresh ones, which in the Form of Vapour, a nine or ten Months Heat of the Sun, with the continual Affistance of the Central Heat, could elevate, and the Air fustain, befides those vast Quantities of Salt ones, which had never yet lest those Regions. The Inferior Waters were those which were not elevated, but remain'd below, all that fell down with, were enclos'd in, funk into, or lay upon the Orb of the Earth beneath. And when it is particularly faid by Moses, that 'twas this Expansum or Firmament which was to divide the Superior from the Inferior Waters, that is exactly agreeable to the Nature of Things, and fuitable to this Account: It being the Air which truly and properly fustain'd all those Vapours, as now it does the Clouds, above the Earth; and was thereby the Means of separating them from their Fellows in the Bowels, or on the Surface thereof. Neither has that Objection any weight in it, that the Waters in the Seas are called by Moses, Waters under the Firmament; and so must be of a different Nature and Original from those in the Air, which are Waters above the Firmament; whereas

whereas I derive the one from the other, and fuppose the Seas to have been once Vapour, and fo part of the other Waters. For, certainly, if Vapours in the Air, or Waters above the Firmament fall down, become properly Water, and run down into the Seas, they must be allow'd to change their Name, and become Waters below the Firmament: I am fure this Change is no new thing, but has been continual from the Creation till our Times. Every Day Vapours become Rain, and run into Seas; and the Seas are every Day refolving into fmall Parts, and become Vapours; and so the inferior and superior Waters still communicate with and supply each other, and accordingly change their Denomination perpetually: Which State of the Chaos, or Progress of the Creation, is well represented by the Theorist in Plate X. Fig. 4.

Corollary 1. Hence appears a sufficient Reason why in this Six Day's Creation, one entire Day is allow'd to the Formation of the Air, and the distinguishing the Waters in the same, from those beneath; which has hitherto seem'd somewhat strange and disproportionate. 'Tis certain this Work requir'd as long a Time, and was of as great Importance as any other what soever: A great part of that Water which the Earth was to have in its Air, or upon its Surface, till the Deluge, being, 'tis probable, entirely owing to this Day's Elevation of it. For bad it not been thus buoy'd up and sustain'd on bigh, it must have sunk downward, and so perhaps have been inclosed in the Bowels of the Earth, without Possibility of Redemption; and have rendred the Antediluvian World more like to a dry and barren Wilderness, than, what it was to exceed, a juicy, fruitful and babitable Canaan.

Coroll,

Coroll. 2. Hence arises a new Confirmation that the Days of the Creation were Years also. For seeing the quantity of Water which was preserv'd above Ground, and fill'd all the Seas before the Deluge, was in great part the same which was this second Day elevated into Vapour; bad this Day been no longer than one of ours at present, the foremention'd quantity would have been too little to saturate the Earth, supply the Rivers, and fill all the Seas, and about an balf of it every Day would be wholly exhal'd afterwards, and suffer the Vegetable and Animal Kingdoms to faint and wither, if not to perish for want of Moisture. All which, in the Hypothesis we here take, is wholly avoided, and a very fit and fuitable Proportion of Waters preserv'd above for all the Necessities of the Earth, with its Productions and Inhabitants.

VII. The visible Parts of the Third Day's Work were two, the former the Collection of the inferior Waters, or such as were now under the Heaven, into the Seas, with the consequent Appearance of the dry Land; the latter the Production of Vegetables out of that Ground so lately become dry.

VII. In order to the apprehending of the double Operation of this Day, we must call to Mind what State the Orb of Earth was in by this Time. We have seen already that it had been settling together, and fixing it self on the Surface of the Abys from the very Beginning of the Creation; and we ought to suppose that in the space of two Years it was not only become wholly distinct from the Abys below, and the Atmosphere above it, but that it was settled and confolidated together, and its Strata grown firm and compacted. Nay that it was by the Cohesion of its Parts, grown solid some Time before all the lighter and remoter Earthly Parts were descended

Part

scended upon it, as suppose by the end of the first Day. We must farther observe, that by reason of its Columns different Denfity, and Specifick Gravity, (attested to, à priori from the Chaos's, and à posteriori from the internal Earth's Phanomena,) it was settled into the Abyss in different degrees, and thereby became of an unequal Surface distinguish'd into Mountains, Plains and Vallies. I fay it was settled into the Abyss in different degrees, but yet not near to such a degree as the Law of Specifick Gravity requir'd, as necessarily follows from what was now faid, that the feveral Columns would be confolidated together the first Day, before all the lighter and remoter Earthly Parts which were to compose it were descended upon it on the Second, and perhaps afterwards also on part of the Third. Vid. Lend. Which things being suppos'd and consider'd, 81. cum the two Works of this Day or Year of the Crea-Coroll. &c tion, which are of themselves very different, prius. will be easily understood and reconcil'd. For when at Sun-set, or the Conclusion of the last Day, we left the Air by the nine or ten Months Power of the Sun elevating fresh ones, and by the great quantity of falt ones still remaining there from the Beginning, crowded with Vapours to a prodigious degree; upon the coming on of this Third Day, and in its Night or former part, the said vast Quantities of Vapours must needs descend, and so by degrees must leave the Air pretty free, and take their Places on the Surface of the Earth; altering thereby their own Denomination, and becoming of Upper or Celestial, Lower or Terrestrial Waters. Indeed if we do but allow the Effect to be in any measure answerable to the Time, we shall grant that in the two or three Months of Night, which is the former

Part of this Third Period of the Creation, the main Body of the Vapours must have not only descended down upon the Earth, but, by reason of the Inequality of its Surface, and the Solidity withal, have run down from the higher and more extant Parts, by the Declivities and Hollows, into the lowest Vallies, and most depressed Regions of all; must in these Places have compos'd the Seas and Lakes every where throughout the Surface of the Earth; and fo by that Time the Light appear'd, and the Sun's Rifing began the latter Part of this Day, the entire Face of the Globe, which was just before cover'd as it were with the descending Waters, must be distinguish'd into over-flow'd Vallies, and extant Continents, into Seas and dry Lands, that very Work of this Day we were in the first Place to enquire about. The Waters under the heavens were now gathered together into their respective and distinct Places, and the dry land appear'd, and became fit for the Production of the Vegetable Kingdom. Which therefore most naturally leads us to the second Branch of this Day's Work: For when thus far was compleated on the Night or former Part of this Day; (which the Absence of the Sun so long together rendred peculiarly and folely fit to permit and procure the Descent of Vapours;) and when at the same Time the dry Land was now distinguish'd from the Seas, and just become (in the utmost degree) moist and juicy; upon the Sun-Rifing or coming on of the Day-time, 'twas of all other the most fit and convenient Season for the Germination of the Seeds of Vegetables, and the growth of Trees, Shrubs, Plants

Theor.l.r. and Herbs out of the Earth. The Soil, fatur'd p. 42. & and fatned by the foregoing half Year's Descent 1.2. c. 7. of Vapours, was now like the 'Invis, that truitful

Pare

Semi-

Seminary of the Vegetable and Animal Productions of Primitive Nature, so much celebrated by all Antiquity. Nine or Ten Months of the Sun's Presence together, was a Time as proper and as natural for fuch a Purpose as could possibly be desir'd. And when there was this Nine or Ten Months Day to spare in this Period of the Creation, after one Work was compleated; and the fame was so very fitly prepar'd and dispos'd for the Production of Vegetables; 'tis no wonder that this above all the other Divisions has a double Task, and that the Seas and dry Land were diftinguish'd, and the Vegetables produc'd on the fame Day or Year of the Creation; according as from the Mosaick History the present Proposition afferts. And if we allow for the Defect of the Inequalities of the outward Surface, too fmall to be therein consider'd; and suppose the Atmosphere somewhat clearer than before; the former Figure will still serve well enough, and Theor. represent the Progress and State of the Earth at P. 39. the Conclusion of this Third Day also.

Corollary 1. Since according to our present Accounts of these Matters, this is the only Day of the Creation to which a double Work, and that the one quite different from the other, ought to be ascrib'd, and is ascrib'd by Moses; The Night being peculiarly fit for the former, and the Day for the latter Operation; which could happen on none of the other Periods; This Exactness of Correspondence ought to be esteem'd an Evidence of the literal Sense of the Writer, and of his Accommodation to the Nature of Things; and a very considerable Consirmation of those Hypotheses on which it so naturally depends.

Coroll. 2. Hence arises a Confirmation of what Phænom. was before asserted, that the Antediluvian Earth 45. prims.

Ee

bad

had only lesser Lakes and Seas, not a vast Ocean. For since the Quantity of Waters belonging to the Earth and Air at first, was little more than was at once sustain'd by the Air; no one will imagine it sufficient to fill the entire Ocean alone, if there had been neither lesser Seas, nor Rivers to be supply'd therewith. And so, vice versa, It having been prov'd by other Arguments, that there was no Ocean, but only lesser Seas, before the Flood, this Account which affords sufficient Quantity of Water for the latter, but not for the former, is thereby not a little confirm'd.

Coroll. 3. Tho' the Heat and Influence of the Sun was on this Third Day very great, yet was his Body not yet Visible. For since at his Rising the Earth and lowest Regions of the Air were very full of Moisture, while the higher Regions were very clear and bright, the Force of his Heat would be so great as to elevate considerable Quantities of Vapours on a sudden, and thereby (e're the lowest Air had deposited its Vapours, and rendred it self transparent) the Sun would anew hide himself in a thick Mist, and so prevent his own becoming conspicuous, which otherwise tis not impro-

bable he might this Day have been.

VIII. The Fourth Day's Work was the Placing the Heavenly Bodies, Sun, Moon and Stars, in the Expansum or Firmament, i. e. The rendring them Visible and Confpicuous on the Face of the Earth: Together with their several Assignations to their respective Offices there.

VIII. Altho' the Light of the Sun penetrated the Atmosphere in some sort the first Day, and in the succeeding ones had very considerable Influence upon it; yet is it by no means to be suppos'd that his Body was Visible all that while. Tho' we every Day enjoy much more Light and Heat from the Sun than the Primitive Earth could, for a considerable space, be suppos'd to have

have done, yet 'tis but sometimes that the Air is fo clear as to render his Body discernible by us. A very few Clouds or Vapours gather'd together in our Air are able, we see, to hinder such a Prospect for Weeks, if not Months together; while yet at the same time we are sufficiently fensible of his Force and Influence in the constant Productions of Nature. Which things being duly consider'd, and the Vastness and Denfity of the Upper Chaos allow'd for, 'twill be but reasonable to afford a great Space, even after the first Penetration of Light, for the entire clearing of the Atmosphere, and the distinct view of the Sun's Body by a Spectator on the Surface of the Earth. I suppose no one will think the two first Days or Years of the Creation too long for fuch a Work; or if any one does, the particular Work and State of the Atmosphere on the fecond Day will prevent the most probable part of fuch a Surmise, and shew the Imposfibility of the Sun's Appearance at that Time. And the same reason will in a sufficient, tho' a less degree prevent any just Expectations on the third Day, as was observ'd in the last Corollary. But now upon the coming on of this fourth Day, and the Sun's Descent and Abode below the Horizon for two or three Months, those Vapours which were rais'd the Day before must fall downwards, and so before the Approach of the Morning leave the Air in the greatest Clearness and Purity imaginable, and permit the Moon first, then the Stars, and afterward, upon the coming on of the Day, the Sun himself most plainly to appear and be conspicuous on the Face of the Earth. This fourth Day is therefore the very Time when, according to this Account, and the facred History both, these Heavenly Bodies, which were in Being before, Ee 2

but fo as to be wholly Strangers to a Spectator on Earth, were rendred visible, and expos'd to the view of all who should be suppos'd to be there at the fame time. They now were in the Sacred Style, placed in the Firmament of Heaven, gave Light upon the Earth; began to rule plainly and visibly over the Day, and over the Night, and to divide the Light from the Darkness; as ever fince they have continu'd to do. And now the inanimate World, or the Earth, Air, Seas, and all their Vegetable Productions are compleat; and the Tradition of Atlas Chi. those Chineses who inhabit Formosa, and other Islands, appears well-grounded, and exactly true, who hold, that the World, when first created, was without Form or Shape; but by one of their Deities was brought to its full Perfection in four Years. And certainly this entire Constitution of the whole corresponds excellently with the Poet's Description of it, which is also a surprizing Te-

Ovid. Metamorph. I. I.

Part 2.

p. 46. Apud War.

p. 58.

Geolog.

Ignea convexi vis, & sine pondere Cali Emicuit, summaque locum sibi legit in arce: Proximus est aër illi gravitate locoque: Densior bis Tellus, Elementaque Grandia traxit, Et pressa est gravitate sui: Circumfluus Humor Ultima possedit, solidumque coercuit orbem.

stimony to the whole Hypothesis hereto relating:

Theor. P. 41.

Which Progress of the Creation, and State of Nature, is exactly represented by the Theorist's fifth and last Figure.

IX. The Fifth Day's Work was the Production of the Fish and Fowl out of the Waters; with the Benediction bestowed on them in order to their Propagation.

IX. The Terraqueous Globe being now become habitable both to the Swimming and Volatile Animals, and the Air clear, and so penetrable by that

that compleat Heat of the Sun, which was requisite to the Generation of fuch Creatures; 'tis a very proper Time for their Introduction. Which was accordingly done upon this fifth Day or Year of the Creation. Those Seeds, or little Bodies of Fish and Fowl which were contain'd in the Water. (or moist fruitful 'Ixos, of kin to it) were now expos'd to the kindly Warmth of the Sun, and the constant supply of a most gentle and equal Heat from beneath; they were neither disturb'd by the fudden Alteration of the Temperature of the Air from the Violence of Winds, nor by the Agitations of the Tide, (which was both very small in these small Seas; and by reason of the Abfence of the Diurnal Rotation, imperceptibly eafy, gentle, and gradual;) these Seeds, I say, when invigorated with the Divine Benediction, became now prolifick; and in this Fifth Day's time, a numerous Offspring of the swimming and volatile Kinds arose, whereby the two fluid Elements, Water and Air, became replenish'd with those first Pairs, which by the Benediction they straightway receiv'd, were enabled to become the Original of all of the fame Kinds, which ever were to be the Inhabitants of those Regions afterwards. Which Time and Procedure is no lefs agreeable to the State of the World in our Hypothesis, than 'tis to the express Affirmations of Moses, who makes Fish and Fowl the sole Product of the Fifth Day or Year of the Creation.

X. The Sixth Day's Work was the Production of all the Terrestrial or Dry-Land Animals; and that in a different manner. For the Brute Beasts were produced out of the Earth, as the Fish and Fowl had been before out of the Waters: But after that, the Body of Adam was formed of the Dust of the Ground; and by the Breath of Life breath'd into him in a peculiar manner, he became a Living Soul. Some time after which, on the E e 3

Solut. 2.

prius. -

iv. 12.

same Day, he was cast into a deep Sleep, and Eve was form'd of a Rib taken from his fide. Together with feveral other things, of which a more particular Account has been already given on another Occasion.

X. The Earth being now grown more folid, compact, and dry, its Surface diftinguish'd into Sea and Dry-land, each of which were ftor'd in some fort with Inhabitants and Vegetables, the Air being fully clear, and fit for Respiration, and the other Dispositions of external Nature being equally subservient to this, as well as it had been before to the last Day's Productions; 'twas a proper Season for the Generation of the Dryland Animals, and the Introduction of the noblest of them, Man; which accordingly were the first Works, on this Sixth Day or Year of the Creation. Any more particular Account of which, or of the following Works, is not fo directly the Defign of this Theory, and so shall not be here farther infifted on. We may only take notice of two Things; the one is the peculiar Manner; the other the peculiar Time for the Creation of Man. As to the former, tho' 'tis granted that all the other Days Works mention'd by Moses, were generally brought to pass in a natural way, by proper and fuitable Instruments, and a mechanical Process, as we have seen through the whole Series of the foregoing Creation; yet 'tis evident, as has been already observ'd, that an im-Vid. John mediate and miraculous Power was exercis'd in v. 37. and the Formation of the Body, and Infusion of the vi. 45, 46. Soul of Man, as well as in some other particu-Matth. xi. lar Cases belonging to this Origin of Things. 27. 1 Joh. In plain Terms, I take it to be evident, that Rom.i.20. the same Λόγ @ Θεάνθεωπ @, our Blessed Media-Col. i. 15. tor, who was afterward very frequently conver-Tim.i. fant on Earth, appear'd in a human Form to

the

the Patriarchs, gave the Law in a visible Glory, 17. and vis and with an audible Voice on Mount Sinai, 15, 16. guided the Ifraelites personally in a Pillar of Fire, Exod. iii. and of a Cloud through the Wilderness, inhabit-and xix. ed between the Cherubim in the Holy of Holies, and xx. and took the peculiar Style, Title, Attributes, and xxiv. Adoration, and, to others, incommunicable Name xxxiii. 9, of the God of Ifrael, and at last was Incarnate, 10, 11, liv'd truly like a Man amongst us, died for us, and 12, 13. ascended into Heaven, makes still Intercession Numb. for us with the Father, and will come to judge the and xiv. World in Righteousness at the last Day: That 14. Gen. this very same Divine Person was actually and ii. and iii. visibly, in a Human Shape, and conversant on and xviii. Earth, and was truly and really employ'd in this and xxxii. Creation of the World, (and particularly in this 24, &c. peculiar Formation of Man) fo frequently ascrib'd Deut. iv. to him in the Holy Scriptures. It being both un- and v. fit and impossible for the Divine Nature of the viii.22,32. Father, to be fo much, and in fuch a manner Heb.i.1,2. concern'd with the Corporeal World, and the fin-with xi.3. ful Race of Mankind, as we find here and every Col. i. 14, where this Divine Person, our Blessed Mediator, John i. 1, to have been; as the Texts here quoted compar'd 2, 3. together do, I think, fully prove. Seeing, there-Heb.i. 10, fore, our Saviour Christ, God-Man, was perso- 11, 12. Euseb. nally present, and actually employ'd in this Hift. Ec-Primitive Creation of the World: Seeing Man clef. i. was to be a Creature entirely different from all c. 1, 2. the rest, a Being compounded of a Spiritual and Immortal Soul, and of a Material and Corruptible Body: Seeing in both these he was to be made in the Likeness of that Divine Person who was the Instrument of the Father in his Creation, and to be constituted his Deputy and Vicegerent among the Creatures here below; 'twas but reasonable there should be as great a Distinction in E e 4

his Original, as was to be in his Nature and Faculties, his Office and Dignity, his Capacities and Happiness from the other Parts of the Visible Creation; and by consequence, that peculiar Interposition of God himself in the Formation of the Body, and Infusion of the Soul of our first Parents, fo particularly observable in the Mofaick History, is both very agreeable to the Nature of Things, very fuitable to the Wisdom of God, and very reconcileable to the most Philofophick Accounts of this Origin of the World; and withal, a remarkable Token of the Dignity of Human Nature, of the Distinction between his Soul and Body, and of the great Condescenfion and Love of God towards us, and so the most highly worthy of our Confideration. Neither is the other Circumstance, the peculiar Time of the Creation of Man, to be pass'd over without a proper Reflexion on it. 'Twere easy to shew, that none of the preceding Days were, in any degree, fo fit for, nay, most of them, not capable of this Creation and Introduction of Man: But upon this Sixth Period, when every thing which could be fubservient to him, and advance his Felicity, was compleated; he who was to be the Lord of All, and for whose Sake the whole was fram'd, was brought into the World. When the Light had been penetrating into, and clarifying this dark and thick Atmosphere for more than five compleat Years together; when the Air was freed from its numberless Vapours, and become pure, clear, and fit for his Respiration; when the Waters, as well superior as inferior, were so dispos'd as to minister to his Necessities by Mists and Dews from the Heavens, and by Springs and Rivers from the Earth; when the Surface of the Earth was become dry and folid for his Support, and was cover'd

cover'd over with Trees, Shrubs, Plants, Herbs, Grass and Flowers for his Sustenance and Delight; when the glorious Firmament of Heaven, and the beautiful System of the Sun, Moon and Stars, were visible and conspicuous to him, the Objects of his Contemplation, the Distinguishers of his Seasons; by whose powerful Influences the Earth was invigorated, and the World rendred a fruitful and useful, a lightfome and pleasant Habitation to him; when, lastly, all sorts of Animals in the Seas, in the Air, or on the Earth, were fo dispos'd as to attend, benefit, and please him one way or other; when, I fay, all these things were by the Care, Beneficence, and Providence of God, prepar'd for the Entertainment of this principal Guest, then, and not till then, was Man created and introduc'd into the World: Then, and not before, was He constituted the Lord and Governor of the whole. In which entire Procedure the Wisdom and Goodness of the Creator, and the Dignity and Honour of his principal Creature here below, are equally confulted; and the greatest Occasion imaginable given to our first Parents, and all their Posterity, of adoring and celebrating the Divine Bounty to them in the prefent and fucceeding Ages. Which naturally leads us to the next Proposition.

XI. God having thus finish'd the Works of Creation, rested on the Seventh Day from the same; and sanctified or set that Day apart for a Sabbath, or Day of Rest, to be then and afterward observ'd as a Memorial of his Creation of the World in the Six foregoing, and of his Resting or Keeping Sabbath on this Seventh Day. Which Sabbath was reviv'd, or at least its Observation anew enforc'd on the Jews, by the Fourth Commandment.

XI. Nothing fure could be more fit and proper at this Time than the praising and worshipping ping of that powerful and munificent Creator. who in the foregoing Six Days Productions had fo operoufly and fo liberally provided for the Well-being and Happiness of Mankind. And feeing this entire Fabrick was design'd for the Use and Advantage of all fucceeding Generations, as well as the present, it could not but be reasonable to devote one Period in feven to the peculiar Worship and Service of that God who was both the Author of the Works themselves, and of this Institution of the Sabbath, to perpetuate the Memory of fuch his Six Days of Work, and of this Seventh of Rest, to all future Generations. What relates to the Fall of Adam, and the entire Moral State of the World, comes not within the Compass of this Physical Theory, and so (notwithstanding it naturally enough belongs to this Day, and might, I imagine, be shewn not to be so difficult, as, for want of a right Understanding thereof, 'tis usually imagin'd to be, and that without receding from the literal, obvious, and usual Sense of Scripture) must be wholly omitted in this Place.

XII. There is a constant and vigorous Heat diffused from the Central towards the Superficiary Parts of our Earth.

Lem. 68. XII. This has been already accounted for, and & Hyp. 1. need not here be refum'd.

Arg. 7. prius.

XIII. The habitable Earth is founded or fituate on the Surface of the Waters; or of a deep and vast subterraneous Fluid.

Lem. 74, XIII. This has been fufficiently explain'd al
geo. & ready, and is observable in the foregoing Figures

Solut. 5, 6, of the four latter Periods of the Mosaick Creation.

But if it be requir'd to state the Proportions of that Subterraneous Fluid, with that of the Central Solid, and of the Upper Earth, I must say, that

that I esteem the Upper Crust to be not above 50 or 100 Miles deep, and the dense Fluid about the like Dimensions: But as to the larger Central Solid, which includes another rarer Fluid, and a Central Loadstone, as I have shewn in my Discovery of the Longitude and Latitude by the Dipping-Needle, this is not a Place to discourse more largely upon it.

XIV. The interior or entire Conftitution of the Earth is correspondent to that of an Egg.

XIV. This is also very easily observable in the same Figures: Where (1.) the Central Solid is answerable to the Yolk; which, by its stery Colour, great Bulk, and innermost Situation, exactly represents the same: Where (2.) the great Abys is analogous to the White; whose Density, Viscosity, moderate Fluidity, and middle Position, excellently express the like Qualities of the other: Where (3.) the upper Orb, or habitable Earth, corresponds to the Shell, whose Lightness, Solidity, little Inequalities of Surface, and uppermost Situation, admirably agree to the same.

XV. The primitive Earth had Seas and Dry-land diffinguish'd from each other in great measure as the present; and those situate in the same places generally as they still are.

XV. The former Part of this has been already solut. 7. fufficiently explain'd; and of the latter part prius. there can then be no reason to make any question; since the same Earth that was made at first, does still, as to its main Parts, remain as it was to this Day.

XVI. The primitive Earth had Springs, Fountains, Streams, and Rivers, in the same manner as the present, and for the main usually in or near the same places also.

XVI. The Origin of Fountains and Rivers is undoubtedly either from Vapours descending from

prius.

from without the Surface of the Earth, or from Steams elevated by the Heat within. And which way foever we chuse to solve the present, 'twill also serve to solve the primitive Phanomena here mention'd. 'Tis only to be observ'd, that before the upper Earth was chap'd and broken at the commencing of the Diurnal Rotation; and, indeed, before the Strata became fo firmly confolidated as they afterwards were, the fubterraneous Steams would arise, and pass through the fame more uniformly, and more eafily, and fo more equally dispense their Waters over every Part and Region of the Earth, than afterward.

Corollary. If therefore Dr. Woodward be right in asserting, That the Cracks and Fissures, which he and p. 152. calls perpendicular ones, since the entire Consolida-

tion of the Strata of the Earth, are necessary to the Origin of Springs, (and I believe he may have good Grounds for bis Opinion;) From the Being of such Springs and Fountains after the Consolidation of the Strata, and before the Flood, 'tis evident, that the Diurnal Motion did not commence till after the Annual; nay, till after the Formation and Consolidation of the Earth, and so what on other Grounds was before rendred bigbly probable, will appear nearer to Certainty on This: For 'tis plain, if the present Diurnal Motion commenc'd either with the Annual, or indeed any time before the Formation of the Vid. Lem. Earth, the Figure of the Chaos, and so of the Abyss

70,71,72. and Upper Earth, would originally be that of an Oblate Sphæroid, as it is now; the Strata would be all coherent, united, and continued, without any Cracks or perpendicular Fiffures at all; and the Origin of Springs, on the Doctor's Grounds, must in a natural way, be plainly impossible. Since therefore the Diurnal Rotation's commencing after the Consolidation of the Strata gives a Mechanical and Natural

Account

Account of the Chaos and perpendicular Fissures; since without the same in the present Case no natural Cause of them is by any assigned; since withal'tis unquestionable that there were Springs and Rivers before the Flood; and since, lastly, it appears that such Fissures were necessary to the being of those Springs and Rivers, 'tis very reasonable, nay necessary to suppose, that the Diurnal Rotation did not commence till after the Formation and Consolidation of the Earth was over; or, which is almost all Hypoth 3. one, till the Fall of Man, as we formerly asserted. Prius.

XVII. The Primitive Earth was distinguish'd into Mountains, Plains and Vallies, in the same manner, generally speaking, and in the same Places as the present.

XVII. This has been fufficiently explain'd al-Lem. 74. ready, and need not here be reaffum'd. And that &c. and each of these Seas, Springs, with their Rivers, and Solut. 7. Mountains, were generally the same, and in the prius. Same Places as the present, there is no reason to doubt; they being usually the very same Individuals then and now, and so unquestionably cannot have chang'd their primary Situations.

XVIII. The Waters of the Seas in the Primitive Earth were Salt, and those of the Rivers Fresh; as they are at present, and each, as now, were then stor'd with great Plenty of Fish.

XVIII. This has no Difficulty in it, feeing the prefent Seas are either the very fame, or at least of the same Nature; and both would become Salt in the same manner, by the Dissolution of the Saline among the other Mineral Particles in the Fluid Chaos, or Atmosphere of a Comet. As to the Rivers, they arose then and now in the same manner; and the Inhabitants of the present Seas and Rivers seem to be no other than the Spawn or Offspring of those Primitive ones.

XIX. The Seas were agitated with a like Tide, or Flux and Reflux, as they are at prefent.

Lem. 82. cùm Corol. priùs.

XIX. The Prefence of the Moon and Sun being the Cause of the Tides, and those Bodies by consequence being equally dispos'd before, as fince the Deluge, to produce them, this Proposition can have no manner of Difficulty, only we may take notice of these two things, (1.) That in the State of Innocence, before the Diurnal Revolution began, the Frequency of the Tide must depend on the Lunar Period, and happen but twice in each Month, as now it does in somewhat above a Day's Time with us: On which account, the Increase and Decrease of the Waters would be extreamly gentle, leifurely, and gradual, without any imaginable Violence or Precipitation. (2.) That in the whole Antediluvian State, the Tides were leffer than fince, by reason of the Smallness of the Seas then in Comparison of the great Ocean, from whence now the most considerable ones are deriv'd. All which yet hinders not but they might be fenfible enough in some Creeks, Bays, and Mouths of Rivers: The peculiar Circumstances of those Places in that, as well as in the present State, rendring the Tides, the Elevations and Depressions of the Waters there, most considerable and violent of all others.

XX. The Productions of the Primitive Earth, as far as we can guess by the Remainders of them at the Deluge, differ'd little or nothing from those of the present, either in Figure, Magnitude, Texture of Parts, or any other correspondent Respect.

XX. These things seem to depend on two Particulars, viz. partly on the primary Bigness, Figure, and Constitution of the constituent, insensible Parts or Elements of Bodies; and partly

on the Quantity of Heat made use of in their Production or Coalition; which being suppos'd, the Proposition will easily be establish'd. For, as to the first, I suppose they remain invariably the same in all Ages, and are by any natural Power unalterable. And as to the last, whatever is to be faid of the State of Innocence, or the first Ages succeeding, on some peculiar Accounts, which Phanom. I believe might be warmer than at present; yet 23. & 27. as to the Times here referr'd to, there is no need priùs. to suppose any great Difference of Heat, either from the Sun, or the Central Body: And, indeed, all the Difference on any Accounts to be suppos'd between the Heat before and fince the Deluge, must be too inconsiderable to be taken notice of in any fuch fensible Effects as this Proposition does refer to. For the Sun's Heat was not above a twenty-fifth Part greater than 'tis now, and the Space of four or five thousand Years makes no mighty Difference in that of the Central Solid, if at first it were heated any whit near the degree mention'd in the Calculation referr'd to in the Margin. And tho' its real Heat were decreas'd, Lem. 68. yet in case its Facility of Penetration were in-priùs. creas'd in the fame Proportion, the Heat on the Face of the Earth would still be equal and invariable. And so by these Accounts, the Productions of Nature in all Ages must be pretty equal and agreeable, as this Proposition requires.

Corollary. Tho' the Lives of the Antediluvians were so much longer than ours at present, yet were they not generally of a more Gigantick Stature than the past or present Generations since have been. In all which Ages, notwithstanding, there have been some of an extraordinary Bigness and Stature; and there will be still no doubt in the future Ages to the

end of the World.

XXI, The

XXI. The Primitive Earth had fuch Metals and Minerals in it, as the present has.

XXI. This is easily accounted for. For since the Antediluvian, and the present Earth, are either the very same as to the lower Regions, or at least of the same Nature, the Offspring of a Comet's Atmosphere, (as even that acquir'd Crust at the Deluge was) 'tis no wonder if each of them contain, generally speaking, the same Species of Bodies within it.

XXII. Arts and Sciences were invented and improved in the first Ages of the World, as well as they since have been.

XXII. There is little need of giving particular Reasons for this. All I shall observe is, That feeing the Ignorance and Barbarity of the Ages after the Deluge, is the greatest Objection against this Proposition, 'tis avoided in our Hypothesis. The infensible, tho' prodigious Change of the State of Nature, and the perishing of most of the Monuments of the old Learning or Arts at the Flood, with the want of Correspondence in the Postdiluvian Tropical Year, to the Tradition of the Antediluvian one, compelling the few Remainders of the former State, being only eight in Number, to feek anew for their Learning, notwithstanding it might have been cultivated and improv'd to a great degree before the Deluge; as therefore in all Probability it really was.

CHAP. II.

A Solution of the Phænomena relating to the Primitive State of the Earth.

XXIII. The Primitive State of the Earth admitted of the primary Production of Animals out of the Waters and Dry Ground, which the subsequent States, otherwise than in the ordinary Method of Generation, have been uncapable of.

XXIII. 'TIS not to be expected that I should here be able to give a full and methodical Account of the Growth of the Primitive Pairs of Animals, and of the feveral Dispositions of the Primogenial State of Nature subservient or contributary thereto. The Method of the Generation of Animals is in it felf in general fo little known, and the History of this first Stage of the World, as well fo short in the Sacred Writings, as fo difficult to be, in all its Circumstances, now otherwise understood, that such an Attempt might justly be look'd upon as too rash a Presumption. All that ought to be expected, and all that I shall endeavour is this; to shew, that as far as is known of that Original Earth, its Properties were as peculiarly fit for, as those opposite ones of the succeeding are capable of, such a Production of Animals at first, as this Proposition takes notice of; which the Five following Particulars shall include. (1.) The long and con-Hypoth.3. tinued Spaces of Day and Night in the Primitive Priùs. State did capacitate it for fuch Productions; which the quick Returns of the same afterward prohibited. 'Twill be easily granted, that in

the Generation of Animals, there must be a pretty constant and continual Warmth, without the frequent Interpolition of Cold during the most part of the Process. Now this the long Days of nine or ten Months afforded these primary Embryo's; which the short ones of only twelve small Hours, and the fudden and frequent Returns of equal Nights, has utterly deny'd to any fuch ever fince. (2.) The Primitive Earth was moist and juicy enough to supply Nourishment all the Time of the Generation of the Fatus; which, after it was once become perfectly dry and folid, was not again to be expected. It was before observ'd, that upon the Descent of the vast Quantities of Vapours on the third Day, the Ground was fo tender, foft, and full of Juices, as very naturally answered to what all Antiquity made the Fund and Promptuary of the rifing Plants and Animals, the famous 'Inde. And as that was but a necessary Qualification of a Soil which was to produce Animals, fo the want of it ever fince has taken away all Hopes of a like Propagation. (3.) The Primitive State of the Earth and Air, where the Animals were produc'd, had Heat fufficient for that Purpose, which the subsequent has not. 'Tis evident that a greater Heat than the present Earth or ambient Air can afford, is requisite to, and made use of in the prefent Generation of Animals, (which the Incubation in the Oviparous, and the still warmer Position of the Fatus in the Viviparous Animals affure us of:) On which Account the prefent Earth must needs be incapable of their Production. But that the Heat in the Primitive Earth, and particularly where the Animals were produc'd, was much greater, will thus appear. As to the Heat from the Central Body, while the

Solut. 7. priùs.

the Earth was somewhat loose, and pretty freely admitted the afcending Steams, that would be confiderably greater than after its more entire Confolidation, when these Steams were thereby fo much confin'd within, or diverted to fome particular Receptacles. Besides the Production of Animals was near Paradife, and, I suppose, no where else. Now those middle Regions, (of which Eden, the Country of Paradife, was one) Hypoth 4. being situate near the ancient Ecliptick, and priùs. present Tropick, (of which before) enjoy'd also a greater Heat from the same Central Body, by reason of their greater Nearness thereto, than fince, they, or the corresponding Parts of the Torrid Zone do, or can partake of. For fince the Earth was then perfectly Spherical, the mid-Lem. 70, dle, and their neighbouring Parts, were about 1571. cum or 16 Miles nearer the Central Solid than the Corol. fame Regions now are: (They being in that priùs. Proportion elevated, and the Circumpopular depress'd at the commencing of the Diurnal Rotation:) Which greater Vicinity of the Central Heat must certainly have a suitable Effect, and cause somewhat warmer Regions thereabouts than they have been ever fince. Moreover, if the real proper Heat of the Central Solid be in any confiderable Proportion diminish'd in near 6000 Years Time, (as in some Proportion it must be) that Degree of Heat which it had at first, was still the most powerful of all other ever fince. But then as to the Solar Heat, 'tis evident that Paradife, situate near the very Ecliptick it felf, must receive almost the utmost Power of the same Heat which any part of the Globe were capable of, which by lying beyond the Tropick afterward it would not do. On all which Accounts join'd together,'tis evident that the Heat

Ff2

in the Primitive State was much more confiderable, and fo much more adapted to the Generation of Animals than that in the subsequent Phænom. ever was or can possibly be. (4.) The Primi-41. priùs. tive State was perfectly still and calm; free from all fuch Winds, Storms, violent Tides, or any the like Hurries and Diforders as at prefent wholly render the Production of Animals impossible: Which quiet Condition, if in some respects it endur'd till the Deluge, yet, as even in those the Paradifiacal State might have the Pre-eminence;

Solut. 19. Tides, it had still the most peculiar Advantage; priùs.

as was before observ'd. (5.) The Equability of Seafons, and the greater Uniformity of the Phænom. Air's Temperature, which in part remain'd till 38. priùs. the Deluge, but might be more fignal in the Paradifiacal State, render'd that Earth as proper, as the contrary fudden, uncertain, and violent Extremes of Heat and Cold, Drought and Moisture, fultry and frosty Weather now, wholly indispose it, for such a Production of Animals. Which Prerogatives of the Primitive Earth and Air will certainly demonstrate, if not its entire Fitness, yet fure its less Unfitness for such an original Generation as was here to be accounted for; and is all, as was before observ'd, that can justly be requir'd and expected in the present cafe.

fo in others, particularly the Gentleness of the

So'ut. 2. prilis.

Corollary. Since it has been before allow'd that all Generation is but Nutrition; and that all Seeds, as well of Animals, as of Plants, are the immediate Workmanship of God; 'tis evident that this Supposition of the original Production of Animals out of the Waters and Earth; according to the plainest Letter of the Mosaick History, does by no means derogate from the Divine Efficiency, and the wonderful

derful Art and Skill into the Structure of their Bo-See Dr. dies; nor in the least favour that ungrounded and Bentley's pernicious Opinion of the Equivocal or Spontaneous Generation of any of them.

WXIV. The Constitution of Man in his Primitive State was very different from that ever fince the Fall; not only as to the Temper and Perfections of his Soul, but as to the Nature and Disposition of his Body also.

XXIV. The Book of Genesis affords us so short a History of this Primitive Stage of the World, and of the Constitution of Man therein; and all other Histories are so inconsiderable in this respect, that a particular Account of all things relating to this Proposition is by no means to be expected. 'Tis in general sufficient, that we Lem. 73. have, from Sacred and Prophane Authority, cum Coevinc'd the State of External Nature to haveroll. & been mighty different from the present; and Hypoth.3. that consequently the State of Man, even on Priùs. Philosophical Confiderations, ought to be suppos'd equally different from the present also. And 'tis fo highly unreasonable from meer Obfervations made now to pass a Censure on what was done then; and from the frail, imperfect, finful, and miserable Condition of human Nature in our Days, to judge of the same in its State of Innocence, Perfection and Felicity; or from the Circumstances it is in at present, to determine those it must at that Time have been in; that nothing can be more fo. might almost as well argue, that Angels eat and drink, fleep and wake, work and reft, because We do so; or that the Infant in the Womb fees and hears, talks and difcourfes, reads and writes, because afterward He commonly does the same things; as that because We have Ff3 need

need of Cloathing to cover our Shame, and have inflexible, robust, and in a certain Time corruptible Temperaments of Body, therefore fo had our Primitive Parents in the State of Innocency. But to speak somewhat more distinctly to those two Particulars included under this Proposition. (1.) That in the Actions relating to the Propagation of the Species, there should be no Sense of Shame, and consequently no Occasion for covering such Parts as were therein concern'd, is by no means strange, in a State of Innocence; where there was no Inclination to any finful Kind or Degree of Application, and where all fuch Inferior Appetites were in compleat Subjection to the Superior, the Reason and Conscience of Man. 'Tis rather an evident Token of our Guilt, a Demonstration of the Disorder and Pollution of our Nature and Faculties now, that what in permitted Circumstances, is innocent and natural in it felf, nay necessary for the Propagation of the Species, and the Prefervation of Mankind, should make us blush: 'Tis a plain Note of the Vileness of our present State, a Mark of the Baseness of our Condition now, that what God and Nature have ordain'd for the Continuation of the World, should yet inevitably feem to have fomething of Indecency and Turpitude adhering to it: So far, that meer Bashfulness and Modesty oblige us to conceal and pass over in Silence all that belongs thereto. It indeed might more reasonably be made a Query, why the Covering of our Nakedness has been fo general, and is fo necessary now, (as it has justly by all Ages and Nations been esteem'd,) than why it was otherwise in this Primitive State of the World. (2.) That the use of one fort of Food (that of the Tree of Life) might be capable

pable of fixing and fettling the Temper of a human Body, of rendring it fo lasting, that, while its earthly Condition was to continue, it might never be dissolv'd; and that the Use of a contrary fort of Food, (that of the Tree of Knowledge of Good and Evil,) might be capable of fo far corrupting and difordering the fame, that it would become subject to Sickness, Misery, and Dissolution in a shorter Space, is, I think, even by what we at present see, by no means incredible. We cannot but observe how great a Change a Course of Diet, moderate, wholefome, and agreeable, will make in our prefent Temperament for the better; and on the contrary, how far an intemperate, and immoderate Indulgence of our Appetites, either as to the Kinds or Quantities of our Meats and Drinks, tho' but for a few Weeks or Months, will do the fame for the worse; even to the spoiling and destroying of a very good Habit of Body, to the depriving Men of their Healths, nay frequently of their Lives too by a violent Disease. If we therefore, to take the narrowest Supposition, imagine the eating of that pernicious and forbidden Fruit to have been confin'd to one Day or Year of this Primitive State, (which yet there is no Necessity of doing;) 'twill be no harsh or incredible Supposal; especially, if we consider what has been faid of the present State of Things, and how much more the Temper of our first Parents Bodies, and the particular Food on which they fed, might be peculiarly fitted for the same Purposes; that the intemperate Indulgence of a very pestilent Course of Diet for so many Months together might break and pervert the well-temper'd Constitutions of our first Parents, might render their Bodies liable to such Distempers Ff4 Fail-y

Distempers as in Length of Time would disfolve, and entirely overthrow them; or, in other Words, would render Mankind fickly, miserable, and mortal Creatures for ever after. Which is, I think, enough to clear the Proposition before us, so far as a bare Physical Theory is concern'd therein.

XXV. The Female was then very different from what she is now; particularly the was in a State of greater Equality with the Male, and little more fubject to Sorrow in the Propagation of Posterity than he.

XXV. That the original State and Circumstances of the Female, should be as they are here represented, is so far from being strange, that the contrary ones of that Sex at prefent, were not the Occasion thereof known, might much more justly appear so. For granting the Equality of human Souls in themselves, 'tis not very eafy to give a good reason, why that Part which one half of Mankind was to bear in the Propagation of it, should subject it to such a low Condition, great Weakness of Nature, and those severe Pains and Agonies which did not at all affect the other; as God and Nature have at prefent made unavoidable. And as to the Change of her Name after the Fall, from Adamab and Gen. v. 2. Ishshab to Eve (which latter seems to denote her and ii. 23, Capacity then attain'd of becoming the Mother of all those Generations of Mankind which were afterward to live on the Face of the Earth,) it may probably intimate, (to omit any other Obfervations that might be made on it,) some Change in the Method or Circumstances concerning human Generation. And if we confider, that Adam and his Wife were no inconfiderable Time in Paradise together, even after the Bleffing of Increase and Multiply, before their Fall's

24. with M. Y. 20. Fall; and carefully consider the Texts quoted in Gen.ii.25. the Margin, and that Part of the ancient Tradi-and iii.7, tion in Plato which is quoted under the 23^d Phæ-10, 11. nomena foregoing, we shall perhaps believe 'tis and iv. 1. no improbable Conjecture.

XXVI. The other Terrestrial Animals were in a State of greater Capacities and Operations; nearer approaching to Reason and Discourse; and Partakers of higher Degrees of Persection and Happiness, than they have been ever since.

XXVI. Since the Primitive State of external Nature was fo exceeding different from the prefent, as has been already prov'd; the other Terrestrial Animals, as well as Man, ought to be suppos'd of a somewhat proportionably different Temper, Abilities and Actions. Besides, the Divine Providence is concern'd to fuit one Being to another; and to accommodate still the Subordinate, to the Superior Rank of Creatures in the World: On which Account 'tis not strange, that the Brute Animals were in their Primitive Constitution very much diftinguish'd from, and advanc'd above fuch as are now upon the Earth; the Diversity with relation to Mankind, to whom in each Period they were to be subservient, being so very remarkable. For fince Mankind upon the Fall degenerated into a fenfual and brutish Way of Living, the brute Creatures themselves would very unwillingly have paid their due Homage and Submission, had not they in some degree degenerated from their Primitive Dignity at the same Time. Which Degeneracy being suppos'd, a former greater degree of Abilities, Operations, and Happiness is at the same Time suppos'd also. And to strengthen this Conjecture, I may venture to appeal to Anatomy, whether the present Bodies of Brutes do not appear capable, as far as can be discover'd,

discover'd, of nobler Operations, than we ever now observe from them. The Advantage even of Mankind in this respect seeming not very considerable over the Brutes that perish.

XXVII. The Temper of the Air, where our first Parents liv'd, was warmer, and the Heat greater before the Fall than fince.

XXVII. This has been already accounted for in the Twenty third Proposition before.

XXVIII. Those Regions of the Earth where our first Parents were plac'd, were productive of better and more useful Vegetables, with less Labour and Tillage than they have been since.

XXVIII. That we may account for this Proposition, and that Curse which was inflicted on the Ground at the Fall, in good Measure included therein; we must observe, that the Growth of Plants and Vegetables depends on a degree of Heat proportionate to the peculiar Temper and Exigence of each Species; and by Confequence that, let the Number of Seeds in any Soil be never fo many, or their Kinds never fo diverse, yet the Surface of the Earth must remain bare and barren, until the peculiar Heat of the Season and Climate be adapted to them: Now feeing different Kinds of Seeds require different degrees of Heat, 'tis only fuch certain Kinds of the fame that will at once shew themfelves, or spring out of the Earth; the rest, to which the Heat is not adjusted, lying all the while as Dormant and Dead, as if they did not really exist in Nature. Thus we have several distinct Crops of Vegetables in the several Seafons of the Year. Those Seeds which the small Heat of February and March is not able to raife, lie still in the Earth, till the greater Force of the

Sun

agree-

Sun in April and May excite them. In like manner feveral others, which are too crass and unpliable for the moderate Warmth of the Spring, are by the yet greater Intenfeness of the Heat in June, July and August, rais'd from their Seats, and oblig'd to shoot forth and difplay themselves. Nay, when in the Months of September and October the Sun's Power is diminish'd, and its Heat but about equivalent to that of March and April, it again fuits the Plants which were then in Season; so that they many of them spring up afresh in these Months, and flourish over anew, as before they did in those; as Dr. Woodward very well discourses upon this Estay, p. Occasion. In like manner we may also consider 267, &c. this matter with relation to the different Climates and Zones of the Earth, and their quite different Crops of Plants, according to those different degrees of Heat made use of in their Vegetation. When therefore we observe in the same Country a various Crop and Order of Vegetables every Year, according to the various Power of Heat in each Season; (a different Face of the Earth being gradually visible from February till July, in Proportion to the gradual Increase of Heat all that Space;) we cannot tell, in case the Heat increas'd still to a greater Intenseness afterward, but a new and unfeen Face of Things might still appear; and many unheard-of Kinds of Vegetables might put forth, and expose themfelves to our Observation, even in the present State and Age of the World. But as to the Primitive World, wherein all the Seeds of those Vegetables which God originally Created were fresh and vegetous, and wherein there was a greater Heat than fince has been to invigorate and produce them; 'tis very reasonable, and very

ering.

agreeable to Nature to suppose, that many forts of Trees, Plants, Herbs and Flowers, which the colder Temper of the subsequent Earth was unable to excite and produce, were then every Year rais'd, and became the principal Recreation and Sustenance of our first Parents in the State of Innocency. 'Tis very probable they might never fee fuch a poor, jejune, and degenerate State of the Vegetable Kingdom as we fince have done, till their unhappy Fall occasion'd the Introduction of that miserable Condition of all Things which has ever fince continu'd among us. Thus as one Country or Climate, because of its greater Coldness, is now the Seminary of several Vegetables which the warmer Regions are either perfect Strangers to, or advanc'd to a greater degree of Perfection; so upon the Degeneracy of the Primeval State into the present, and the Abatement of the ancient Heat (taken together with the worfe Juices and other Effects of that Abatement contributary perhaps to the fame thing) 'tis natural to allow that feveral fuch Vegetables (suppose Thorns and Thistles) which were before either perfect Strangers to, or had been advanc'd to a greater degree of Perfection by the Juices and Warmth of Paradife, became the constant and troublesome Heirlooms there; to the no little Regret of our first Parents; who till then had only feen and enjoy'd the better Set of the Primogenial Vegetables. And if we confider withal, that a main Intention of the Toil, Tillage, and Manure of the Husbandman, which, now the Sabbatical Year of Rest for the Land was over, Adam must enter upon, feems to be defign'd to enspirit and envigorate the too cold and unactive Soil with warm and active Particles, we shall not be unwilling to grant, that those Labours of the Husbandman, on this,

Day

this, as well as on several other Accounts which might be mention'd, must have been in the Primitive State very facile and easy, in Comparison of those which are necessary in the present State.

Scholium. 'Twill be here, I imagine, not improper to remind the Reader once for all of the Nature and Effects of that extraordinary Change, which the Fall of Man, and the confequent Curfe of God brought upon the Earth: That he may with the greater Ease, of his own Accord, view and compare the States of external Nature before and after the Fall one with another, and with those things which the Propositions we are now upon do affert concerning them. 'Tis evident then, from what has been before laid down hereto relating, that the Primitive State of Things before the Fall was thus: The Earth, being Lem. 70, newly form'd, was fcarcely as yet entirely con- &c. and folidated, and fo pretty uniformly pervious to Hypoth.3. the warm Steams afcending from beneath. Its priùs. Figure was perfectly Spherical, and its Strata or Layers by Consequence were even, continu'd, and join'd; and fo the Central Heat, being equally distant from all the Parts of the Earth's Surface, did very equally diffuse it self, and equally affect all the Climates of the Globe. The Soil or uppermost Stratum of the Earth was newly moisten'd by the Descent of the Waters, before they compos'd the Seas on the third Day of the Creation, and by the Plenty of Moisture which it still receiv'd every Night. The Air was perfectly clear, homogeneous, transparent, and susceptive of the utmost Power of the Solar Heat. The Seafons were equable, or gently and gradually diftinguish'd from one another, by the Rifing, Setting, Descending and Ascending Sun, without any quick Interpolitions of

Day and Night to diffurb them. The Torrid Zone of the Earth, as I may call those Regions near the Solar Courfe, was very much expos'd to the Sun, and fomewhat more warm'd withal by its greater Nearness to the Central Solid. The Moon in twelve or more Revolutions equally meafured out the Year, and caus'd the most gentle, eafy, and gradual Tides imaginable. This with all its natural Consequents, was the State of the Primitive World. But as foon as Man had finn'd, and render'd that happy State too good for him, or indeed render'd himfelf wholly uncapable thereof; and as foon as God Almighty had pronounced a Curse on the Ground, and its Productions, prefently the Earth began a new and strange Motion, and revolv'd from West to East on its own Axis: A fingle Nux 9 nuegov, or Revolution of Night and Day, return'd frequently, and became no longer than 24 short Hours; while the Annual Motion, perform'd on a different Axis, diftinguish'd the Seasons; and in Conjunction with the Diurnal, describ'd the Equator, and the Tropicks; and by the Access and Recess of the Sun from the last named Circles, caus'd it to visit the several Regions enclos'd thereby. The Face of the Earth was really diftinguish'd into Zones, by the Tropicks and Polar Circles, truly divided from one another; with respect whereto the particular Regions of the Earth chang'd their Situation; the Equator being that Circle with regard whereto they were now to be determin'd, as they had been before with regard to the Ecliptick; and fo that Paradife which was before near the Middle or Ecliptick was now beyond the Northern Tropick or Boundary of the Torrid Zone. The Figure of the Earth, which was before truly Spherical, degenerated into an Oblate

Oblate Spheroid; the Torrid Zone rising about 15 or 16 Miles upward, and the Frigid one subsiding as much downwards. The Compages of the Upper Earth, and of its Strata, became thereby chap'd, broken and divided, and so carried up the warm Steams from beneath, to particular Receptacles and Volcano's, which before ferv'd in a more equal and uniform manner to heat and invigorate the entire Earth and its Productions. The Tides, laftly, became frequenter, and fo more fudden and violent than before. Which short Summary or Scheme of the States of Nature in our Hypothesis before and after the Fall, ought to be all along born in mind, and reflected on, in order to the passing a right Judgment on the Accounts of those Phanomena, in the Solution whereof we are now engag'd: and which otherwise might feem very odd and unaccountable to the Reader. Which being thus dispatch'd, I proceed.

XXIX. The Primitive Earth was not equally Paradifiacal all over. The Garden of Eden or Paradife being a peculiarly fruitful and happy Soil, and particularly furnish'd with the Necessaries and Delights of an innocent and blessed Life, above the other Regions of the Earth.

XXIX. That all the Primitive Earth could not be equally Paradifiacal, and enjoy the fame Privileges and Conveniences beyond the prefent, is eafily prov'd. For feeing one of its principal Causes of Fertility, and other Prerogatives, was the greater Degree of Heat at the Paradisiacal Regions; the Climates near the Solar Course being alone capable of such greater Heat, must be alone capable of its Effects also; and consequently, we are to confine our Enquiries for the Garden of Eden to the Countries not very remote from the ancient Ecliptick. Now that

fome peculiar Spot or Region thereabouts might beyond all the rest, be fertile, pleasant, and paradifiacal, 'tis not difficult to suppose. At the present there is a mighty Variety in Countries in the very same Hemisphere, Climate, and Parallel. The particular Prerogatives of one Region beyond another do not entirely depend on the Sun, or the Vicinage of the Central Heat: But partly on the Nature and Temper of the Soil; the Kinds of Vegetables and Fossils thereto belonging; the Number, Qualities, and Conflux of Rivers; the Firmness or Looseness of the Inferior Strata, hindring, or freelier permitting the Afcent of the fubterraneous Steams, Juices, and Effluvia: From the Coincidence of which, and of other fuch things, in a peculiar and advantagious Manner, order'd and dispos'd on Purpose by the Divine Providence at the Mosaick Creation, the extraordinary Pleasantness and Felicity of this earthly Paradife, or Garden of Pleasure, is, I suppose to be deduc'd; and which being considered, will, I believe, be fufficient to give Satisfaction in the Proposition before us.

XXX. The ancient Paradife or Garden of Eden, the Seat of our first Parents in the State of Innocence, was about the North-West Bounds of Assiria, at the River Tigris and Euphrates; (for their Antediluvian Streams seem to have been united before they were come so far as Assiria:) a little below which Place they were parted into four Branches, and so ran into the great Southern Ocean, call'd by the Ancients the Red Sea, at four Outlets, at no small Distance from one another.

Hypoth.4. XXX. This Situation of Paradife has been already confider'd, and need not here be reaffum'd. Only we may observe, that no Scruples would ever have been rais'd about this Matter, in case the fore-mention'd Rivers had still been visible, their Course still agreeable to the Mosaick

Mosaick Description, and the Metals and Minerals mention'd of the adjoining Countries had been as evidently there to be found in ours, as they appear to have been in those Primitive Times. Seeing therefore the present Theory will so clearly affign the Cause of such Diversity, that every Reader will be oblig'd to grant it much harder to have accounted for the Phænomena of Paradife, confistently with the other Phanomena of Nature, if all things were now as they were at first, than almost any other of the Antediluvian World: I may justly hope, that this so disputed a Question of the Situation of the Garden of Eden, or Primitive Paradife, to those who embrace the other Parts of the Theory, will remain no longer fo, but be almost as fix'd and undoubted, as any other Country or Region with the same Exactness determin'd by Geography.

XXXI. The Earth in its Primitive State had only an Annual Motion about the Sun; but fince, it has a Diurnal Motion upon its own Axis also: Whereby a vast Difference arises in the several States of the World.

XXXI. This has been at large explain'd and Lem. 73. & Hypoth. 3. priùs.

XXXII. Upon the first commencing of this Diurnal Rotation after the Fall, its Axis was oblique to the Plane of the Ecliptick as it still is: Or in other Words, the present Vicissitudes of Seasons, Spring, Summer, Autumn and Winter, arising from the Sun's Access to, and Recess from the Tropicks have ever been since the Fall of Man.

XXXII. This has in some measure been insisted on already in the Hypothesis last mention'd,
and needs no other direct and positive Proof than
the present Obliquity of the Earth's Axis: It being evident, that without a miraculous Power,
the same Situation or Inclination which it had

G g

SOLUTIONS. Book IV.

Newt. originally, would and must invariably remain for all succeeding Ages.

354

-2011G . S

XXXIII. Since the Commencing of this diurnal Rotation, the inward and central Parts have not revolv'd quite so fast as the outward and superficial.

XXXIV. As a Confequence of the former it appears, that the Cause of the diurnal Rotation was some Force impressed on the outward and superficial Parts, and thence communicated to the inward.

XXXIII, XXXIV. The Solution of these two Phanomena, as well as the Phanomena themselves, has been explain'd in the III⁴ Hypothesis already, and need not here be repeated.

CHAP. III.

A Solution of the Phænomena relating to the Antediluvian State of the Earth.

XXXV. The Inhabitants of the Earth were before the Flood vastly more numerous than the present Earth either actually does, or perhaps is capable to maintain and supply.

ftrange, if we consider, (1.) The much greater Fertility of the Antediluvian Earth, to be presently accounted for; whereby it was capable of maintaining a much greater Number of Inhabitants than the present, even on the same Space of Ground. (2.) The Earth was more equally habitable all over before, than since the

1

tries,

the Deluge. For before the Acquisition of those heterogeneous Mixtures, which the Deluge occasion'd, and which I take to be the Causes of all our violent and pernicious Heat and Cold in the Torrid and Frigid Zones of our Earth; 'tis probable the Earth was pretty equally habitable all over, by reason of the somewhat greater Vicinage of the Central Heat to the Polar Regions, and the more direct Exposing of the middle Regions to that of the Sun. I do not mean that the Frigid Zones were equally hot with the Torrid; but that the Heat in the one, and the Cold in the other, were more kindly; and the Excesses of each much less considerable than at present, fince the Introduction of the before-mention'd Mixtures, and particularly of fuch fulphureous and nitrous Effluvia, as are now, I believe, become calorifick and frigorifick Particles in our Air, the main Occasions of the Violence and pernicious Qualities of the Heat and Cold thereof, and the most affecting to our Senses of all other. So that 'tis probable, before the Acquisition of these Adventitious Masses, the Antediluvian Air was every where sufficiently temperate to permit the comfortable Habitation of Mankind on all Parts of the Globe; and the Antediluvian Earth was by Confequence capable of many more Inhabitants than the present is, or can be; as every one will readily grant, who confiders how few Inhabitants, in comparison, three of the five Zones of our present . Earth do maintain. (3.) The dry Land or habitable Earth it felf was, by reason of the Absence of the entire Ocean, almost as large and capacious again as the present: For the Ocean, I think, takes up now at the least one half of the entire Globe; but then afforded as large, spacious, and habitable Coun-Gg 2

tries, as the other Parts of the Earth. (4.) The Mountains which are now generally bare and barren, were before the Deluge, fo far as they were fupply'd with Water, as fruitful as the Plains or Vallies; and by reason of a larger Surface, were capable of maintaining rather more Animals than the Plains on which they stand, would otherwise have been: The present Defect of a fruitful Soil being owing to the Deluge; and there being no good reason, that I know of, to be affign'd why, on a primary Formation, and in a calm and fill State of the Air, the higher Parts of the Earth should not be cover'd with a fruitful Soil or Mold, as well as the level or lower adjoining to them. All which Accounts taken together, will, I think, give fome reasonable Account of such vast Numbers of Inhabitants, as according to the Computation of this Proposition, the Antediluvian World was replenish'd withal.

Corollary 1. Since by very reasonable Computations of the Numbers of the Inhabitants of the Earth at the Deluge, according to the Hebrew or Samaritan Chronology, they appear to have been sufficient abundantly to replenish the entire Globe, and full as many as in reason the same could sustain; The Septuagints Addition of six or seven hundred Years in this Period of the World to the other Accounts, is so far from clearing Dissiculties thereto relating, that it greatly increases the same, and implies rather the Allowance of more Inhabitants at the Deluge, than we can at all tell where they could live and be main-

Coroll. 2. Since according to the old Hebrew or Samaritan Chronology from the Deluge till the Time of Abraham's going into Canaan, was the entire Space of 966 \(\frac{1}{2}\) Years, and the Lives of Men during

during that Interval were in a mean three hundred Years long; 'tis easy on the Grounds proceeded upon in this Phænomenon's Calculations to prove, That there is no need to recede from that Account, to produce the greatest Numbers of Men which in that, or the immediately succeeding Ages, any authentick Histories of those ancient Times do require us to suppose, and which I have conjectured at in a See Chronol Table belonging to this Matter elsewhere.

Coroll. 3. The Deluge which destroy'd the whole &c. Race of Mankind (those only in the Ark excepted) could not possibly be confin'd to one or more certain Regions of the Earth, but was, without question,

truly Universal.

Coroll. 4. Seeing it appears, That Mankind has had a gradual Increase, and that in less than Five Thousand Years, our Continent of Europe, Asia, and Africa, has been so entirely peopled from the Sons of Noah; and seeing withal America is much less in Extent, and, I suppose, generally speaking, was never so full of People: In case we suppose that Famines, Wars, Pestilences, and all such sad Destroyers of Mankind have equally afflicted the several Continents of the Earth; some Light might be afforded to the Peopling of America, and about what Age since the Deluge, the Americans past sirst from this Continent thither, if they do so pass; which a more nice Enquiry into the Particulars here to be consider'd might assist us in.

XXXVI. The Brute Animals, whether belonging to the Water or Land, were proportionably at least, more in Number before the Flood than they are since.

XXXVI. That Part of this Proposition which concerns the dry Land Animals, is sufficiently accounted for, by what has been discours'd under the last Head, which equally belongs to them as

Gg 3

to Mankind: And if we extend the other Part concerning the Fishes, to the Seas then in Being, and their comparative Plenitude, there will need no additional Solution. It being not to be supposed that the absolute Numbers of Fish before the Deluge, should be greater than at present, as the case was of the dry Land Animals; because the latter being universally destroy'd, (those in the Ark alone excepted,) were to begin their Propagation anew; but the former not being so, did but increase their still numerous Individuals, and must thereby soon recover and surpass their former Multitude; as will easily be allow'd on a little Consideration of the Mankey Consideration of the Consideration of the Mankey Consideration of the Consideration of

little Consideration of this Matter.

Corollary. Hence arises a strong Confirmation of what is on other Grounds already afferted, That there were only smaller Lakes and Seas, but no great Ocean before the Deluge. For since it appears by this Phænomenon, that the Waters of the Antediluvian Earth were much more replenish'd, nay, crowded with Fish than now they are; and since there was no general Destruction of them, as there was of the dry-Land Animals at the Deluge; had there been as great a Compass, or as vast an Ocean for their Reception then, as at present there is, the Numbers now in every part of the Ocean or Seas, ought to be vastly greater than they then were, as being all the Off-spring of those which every where surviv'd the Deluge, and which have propagated themselves for much more than four thousand Years since the same; which being disagreeable to the Observations referr'd to in this Phænomenon, is little less than a Demonstration of the Falshood of that Hypothesis on which 'tis built, or a full Attestation to our Assertion, that there were only smaller Lakes and Seas, but no great Ocean before the Deluge.

XXXVII. The Antediluvian Earth was much more fruitful than the present; and the Multitude of its vegetable Productions much greater.

XXXVII. Before I come directly to folve this and the following Propositions, I must premise, that 'tis usually unreasonable to ask, why such Phænomena belong'd to the Antediluvian World: They being commonly but the natural and regular Properties of an Original Earth, newly form'd out of a Chaos; fuch as one should rationally expect in a World newly come out of the Hands of its Creator, and fitted for the Convenience and Fruition of noble Creatures; fuch as the Generality of our Fellow Planets, (especially our next Neighbour, the Moon) as far as we can observe, appear to have had at first, and hitherto retain'd. All that can in Reason be desir'd, is this, To give a plain and intelligible Account of those opposite Phanomena of the Earth, which we now are sensible of, and by what means the Deluge could occasion the same. Which therefore shall be frequently the Business of the succeeding Solutions. And as to the present case, the Decrease of the Fertility of the Earth at the Deluge, these Causes are assignable: (1.) The Decrease of the Sun's Heat by the greater Distance of the Earth from him since, than before the Deluge. It has been before prov'd, that till the Deluge, the Earth's Orbit was Circular, and the Radius of that Circle in a manner the same with the nearest Distance at the Peribelion now: So that fince the Heat of the Sun is as the Denfity of his Rays, or at least reciprocally as the Squares of the Earth's Distance from him: If instead of the present Ellipsis we take for Calculations Sake, as we ought, a Circle in the middle between the nearest and farthest Distance, Gg 4

we shall find that the Sun's Heat on the Earth in general before the Deluge, was to its prefent Heat, as almost a hundred to ninety fix, or a twenty fifth part of his entire Heat greater before than fince the fame, which is by no means inconsiderable in the Case before us. (2.) The Heat of the Central Body was confiderably damp'd and obstructed, both by the Waters of the Deluge themselves, acquir'd from abroad, and now contain'd in the Pores and Caverns of the Earth under us; and by that Sediment of them which now composes that upper Crust of Earth we dwell upon, and which being fettled and confolidated on the Superficies of the ancient Earth, would prove a great Hindrance to the afcending Steams, not to be overcome but by Degrees, and in length of Time afterwards. From both which Caufes a very notable Damp would be put to the Influence of the Central Heat, on which, as well as on the Sun's, the Fertility of every Soil feems in part to depend. (3.) The upper Earth, or fruitful Soil it felf, the main Fund and Promptuary of the vegetable Kingdom, is now very inconfiderable in Quantity, if compar'd with that of the Primitive or Antediluvian Earth. For fince this last mention'd was the entire Product of the ancient Chaos, at the original Formation of the Earth; and the first, what only was afforded from a small Part of fuch a Chaos, or of the Comet's Atmosphere, and by the Storms born off the Tops of Mountains at and after the Deluge, while the old Soil lies buried under the Sediment or Crust on which we live; 'tis no Wonder that our fertile Stratum is now thinner spread, and so the Productions less copious in the present, than they were in the Antediluvian State of Things. And this, tho' we fuppose.

suppose the Soil from the Comet, or from the Tops of the Mountains, to be as good in it felf, and to have remain'd as pure and unmix'd with any heterogeneous Matter in this Confusion of Things at the Deluge, as it would at the regular Formation of the Earth at first; which yet is by no means supposable; and the contrary to which being allow'd for, will still farther afford us a Reason of the present Assertion. So that since the present Soil is both much worse in Quality, and much less in Quantity than the old one; and fince the Heat, whether of the Sun or Central Solid is fo much leffen'd at the Deluge, which Things include the main Causes of Fertility; 'tis no Wonder that the present Earth is nothing near fo fruitful and luxuriant in her Productions, as the Antediluvian was.

XXXVIII. The Temperature of the Antediluvian Air was more equable as to its different Climates, and its different Seafons; without fuch excessive and sudden Heat and Cold; without the scorching of a Torrid Zone, and of burning Summers; or the freezing of the Frigid Zones, and of piercing Winters; and without such sudden and violent Changes in the Climates or Seasons from one Extreme to another, as the present Air, to our Sorrow, is subject to.

XXXVIII. Seeing the primary State here mention'd, is but a proper Refult from the first Formation of the Earth; all that need be accounted for, is the Alteration at the Deluge. (1.) The see also mighty Difference of Climates, especially of the Philos. Torrid and Frigid Zones, is, I suppose, owing Transact not only to the Sun's Heat, or the Nature of No. 203-the Air it self, but partly to those calorifick and 880, frigorifick Mixtures, which are uncertainly contain'd therein. Meer Heat and Cold are very different Things from that pothery and sultry, that frosty and congealing Weather, which alternately

ternately in Summer and Winter, at the Line and the Poles we usually now feel. These Effects feem plainly deriv'd from nitrous or fulphureous, or other the like Steams exhaled into, mix'd with, and fustained by that thick and gross Atmosphere which now encompasses the Earth. All which I mean, as well the gross Atmosphere it self, as those its heterogeneous Mixtures, are a very natural Off-spring of the Deluge, according to the present Account thereof. For feeing we at that Time pass'd clear through the Chaotick Atmosphere of a Comet, we must needs bear off, and acquire vast Quantities of such heterogeneous and indigested Masses, as our Air now contains in it; whence those Effects here mention'd would naturally proceed. 'Tis probable the original Air was too pure, rare, and thin, to fustain any gross and earthy Particles, tho' they had been left in it at the first, and so its Heat both for kind and degree, was no other than the proper Place and Influence of the Sun could require: And 'twas then fure more uniform through the feveral Climates of the Earth than now it is; when our Air in the Torrid Zone, being full of fulphureous and fultry, and in the Frigid ones of nitrous and freezing Effluvia or Exhalations, the Violence of an unkindly Heat in the one, and of the like unkindly Cold in the other, are so fensible, and so pernicious, as all Experience attests them now to be. (2.) The Uncertainty of our Seasons, with the sudden and unexpected Changes in the Temper of our Air, are on the same Accounts equally visible with the former. For the Temper of the Air since the Deluge, especially with regard to our Sensations, not refulting from the external Heat only, but from the Kinds and Quantities of its heterogeneous and

and adventitious Mixtures, will not now depend on the Season of the Year alone, but on the veering of the Wind, and its uncertain Removal of the Air with its Steams from one Region to another. Thus if in Summer the North Wind chance to blow any long Time together, 'twill bring along with the Air fo great Quantities of the cold, freezing, nitrous Steams, as may quite overcome the Sun's Heat, and cause a very cold Season of a sudden; if the South Wind do the like in the Winter, the contrary Effect will follow, and we shall have a warm Season when Frost and Snow were more naturally to be expected. Thus, accordingly, frequent Experience shews the Sun to be so little Master of the Seafons of the Year, that sometimes January and July for several Days are hardly distinguishable. It fometimes happens, that we have this Day a Frost, the next proves so warm, that the former Cold is forgotten, till perhaps the fucceeding Night puts us more affectingly in Mind of it again. Nay, in a very few Hours space a sultry and a freezing Air not feldom do fucceed each other, to the great Harm and Misery of Mankind, and of all their Fellow Animals in our prefent State; from which certainly we have good reafon to believe our happier Progenitors before the Deluge were entirely free. (3.) That our Seafons are fo extreme in their feveral Kinds, is eafy to be hence accounted for also. For were there no fulphureous or calorifick Steams in the Air, all pothery and fultry Weather, and fuch fort of Heat as chiefly affects our Bodies, would be quite avoided, and the great Increase thereof after the Summer Solftice, which arises, 'tis probable, in part from the Air's Retention of one Day's Heat, till the next augments it again, would in good meafure

measure cease among us. And the like is to be faid of the Cold in Winter, in all the respects before mention'd. The Original of all which Effects being so easily deducible from the present Account of the Deluge, 'tis no question but the Antediluvians might to their Comfort be wholly Strangers to them. Their Climates were not of fo very different Temper; their Seasons leisurely and gradual, entirely following the Solar Course; and their Summers and Winters not fo mighty different; at the most in the single Proportion of the Sun's Presence or Absence, direct or oblique Situation. In this equable State the Polar Inhabitants might with little Danger cut the Line, and the Ethiopians visit the Frigid Zone. In this Condition of the World, the peculiar Air of every Country went not far from Home, to disturb that of others: A few Days never made any sensible Alteration in the Temperature of the Air; and all that entire Spring or Autumn could do, would still leave the same pretty equable; to be fure very tolerable. On all which, and feveral other consequential Accounts, we have but too much reason to envy the ancient Happiness of our Forefathers, and to be sensible of that fatal and destructive Catastrophe, which the Wickedness of Mankind brought upon themselves, and all their Posterity to this very Day, at the Deluge we are now speaking of.

XXIX. The Constitution of the Antediluvian Air was thin, pure, subtile and homogeneous; without such gross Steams, Exhalations, nitrosulphureous, or other heterogeneous Mixtures, as occasion Coruscations, Meteors, Thunder, Lightning, with contagious and pestilential Insections, in our present Air; and have so very pernicious and fatal (tho' sometimes almost insensible) Effects in the World since the Deluge.

XXXIX. The Confideration of the foregoing Solution is sufficient to clear the present Phænomenon also; to which therefore the Reader is referr'd.

XL. The Antediluvian Air had no large, groß Masses of Vapours, or Clouds, hanging for long Seasons in the same. It had no great round Drops of Rain, descending in Multitudes together, which we call Showers: But the Ground was watered by gentle Mists or Vapours ascending in the Day, and descending, in great measure, again in the succeeding Night.

XL. This is also easily understood from what has been already faid. So rare, thin, pure, and fubtile an Air as the Antediluvian was, would scarce sustain such gross and heavy Masses, as the Clouds are: It would not precipitate the Superior Vapours upon the Inferior in such Quantities, and with fuch Violence, as is necessary to the Production of great round sensible Drops of Rain: It had no gross Steams to retain Heat after the Cause of it was gone, and the Sun set; and fo the Vapours which were rais'd in the Day, would descend again in the Night with the greatest Regularity and Gentleness. In all which respects the different Nature, Crassitude, and irregular Composition of our present gross Atmosphere, acquir'd at the Deluge from the Comets, in which fuch opake Masses as the Clouds, are frequently to be observ'd, must naturally admit and require those contrary Effects, which the present Proposition takes notice of, and were to be here accounted for.

XLI. The Antediluvian Air was free from violent Winds, Storms, and Agitations, with all their Effects on the Earth or Seas, which we cannot now but be fufficiently fensible of.

XLI. These Phanomena are such proper Con-

sequents of a Primitive Formation, and the Original of those opposite ones ever fince the Deluge fo naturally thence to be deriv'd, that there is no reason to imagine them to have been before. A Comet's Atmosphere is a very stormy Fluid, wherein Masses of opake Matter are continually hurried about, all manner of ways, in a very uncertain and violent manner. Seeing therefore we acquir'd at the Deluge so great a Quantity of the same Atmosphere, of which ours is now in part compos'd, 'tis impossible to expect any other State of things than fuch as this Phænomenon mentions, and was to be here accounted for.

Marg.

Gen. iii. 8. Corollary. Hence it appears, That the Wind of the Day, of which Moses makes mention at the Fall of Man, if it was considerable, was not a constant Phænomenon of the Earth, but peculiar to that time. And this is very agreeable to the Hypothesis before laid down of the Commencement of the Diurnal Rotation at the very day here mention'd; according to which a Wind must necessarily arise at that point of Time, tho' there were none before or after, till the Deluge. On that Beginning of the Diurnal Rotation, (1.) The Equatorial Regions would be elevated; the Polar depress'd, the Orb of Earth would be chapp'd and broken, and warm Steams burst out at the Fissures thereby produc'd; all which could scarce bappen without some Agitation of the Air. But, (2.) What is more certain, and more considerable, when the Terraqueous Globe began on a sudden to revolve from West to East, the Air could not presently accompany it, and so must cause a Wind from East to West; till receiving by degrees the Impression, it kept at last equal Pace therewith, and resting respectively, caused a constant Calm afterwards. Which Wind being therefore (from the Earth's

Earth's Velocity there) greatest towards the Equator and Tropicks, near the latter of which was the Place of Paradise, would be considerable enough, especially in a State otherwise still and calm, to be taken notice of by the sacred History; and be a kind of Relick or Footstep of the then Commencement of that Diurnal Rotation, which is so necessary to account for it, and has been from other Arguments already prov'd in its proper Place.

XLII. The Antediluvian Air had no Rain-Bow; as the present so frequently has.

XLII. This is eafily accountable from what has been already faid. For, (1.) The Descent of the Vapours necessary to it was usually, if not only in the Night, when the Absence of the Sun rendred its Appearance impossible. (2.) The descending Vapours compos'd only a gentle Mist, not sensible round Drops of Rain, as we have before feen, on which yet the Rain-Bow entirely depends; as those who understand the Nature and Generation thereof will eafily confess. So that tho' the Sun were above the Horizon at the Fall of the Vapours, the Appearance of the Rain-Bow was not to be expected. (3.) Were the Vapours that fell compos'd of sensible round Drops, and fell in the Day-time, and this in sufficient Quantities, yet for want of a Wind which might drive them together on one fide, and thereby clear the Air on the other, for the free Admission of the Rays of Light, a Rain-Bow were feldom or never to be suppos'd before the Deluge; all which Circumstances being now quite otherwise, give us clear Reasons for the present frequent Appearance of that beautiful and remarkable Phænomenon, tho' till the Deluge, it was a perfeet Stranger to the World.

XLIII. The Antediluvians might only eat Vegetables; but the Use of Flesh after the Flood was freely allow'd also.

XLIII. That a State of Nature as to the Air, Earth, Fruits, and other Circumstances so very different from ours at present, should require a fuitable Difference in the Food and Sustenance of Mankind, is very reasonable to believe. But besides, (1.) When the Lives of Animals were naturally fo long, (as in Correspondence to Mankind is fairly to be suppos'd,) before the Deluge; 'tis not improbable that God Almighty would not permit them to be taken away on any other Occasion than that of Sacrifice or Oblation to himself. (2.) Perhaps in the tender and even Condition of the Antediluvians, the eating of Flesh would have spoil'd their Tempers, and shortned their Lives; such Food being, I suppose, fitter for our gross and shorter-liv'd State since the Flood, than that refin'd and lasting one before it. (3.) Perhaps the Antediluvian Vegetables were more juicy, nourishing, and wholesome, not only than Flesh, but than themselves have since been; which the better and more fertile Soil out of which they grew then, gives some reason to conjecture. And whether they had not then fome Vegetables which we have not now, may deserve the Consideration of such as search after their Remains in the Bowels of the Earth: The same Care of the Vegetable, as of the Animal Kingdom not appearing in the facred Hiftory relating to the Deluge. However, (4.) If we observe that even at this Day, the warm Seafons and Countries are less dispos'd to the eating of Flesh than the cold ones; and renember that the Antediluvian Air was in some degree MINIX

degree warmer than the present, we shall not be Solut. 37. wholly to seek for a particular Reason of this priùs. Phænomenon.

XLIV. The Lives of the Antediluvians were more univerfally equal, and vaftly longer than ours now are: Men before the Flood frequently approaching near to a thousand, which almost none now do to a hundred Years of Age.

XLIV. Tho' feveral other things might here deferve to be consider'd, yet I shall only insist upon the Difference between the Antediluvian Air, and that fince the Flood, to give an Account of this Proposition. The Consideration of the pure, unmixed, equable, and gentle Constitution of the former; compar'd with the gross, thick, heterogeneous, mutable, and violent Condition of the latter, of it felf affording a sufficient Solution of this Difficulty. That Air which is drawn in every Breath; whose included Particles, 'tis probable, infinuate themselves continually into our Blood, and the other Fluids of our Bodies, and on which all Experience shews human Life and Health exceedingly to depend; being at the Deluge chang'd from a rare and thin, to a thick and gross Consistence; from an Equability or gradual and gentle Warmth and Coolness of Temperature, to Extremity of Heat and Cold; and that with the most sudden and irregular Steps from one to another: From true and pure Air, or an homogeneous elastical Fluid, to a mix'd and confused Compositum or Atmosphere, wherein all sorts of Effluvia, sulphureous, nitrous, mineral and metallick, &c. are contain'd. Which Circumstances, if there were no other, will, I imagine, give a fatisfactory Account of the mighty Difference as to the point of Longevity between the Hh AnteAntediluvians and those which ever fince have dwelt on the Face of the Earth. We may obtain some small and partial Resemblance of it in a Person who had liv'd many Years upon the Top of a high Mountain, above the Clouds and Steams of our Earth, and whose Temperament of Body was peculiarly dispos'd for so pure, thin, and undiffurb'd an Æther as there he enjoy'd; and afterward were confin'd to the most foggy, marshy, and stinking Part of the Hundreds in Essex, or of the Boggs in Ireland. What effect in Point of Life and Health fuch a Change must have on the Person before-mention'd, 'tis not difficult to imagine: And as eafy, on a like comparison of the Antediluvian Æther, and the present Atmosphere, to account for the Proposition before us; and shew as well why Men dye at all uncertain Periods of Years, and have, while they live, a precarious State of Health, with frequent Sicknesses; as why none reach any whit near the long Ages of those that before the Deluge continu'd in Health and Security for near a thousand Years together.

XLV. Tho' the Antediluvian Earth was not destitute of lesser Seas and Lakes, every where dispers'd on the Surface thereof; yet had it no Ocean, or large Receptacle of Water, separating one Continent from another, and covering so large a Portion of it as the present Earth has.

XLV. From the Original Formation of the Earth above describ'd, and its unequal Subsidence into the Abyss beneath, while in the mean Time vast Quantities of Vapours were sustain'd above, and afterwards let fall upon the Earth, its Surface would be unequal; its lowest Valleys fill'd with Water; and a truly Terraqueous Globe would arise. But these two plain Reasons may be assigned.

-2000 PL

fign'd why any great Ocean were not to be expected at the same Time. (1.) So vast and deep a Valley as the Ocean implies, is not in reason to be deriv'd from such a regular Formation of the Earth from a Chaos, as we have above describ'd. No good reason being assignable, why in fuch a confus'd Mixture as we call a Chaos, the Parts should be so strangely dispos'd, that on one fide, all the upper Orb for some Scores of Degrees, and some thousands of Miles together, should be denser and heavier than the rest, and by its finking deepest into the Abyss, produce the vast Channel of the Ocean; while on the other fide the same Orb, for as many Degrees and Miles, should be universally rare and light enough to be very much extant, and compose a mighty Continent, as the case is in our present Earth. Tho' the Atmosphere of a Comet be so truly heterogeneous, and its opake or earthy Masses so unequally scatter'd abroad on the different sides thereof, as even, setting aside the Inequality of the Density and Specifick Gravity of the feveral Columns, might compose an Orb of different Thickness or Crassitude, and so cause an unequal Orb on the Face of the Abyss, like that we before suppos'd it originally to have been; yet fo mighty an Inequality, as the present Division of the Earth into an Ocean and Continents, must suppose, is by no means to be allow'd in the primitive Chaos; nor would, I suppose, by any be afferted, if the Generation of those grand Divisions of our Globe were otherwise accountable: Which on our Principles being fo eafily done, as will foon appear, no Reafon can plead here for their primitive Introduction. And fure those Agitations and Motions of Parts visible in some fort now in Comets Atmospheres, and to Hh 2

be however granted in the Digestion of its Parts at first, must mix and jumble the Parts together to a degree sufficient to prevent so strange an Inequality, as the original Existence of the Ocean and Continents must needs imply. However, (2.) A main part of the Quantity of Water preserv'd above Ground was no other, as we have shew'd, than what the Air at once was able to sustain, during 9 or 10 Months Space; the Day-time of the second Period of the Creation: Which how insufficient it must have been to the silling of the great Ocean, is easily understood. Which things consider'd, the Absence of the Ocean, as well as the Existence of Seas, is very easily accountable in the Antediluvian World.

CHAP. IV.

A Solution of the Phænomena relating to the Universal Deluge, and its Effects upon the Earth.

XLVI. In the fixteenth or feventeenth Century from the Creation, there happen'd a most extraordinary and prodigious Deluge of Waters upon the Earth.

XLVI. W Hatever Difficulties may hitherto have rendered this most noted Catastrophe of the Old World, that it was destroyed by Waters, very hard, if not wholly inexplicable without an Omnipotent Power, and miraculous Interposition: Since the Theory of Covid. Fig.:, mets, with their Atmospheres and Tails is difact, which is the covered, they must vanish of their own Accord.

For if we consider that a Comet appears to be no other than a Chaos; including the very fame Bodies, and Parts, of which our own Earth is compos'd; that the outward Regions of its Atmosphere are plain Vapours, or such a fort of Mists as we frequently see with us; and the Tail a Column of the same Vapours, rarified and expanded to a vaftly greater degree, as the Vapours which in the clearest Days or Nights our Air contains at present, are; and that withal fuch a Comet is capable of passing so close by the Body of the Earth as to involve it in its Atmosphere and Tail for some Time, and leave prodigious Quantities of the same condensed and expanded Vapours upon its Surface; we shall easily see that a Deluge of Waters is by no means an impossible Thing; and in Particular, that fuch an individual Deluge as to the Time, Quantity, and Circumstances which Moses describes, is no more so; but fully accountable that it might be, nay almost demonstrable that it really was. All which the Solutions following will, I think, give an easy and mechanical Account of.

XLVII. This prodigious Deluge of Waters was in part occasion'd by a most extraordinary and violent Rain, for the Space of forty Days and as many Nights, without Intermission.

XLVII. When the Earth passed clear through the Atmosphere and Tail of the Comet, in which it would remain for about two Hours (as from the Velocity of the Earth, and the Crassitude of the said Tail on Calculation does appear) it must acquire a large Cylindrical Column of Vapours, whose Basis were somewhat larger than one of the Earth's greatest Circles, and whose Altitude vid. Fig. 4. were equal to the Diameter of the Comet's Atmosphere.

mosphere. Which Vapours would be impeded from descending towards the Sun, by the Earth's Interposition and Reception of the same, and by the attractive Power of the Earth it self withal, and fo would fall down with great Violence upon its Surface. A great part of which being in a very rare and expanded Condition, after their primary Fall, would be immediately mounted upward into the Air, and afterward descend in violent and outragious Rains upon the Face of the Earth. All those Vapours which were rarer and lighter than that Air which is immediately contiguous to the Earth, must certainly afcend to fuch a height therein, where its Denfity and Specifick Gravity were correspondent (as far as that Croud of their fellow Vapours, with which the Air was oppress'd, would give leave;) and fo afterwards, as they cool'd, thicken'd, and were collected together, like our present Vapours must descend in most prodigious Showers of Rain for a long Time afterwards, and very naturally occasion that forty Days and forty Nights Rain mention'd in the Proposition before us. As to the sudden Condensation of the Vapours, from the Comet upon their first Fall, whether by the Air or Earth, which has been alledg'd against the Continuance of the 40 Days Rain; be it never so evident and universal, 'tis of small Consequence, since 'tis plain their own Heat must rarify vast Quantities of them again, and occasion their Elevation into the Air again immediately. And tho' it may still farther be urg'd, that in this case the first violent Fall would it felf, in an inftant do the Bufiness of the Deluge, without any occasion for these. great and longer Rains of 40 Days; yet the Anfwer is still easy, that though the primary violent

lent Fall of the Vapours were in less than a Day's Time, as has been shewn, yet because as many would immediately rise again as the Air could hold, here is a Fund abundantly sufficient for the most violent 40 Days Rain imaginable: And though the Vapours did originally fall in so short a Time, and with such Violence on that Hemisphere of the Earth exposed to them, as there to do the Business of the Deluge immediately, yet because the Regions near the Ark were not in that Hemisphere, their Deluge, with which we are principally concern'd, must arise from the 40 Days Rain succeeding, and from the flowing in of the Waters from those other Parts of the Earth on which they sirft fell.

XLVIII. This vast Quantity of Waters was not deriv'd from the Earth or Seas, as Rains constantly now are; but from some other superior and celestial Original.

XLVIII. This is already evident from what has been just now said: The Source of all these Rains being one of those superior or celestial Bodies which we call Comets; or more peculiarly the Atmosphere and Tail thereof.

XLIX. This vast Fall of Waters, or forty Days Rain, began on the fixth Day of the Week, or Friday the Twenty-eighth Day of November, according to the present Hebrew Chronology; or on Monday December the 2^d, according to the exacter Chronology: Being the Seventeenth Day of the Second Month from the Autumnal Equinox.

XLIX. This has been already explain'd in Hypoth. effect, in the Hypothesis hereto relating; where 11. priùs, it was prov'd, that a Comet on that very Day here nam'd pass'd by the Earth; and by Consequence began those Rains which for the succeeding forty Days Space continued without any Interruption.

Hh 4 L. The

L. The other main Cause of the Deluge, was the breaking up the Fountains of the great Abyls, or the caufing fuch Chaps and Fishures in the upper Earth, as might permit the Waters contain'd in the Bowels of it, when violently press'd and squeez'd upwards, to ascend, and fo add to the Quantity of those which the Rains produced.

Lem. 85, 86. priùs. Fig. 7.

L. This has in part been explain'd in the Lemmata hereto relating; and will be more fully understood from the Figure there also referr'd to. For let a d bc represent the Earth, moving along the Ecliptick GH, from G towards H. 'Tis evident that the Figure of the Earth before the Approach of the Comet, as far as 'tis here concern'd, was spherical. But now, let us suppose the Comet biDh (as it was descending towards its Peribelion, along its Trajectory EF, from E towards F) to approach very near, and arrive at the nearest Position, represented in the Figure. 'Tis evident that this Presence of the Comet would cause a double Tide, as well in the Seas above, as in the Abyss below. That in the Seas being less considerable in it self, and not to our present Purpose, need not be taken any farther notice of: But the other would be vaftly great, (suppose 5 or 6 Miles high above its former Pofition) would produce mighty Effects on the Orb above it, and fo deferves a nicer Confideration in this Place. As foon therefore as the Comet came pretty near, (as suppose within the Moon's Distance,) this double Tide would begin to rise, and increase all the Time of its Approach, till the Comet was nearest of all, as in the Figure. And then, or rather a little after, these Tides, or double Protuberances of the Abyss, would be at their utmost height. So that the Surface of the Abyss, and of its incumbent Orb of Earth, would put od That

on that Elliptick, or rather truly and exactly oval Figure, under which 'tis here represented. Lem. 85. Now, 'tis certain, that this spheroid Surface of pritis. the Abyss is larger than its former spherical one; 'tis also certain, that the Orb of Earth which rested on this Abyss must be oblig'd to follow its Figure, and accommodate it felf to this large Oval; which being impossible for it to do while it remain'd folid, continu'd, and conjoin'd, it must of Necessity enlarge it felf, and by the violent Force of the increasing Surface of the Abyss be ftretch'd, crack'd, broken, and have innumerable Fiffures made quite through it, from the upper to the under Surface thereof, nearly perpendicular to the same Surfaces; or rather the Tide must open and enlarge those Fissures which were first produc'd at the Commencement of the diurnal Rotation. So that this Orb of Earth, which originally, in its primary Formation, was spherical, its inward Compages or Strata even, conjoin'd and continual; which had afterward, at the Commencing of the diurnal Rotation, been chang'd into an oblate Spheroid, and at the fame time been thereby in a less degree broken, chap'd, and disjointed; by that Time its Wounds had been well healed, and it was in some measure settled, and fix'd in fuch a Condition, receiv'd this new Difruption at the Deluge. Its old Fissures were open'd, and the Fountains of the Abyss (most naturally and emphatically fo ftyl'd, according to Dr. Woodward's Account of the Origin of vid Effay, Fountains) broken up; and sufficient Gaps made Pa. 121, for a Communication between the Abyss below, &c. and and the Surface of the Earth above the fame, if Pa. 152. any occasion should be given for the Ascent of the former, or Descent of any thing from the latter. And here 'tis to be noted, that these Chaps and Fiffures.

Fiffures, though they were never fo many or fo open, could not of themselves raise any subterraneous Waters, nor contribute one jot to the drowning of the Earth, if the upper Orb had been long ago fettled, and funk as far into the Abyss as the Law of Hydrostaticks requir'd; and whether 'twere entire or broken, would cause no new Pressure; and no more than maintain its prior Situation on the Face of the Deep. Fissures had been in a less Degree open and extended in their Original Generation, when the Diurnal Rotation began, and there was no remarkable Deluge, and perhaps no Deluge at all: for tho' I suppose the lower Strata of the Earth were consolidated the first Day or Year of the Creation, and fo upon the Descent of the Terrestrial Matter could not fink so low as the Law of Hydrostaticks requir'd, and would therefore upon the original Opening of the Fissures attempt to raise the Waters, yet the pressing of this Quantity of earthy Matter of the second, and of the Waters too of the third Day, might not be fufficient to raise the subterraneous Waters high enough, fo as to cause them to iffue out at the very Tops of those Fiffures. So that the' this breaking up of the Fountains of the Deep was a prerequifite Condition, and absolutely necessary to the Ascent of the fubterraneous Waters, yet is it not to be esteem'd the principal Cause or Efficient thereof: That is to be deriv'd from another Original, and is as follows. As foon as the Prefence of the Comet had produc'd those vast Tides, or double Elevation and Depression of the Abyss, and thereby disjointed the Earth, and caus'd the beforemention'd patent Holes or Breaches quite through the Body of it, the Fall of Waters began, and quickly cover'd the Earth, and crouded the Air with.

with vast Quantities thereof: Which Waters being adventitious or additional ones, and of a prodigious Weight withal, must press downward with a mighty Force, and endeavour to fink the Orb of Earth deeper into the Abyss, according as the entire Weight of each Column of Earth, and its incumbent Water together, agreeably to the Law of Hydrostaticks, did now require. And Lem. 78, had the Earth at its first subsiding into the A-79 priùs. byfs, been loofe, separate, and unfix'd, so as to admit the Abyss between its Parts, and suffer a gentle Subfidence of the Columns of the Earth entirely in the requisite Proportion, we could scarce have expected any Elevation of the subterraneous Waters. But fince, as we have often observ'd, the lower Strata of the Earth were in good measure settled, fastened, and consolidated together before the upper were all form'd, the whole Compages would Archwise sustain it self much higher than the Law of Specifick Gravity would otherwise require; and so upon any Disruption of the upper Earth, its feveral Columns, as there was room, would fettle themselves lower than they were at first, and raise any Fluid contain'd in its Fissures upwards. And withal the new and vast Pressure of the additional Waters from the Comet upon the Orb of Earth would certainly force any Fluid towards the Surface, or any Way, wherefoever there were a Paffage for it: To which therefore the Breaches, Holes, and Fiffures fo newly generated, or rather opened afresh by the Violence of the Tides in the Abyss beneath, would be very ready and natural Outlets; through which it would afcend with a mighty Force, and carry up before it whatever was in its way, whether fluid or folid, whether 'twere Earth or Water. And feeing, as

Solut. 6.

we before faw, the lower Regions of the Earth were full of Water, pervading and replenishing the Pores and Interstices thereof; which Waters on the opening of the Fiffures would from all Sides ouze into, and fill up the inferior Parts of the same, and rest on the Face of the Abyss; the dense Fluid of the Abyss, in its violent Afcent through the Fissures, would carry before it, and throw out at the Tops of the faid Fiffures great Quantities of the same; and if its Force were any where fufficient, would cast it self also out at the same Passage; and by both or either ways would add to the Quantity of the Waters already on the Face of the Earth, and become a fresh Augmentation of that Deluge, which began already to overwhelm and destroy the Inhabitants thereof. For the better Apprehension of this Matter, let us imagine the following Experiment were made. Suppose a Cylinder of Stone or Marble fitted fo exactly to a hollow Cylindrical Veffel, that it may just ascend or descend freely within it: Let the Cylinder of Stone or Marble have small Holes bored quite through it, parallel to the Axis thereof: Let the Vessel be fill'd half full of Water; and the Cylinder, as gently as you please, be put into the Vessel, till it touch the Water: Let then each of the Holes through the Cylinder be fill'd in part with Oyl, or any other Fluid lighter than the Water, to fwim upon the Surface thereof: Things being thus provided, you have the very case of the Deluge before you; and what Effects you here, in a lesser degree, will observe, are but the Reprefentations of those greater and more remarkable ones of which we are now speaking. For as the Weight of the Cylinder pressing upon the Surface of the Water would squeeze the Oyl

Oyl upon its Surface through the Holes, and cast it out thereat with some Violence, and cast it felf too out at the same Passages, if the Holes were not too high, in comparison to the Quantity of the entire Pressure upon the Surface of the Water; just so the Weight of the Columns of Earth, augmented by the additional Waters of the Comet, would squeeze and press upon the Surface of the Abys; which being a fluid Mass Newt. p. and incapable of fustaining a Pressure in one 290, &c. Part, without equally communicating it to all the rest, any way whatsoever, must burst out where-ever fuch Pressure was wanting, and throw it felf up the Fissures; carrying up before it, and throwing out upon the Earth those Waters which, (like Oyl on the Water in the Experiment) lay upon its Surface, and cover'd the fame; and thereby increasing the Greatness of the Deluge, and having a Share in that Destruction which it brought upon the Earth. All which, I think, gives us a clear, eafy, and mechanical Account of this (hitherto inexplicable) Secondary Cause of the Deluge, the breaking up the Fountains of the great Deep, and thereat the elevating the fubterraneous Waters, and bringing them out upon the Face of the Earth. This, I say, would be the Case, if in the first Formation of Things, the lower Strata of the Columns of the Earth were consolidated, and could not admit the dense Fluid, or descend farther in it, before the upper Strata were form'd; although if that Confolidation had been deferr'd till all the Strata were compleated, as I at first suppos'd, no after-Elevation of the subterranean Fluids or Waters contain'd in the Fissures could obtain, as the Learned Dr. Keill has well prov'd. CorolCorollary 1. These Chaps or Fissures at the Deluge would commonly be the same with those at the commencing of the Diurnal Rotation: It being easier to break the Compages of the Earth where it had once been broken already, and was never united well again, than in other Places where it was entire and continued: And those Parts which sustain'd the Force at the former Convulsion, would almost as well sustain this, of which we are now speaking, and preserve their former Continuity, still as they did before the Flood.

Coroll. 2. Hence if these Fissures are the Occasion and Cause of Fountains, as Dr. Woodward very probably asserts, The Antediluvian and Postdiluvian Springs must be generally the very same; as arising from the same Original; so far as the Mutations at the Earth's Surface, to be afterward explain'd, would

permit and allow in the Cafe.

Coroll. 3. Since we have before shew'd, that the Mountainous Columns of the Earth are the loosest, the least compacted, and least solid of all others, the Earth would be the most subject to the Fissures and Breaches in those Parts, and the Generality of Springs and Rivers would now proceed from thence; unless the peculiar, stony, or other sirm Compages of the same, prevented the Effects here mention'd, as sometimes perhaps might happen in the present Case.

Coroll. 4. Hence 'tis evident, that there was no great Ocean, but only smaller Lakes and Seas before the Flood. For otherwise the Tide or Flux of the Ocean would have been so great and violent, as to have superseded almost all the Designs of the ensuing Deluge, and have withal, without a Miracle, extremely endanger'd, if not certainly destroy'd, the Ark, and all those Creatures which were entring into it: Which the smaller Tides in

the smaller Antediluvian Lakes and Seas would not considerably affect, or disturb.

LI. All these Fountains of the great Deep were broken up on the very first Day of the Deluge, or the very first Day when the Rains began.

LI. This is very easily understood from the Space of Time that the Comet was near the Earth. For the Duration of this Disruption, or breaking of the Orb of Earth, occasion'd by the Nearness of the Comet, must be commensurate thereto; which, tho' we should take in all the Space it was nearer than the Moon, could not possibly, as is easy to calculate, amount to nine Hours; which is indeed much more than need be allow'd; and is yet sufficiently within that Day's Space which this Phanomenon, if occasion were, could allow us to suppose; and so fully satisfies the same.

LII. Yet the very same Day, Noah, his Family, and all the Animals entred into the Ark.

LII. Tho' 'tis otherwise not a little strange that the Entry into the Ark should be deferr'd till this Day; yet 'tis clear and easy on the present Hypothesis. For as to the Fountains of the great Deep which were broken up this Day, thereby the Earth and its Continents were only gradually and insensibly elevated; but no other Disturbance given to Noah in his Entry into the Ark at the same Time. The Fissures indeed were now made, but till the Weight of the Waters from the Comet could operate, 'tis probable no Water would from thence arise to disturb him; and tho' they had, yet unless there were some of the great Fissures or Spouts just where he was, no Interruption could this Day be given him therefrom.

infrà.

Fig. 7.

As to the Rains themselves, tho' they all fell

first upon the Earth within the Compass of this Day, and so must cause a most prodigious Destruction and Confusion upon the Earth where they so fell; yet the peculiar Situation of China where the Ark was, lying fo much Eastward of the Centre of this Northern Continent, did fecure it. This Day, tho' fo outragious and destructive a one to the Inhabitants of the other Parts of the Globe, was yet here fair and calm, as at other times: Which is thus demonstrated. 'Tis evident that the Gordyean Mountains are fituated not very far from the Centre of our Northern Continent; or indeed fomewhat to the North-Solut. 69. West from the same; that is, as will hereafter appear, pretty near the Point b, or rather fomewhat above it; which Mountains were almost directly expos'd therefore to the Comet at its nearest Distance, represented in the Figure. When the Comet therefore was moving from E to F, fo foon as the Earth came within its Atmosphere and Tail, a Cylindrical Column of Vapours would be intercepted, and bore off by the Earth in its Paffage, whose Basis were somewhat larger than a great Circle of the Earth, and whose Direction or Axis, from the compound Motion of the Comet, and of the Earth, were at about 35 or 40 Degrees of Inclination with the Ecliptick, or not very different from the Polition of cd, the leffer Axis of the Earth; that is, the first Fall of the Vapours would only affect one Hemisphere of the Earth; that, namely, which were properly expos'd to their Descent; and the other would be not at all affected therewith. Now this Hemi-Sphere would be represented in the Figure by adb; and the opposite one, which entirely escap'd at the same time by a c b. So that seeing the

Ark.

Ark, or China, was much below the Point b; it would remain in the same during all the Time of this first violent Fall of the Waters, and have a calm and quiet Day for the Entry thereinto; while the other Regions of the Globe were subject to so violent a Storm, and such Fury of descending Vapours as no Age past or suture had been, or were to be exposed to. And consequently, Noah had as fair and calm a Time of entring into the Ark, with all his Family, and the other Animals, as could be desir'd; when no other Parts of the Globe, but those agreeing in such a peculiar Situation with him, could have permitted the same. Which is, I think, not a meer Satisfactory, but a very Surprizing Account of the

present Proposition.

Corollary 1. Hence the time of the breaking open of the Fountains of the Deep, and of the beginning of the Rains, very nearly coincident therewith, is determin'd; and that agreeably to the Mosaick History, much nearer than to a Day; (with which Exactness we have bitherto contented our selves in the Case.) And indeed to a few Hours; for feeing all the Fountains of the great Deep were broken up on this Day; seeing the forty Days Rain began on the same Day; seeing Noah, with all his Family, and all the other Creatures, entred on this self-same Day into the Ark; all which certainly require a great part of a Day, and yet seem very incompatible; there is no other way but to affert, that the' the breaking up of the Fountains of the Great Deep, and the Fall of the Waters, were coincident, and upon the same Day with the Entry into the Ark, as the Text most expresly afferts; yet the Place where the Ark was, escap'd the immediate Effects of the same; and while the rest of the Earth was abiding the Fury thereof, enjoy'd

joy'd so calm, fair, and undisturb'd a Day, as permitted their regular and orderly going into the Ark, before the Waters overtook them. Which how exactly the present Hypothesis is correspondent to, I shall leave the Reader to judge from what has been said under this last Proposition; according to which 'tis plain, that the Comet pass'd by the Earth, broke up the Fountains of the Deep, and began the forty Days Rain about Noon; at which Time, tho' the Waters fell with the greatest Violence on the Earth, yet they affected the opposite Hemisphere only: And this most nicely and wonderfully corresponds to the greatest Accuracy of the present Case, and of the Mosaick History. So that now we may, agreeably both to the sacred History, and the Calculations from the present Hypothesis, affert, that the Deluge began at the Meridian of Pekin in China, about Noon. Which Exactness of Solution, wherein not only the Day, but Time of the Day assign'd from the Mosaick History, is correspondent to the present Hypothesis, how remarkable an Attestation it is to the same, and how full a Confirmation of the most accurate Verity of the Mosaick History, I need not remark; such Reflections, when Just, being very Natural with every careful Reader.

Coroll. 2. Here is an Instance of the peculiar Providence of God in the Preservation of the Ark, by ordering the Situation of it, so as to escape the Violence of the thick Vapours in their first precipitate Fall, which otherwise must very probably have dash'd it to Pieces; for considering their Velocity of Motion, which indeed was prodigious, no less than about twelve hundred Miles in the Space of a Minute, 'tis not easy to suppose, that any Building could sustain and preserve it self under the Violence thereof; which we see the Ark, by the peculiar Place of its Situation, about suxty

sixty or seventy Degrees East from the Centre of our Northern Continent, was wonderfully secured from, while the other Regions of the Earth were expos'd thereto, and in great measure, 'tis probable,

destroy'd thereby.

Coroll. 3. Hence 'tis evident, That the Place of the Ark in China, at the Beginning of the Deluge, was its true one, and not any Mountain in or near Armenia, where at last it rested. For had it been there seated, it had been expos'd to the Violence of the falling Vapours, and instead of a quiet Entry thereinto on this first Day of the Deluge, the Ark it self, with all the Creatures that were to be preserved in it, would have entirely perish'd in the very beginning thereof.

LIII. The Waters of the Deluge increas'd by degrees five Months, till their utmost Height; and then decreas'd by degrees still longer, till they were clearly gone off the Face of the Earth.

LIII. While the 40 Days Rain continued, 'tis no Wonder that the Waters increased; nor is it any great Wonder they still increased afterward for a long Time, since the other Waters, which came thro' the Fountains of the Great Deep, must then send out their Streams fastest, when the former Waters were the heaviest, or at the end of the 40 Days Rain. Nor would these Streams be stopped, till by degrees the Columns of the upper Earth were settled sufficiently into the dense Fluid, to take off their great Pressure, which might not be till a long Time after the 40 Days Rain was over. This for the gradual Increase of the Waters: As to their gradual Decrease, that will be distinctly treated of hereaster.

LIV. The Waters of the Deluge were still, calm, free from Commotions, Storms, Winds, and Tempests of Ii 2

all forts, during the whole Time in which the Ark was affoat upon them.

Phænom-

LIV. It has already appear'd, that there were no Storms, Tempests, or other violent Commotions in the Antediluvian Air till the Deluge; and that during the Space here referr'd to, none would arise, 'tis but reasonable to allow. For, as to the first and principal Rain, it was, to be fure, so constant, so downright, and so uninterrupted, that no little Commotion in the Air could have Place; or if it had, could diffurb it, which is commonly the cafe of long and fettled Rains with us at this Day. And as to the fubterraneous Waters, ascending with some Violence, they were confin'd to several particular Places, and not univerfal; and tho' they might cause some Commotions at the Bottom of the Waters, yet might the Surface of the same, and the Air, be sufficiently calm and undifturb'd.

LV. Yet during the latter part of the Deluge, there was a confiderable Wind, if not Storms and Tempests alfo.

LV. Seeing at the end of the Flood, Storms were to be expected; and feeing yet the Ark, which had been afloat fo long, and was fo still, (the Waters being now at the very highest) was incapable of abiding a stormy Sea, as we prov'd under the former Phænomenon; there, at first View, appears the greatest Danger imaginable, of its perishing in the suture immoderate and extraordinary Commotions. And this Danger is increased by this Resection; that as probably it had been associated during the most Part of the 150 Days, while the Waters were gradually and gently augmenting; so one would imagine ought it to be, for at least as many Days, during the at least

least as gentle and gradual decrease of the same afterwards: i. e. The Ark ought to have been at least so long affoat in the stormy, as it had been in that calm Part of the Deluge. But this Difficulty, which is to Appearance fo infoluble, will foon vanish, if we consider that the Ark rested upon one of the Gordyean Mountains, the Vid. Solut. then highest in the World. For seeing the Wa-61. infrà. ters prevailed above the fame Mountain 15 Cu-Gen. vii. bits only, a great Part of which Depth of Water 20. would be drawn by the Ark it felf; upon the very first ceasing of the rise of the Waters from the Abyss beneath, which permitted the least Subfiding and Diminution of the Deluge, the Ark must immediately rest upon the Ground, and thereby fecure it felf from the impending Storms. And that accordingly it did so at the Time affign'd, on the Conclusion of the 150 Days, or the very fame individual Day when the Wind began, is particularly and expresly obferv'd and affirm'd by Moses: Which being a very remarkable Coincidence, exactly agreeable to the present Hypothesis, as well as to the facred History, and of very considerable Importance, I shall set down the Words at large, as follows:

The Waters prevailed upon the Earth an hundred Gen. vii. and fifty Days (viz. from the seventeenth of the ult. & viii. second, to the seventeenth of the seventh Month.) 1, 2, 3, 4. And God remembred Noah, and every living thing, and all the Cattle that was with him in the Ark:

And God made a Wind to pass over the Earth, and the Waters asswed. The Fountains also of the Deep, and the Windows of Heaven were stopped, and the Rain from Heaven was restrain'd. And the Waters returned from off the Earth continually: And after the End of the hundred and sifty Days, the Waters

were abated. And the Ark rested in the seventh Month, on the seventeenth Day of the Month, upon

the Mountains of Ararat.

Corollary. Hence'tis obvious to remark the wonderful Providence of God for the Preservation of the Ark, and the sole Remains of the Old World therein contain'd, in ordering all Circumstances so, that it was asson is all the calm Season of the Deluge, but as soon as ever any tempestuous Weather arose, was safe landed on the Top of the Gordyean Mountains.

LVI. This Deluge of Waters was Univerfal in its Extent and Effect; reaching to all the Parts of the Earth, and destroying all the Land Animals on the entire Surface thereof; those only excepted which were with Noah in the Ark.

LVI. This might justly have been made a Corollary of the next Proposition, (for if the Waters in any one Region, much more a compleat Hemisphere, exceeded the Tops of the highest Mountains, it would certainly diffuse it felf, and overflow the other also:) But being capable in the present Hypothesis of a separate Proof, deserves a distinct Consideration. Waters which were deriv'd from the Comet, the principal Source of the Deluge, were more than half universal; they primarily falling upon more than one half of the Surface of the Earth. fubterranean Waters being in good measure the proper Effect of the Weight of the Waters proceeding from the Comet, would also be as univerfal as they at the least, if not more. And withal, if we duly consider the Velocity of the Earth's diurnal Rotation, and that the Mass of newly acquir'd Vapours was not at first Partaker of the same, but was by degrees to receive the Impression thereof, we shall with Ease apprehend, that

that a few of the first Rotations would wind or wrap these, as well as the other Vapours, quite round the Earth, and thereby cause a very equal Distribution of them all in the entire Atmosphere, and at last render the Rains very evenly Universal. To which uniform Distribution the Nature of the Air it felf, as at present I suppose it does, might contribute: Such an elastical Fluid as the Air scarce suffering a lasting Density or Croud of Vapours in one Region, without communicating some Part to the others adjoining; that so a kind of Equilibrium in the Weight, Crassitude, and Denfity of its feveral Columns may be preferv'd through the whole. So that at last, the Deluge must have been Universal, because every one of the Causes thereof appear to have been truly fo.

LVII. The Waters at their utmost Height were fifteen Cubits above the highest Mountains, or about 3 Miles above the neighbouring Plains, or 6 Miles perpendicular above the common Surface of the Earth.

LVII. In order to make some Estimate of the Quantity of Water, which this Hypothesis asfords us: Let us allow that the Rarity of the Tail of the Comet is so great, as indeed it is, that it will not afford us any Quantity confiderable to our present Purpose; and let us suppose also that the Quantity of Water issuing out of the Fissures or Fountains of the great Deep will not afford us above one fixth Part; I mean both these in Comparison of a Deluge of 6 Miles height perpendicular, which we here feek for. And let us examine the Quantity of Vapour deriv'd from the Atmosphere of the Comet which is one main Source and Fountain of this mighty Deluge, and see how far it will go in our present Business. If we suppose our upper Crust of Earth,

and its dense Fluid taken together to be 200 or 300 Miles thick, and that it were dispers'd in a Sphere of 80,000 Miles in Diameter, as is the case of a Comet's Atmosphere, it would be then of almost as great Density as that of our Air here 7 or 8 Miles above us. Let us therefore suppose it to be so, and by consequence about 4000 times as rare as Water, and that the Earth pass'd through the same for 80,000 Miles together, as it must do because of the Comet's Centre's coming within 10,000 Miles of us. Our Earth therefore would intercept and receive on it felf a Cylindrical Column of Vapours, whose Basis were at least equal to that of a great Circle on the Earth, and whose Altitude were 80,000 Miles. Now Archimedes has demonstrated that the entire Superficies of a Sphere or Globe is four times as large as the Area of one of its great Circles; and by confequence the Column of Vapour would be but a quarter fo high when spread over the Surface of the whole Earth, or only 20,000 Miles high: And when turn'd into Water, and reduc'd thereby to the 4000 part of its ancient Space, would cover the Earth about 5 Miles deep, even tho' there were no Mountains extant above the common Surface of the Plains and Seas. that when Allowance is made for them, as well as for the Quantities arifing from the Tail of the Comet, and from the Fiffures or Fountains of the Deep, the whole Quantity will cover the Earth full 6 Miles perpendicularly; which is that very height of the Waters which in this Solution was to be accounted for.

Corollary. If the several Particulars requisite to the nice Adjustment of those Computations were more exactly enquir'd into, some Light on the present Hypothesis, might be afforded to the Density of the Atmospheres

mospheres and Tails of Comets, which is hitherto undetermin'd; the Consideration of which Matter must be referr'd to Astronomers.

LVIII. Whatever be the height of that Gordyean Mountain whereon the Ark rested now; it was at that time the highest of all others, at least in those Parts of the World.

LVIII. If we consult the Figure here referr'd Fig. 7. to, we shall easily apprehend the Reason of this, otherwise, strange Phænomenon. For seeing this Mountain was the highest in Asia, or in the middle Regions of our Continent; and feeing withal that entire Continent, and chiefly the middle Regions thereof, were elevated by the greatest Protuberance of the Abyss d b c above any other correspondent Parts of the whole Globe, the absolute or entire height of this Mountain then, would arise not only from its proper Altitude above the neighbouring Plains, but also from the Elevation of the whole Continent, or peculiarly of its middle Regions above the ancient Surface of the Plains and Seas; which is the true Reason why I suppose this Mountain to be fix Miles high above the common Surface of the Earth; while it can hardly be fo much as three Miles above the neighbouring Plains. So that by this Advantage of Situation, it was at the Time here concern'd, higher not only than its Neighbours, which its own Elevation was fufficient for, but than any other on the Face of the whole Earth: Some of which otherwise it could, I believe, by no means have pretended to match, much less to out-do in Altitude. Now altho' the Presence of the Comet which produc'd these Tides in the Abyfs, and elevated the entire Continents above their ancient Level, did not remain after the Difruption of the Fountains of the Deep on the first

first Day of the Deluge; yet the Effect thereof the Elevation of the Continents above their Level, would not fo foon, nay, would fcarce ever entirely ceafe. We know by common Observation, that if a Solid or Settled Mass of Bodies be torn or pull'd in Pieces, 'tis not eafy to put every thing into its Place, and reduce the whole to the same fix'd Limits, it had before. If a folid compacted Mound of Earth were once shatter'd and divided, were levell'd and remov'd, tho' afterward every individual Dust of the former Earth were laid together again upon the very fame Plot and Compass, yet would it not be immediately confin'd within its ancient Dimensions; its height would be at first considerably greater than before; and tho' that in length of Time would be by degrees diminish'd, by the gradual fettling and crouding together of the Parts, and fo fome Approaches would be made thereby towards its ancient Denfity and leffer Elevation; vet neither would be entirely attain'd; in any moderate Space of Time at least. And this is the very Case before us. That Oval Figure which the Orb of Earth was stretch'd to at the Deluge, would remain for a confiderable Time, and be many Years in fettling so close together, that it might afterward remain fix'd and firm for the following Generations; before which Time 'tis evident, that the Regions near the Centre of our Northern or larger Continent, were the highest, and those at 90 Degrees Distance every where the lowest; and by consequence at the Time of the Ark's resting, the Gordyean Mountains near the Centre of the Northern Continent, were elevated above the rest, and particularly above the Pike of Teneriff, which feems to be at present the highest of all others. And thus that terrible PhænoPhænomenon is folv'd, which the Reverend Mr. Warren was so puzzled with, that even on the Allowance of so much Miracle as the Creation of the Waters of the Deluge, and the Annihilation of the fame afterward, yet could he not account for the Letter of Moses without a forc'd and ungrounded Supposition, to the same Purpose with the Proposition before us: As you will find him, Geolog. p. and not without Reason, very emphatically ex-329.330.

pressing himself on this Occasion.

Corollary 1. Here is a visible Instance of the 171, 172. Divine Providence for the Preservation of the Remains of the Old World, by ordering the building of the Ark, just Eastward of, and at a due Distance from, that which would be the highest Mountain in the World; that so upon the very first ceasing of the Rains, and the beginning of the Winds and Storms, it might immediately be safe on the Top thereof. I say Eastward of as well as at a due Distance from the Gordyean Mountains: For the Waters that fell upon the Earth not being at first able to keep pace with its Diurnal Motion from West to East, must needs move respectively from East to West, and so carry the Ark along with them Westward. To say nothing of the Tides, whose Motion would also conspire to the same Effect with the other. And this will be the more easily believ'd, if we consider what has been already advanc'd, that Noah was the first Planter of China after the Deluge, and therefore in Probability had been the Inhabitant of those Parts before. And'tis evident that China lies Schol. post directly East from the Gordyean Mountains, and Hypoth.8. at a due Distance from the passing from thence thereto prius.

Coroll. 2. The same careful and wife Providence is conspicuous in the so accurately adjusting all the

while the Ark floated, 150 Days before it landed on

those Mountains.

Circum-

Circumstances of the Deluge, that it should be high enough to destroy the whole Stock of the dry land Animals; and yet but just so much above the Gordyean Mountains, as permitted the Ark to rest at the very first Decrease of the Waters, and the commencing Perturbations of the Air, and the Waves necessarily ensuing, which otherwise must still have destroy'd it, notwithstanding the Advantage of its Si-

tuation before observ'd.

Coroll. 3. Supposing the Truth of our first Postulatum, of the Verity of the Letter of the Mosaick History; as certain as is the greater height of the Pike of Teneriff, or of any other Mountain in the World, above that of the Gordyean Mountains now; (of which I suppose there is no great question) so certain is it (bating unknown Causes, and a miraculous Power, as is always in such Cases to be suppos'd) that a Comet was the Cause of the Mofaick Deluge. For 'tis certain, by the plainest Deduction from the express Words of Scripture, that the Mountain on which the Ark rested was at that Time the highest in the World. 'Tis therefore certain, that the Continent or Basis on which the Gordyean Mountains stand, was elevated bigber at the Deluge than 'tis at present: And 'tis also certain, that no Body or Mass of Bodies in the whole World can elevate or depress a Continent of the Earth, but fuch as are capable of approaching the same; or in other Words, but Comets; and consequently a Comet did approach near the Earth at the same Time assigned, and was the Cause of the Deluge. Which Chain or Connexion I take to be strong, that I believe 'twill not be possible to evade its Force; and so a at on other Arguments has been already established, is fully confirm'd by this.

Coroll. 4. 'Tis equally demonstrable, that the upper Orb or habitable Earth is founded on a sub-

terraneous

terraneous Fluid, denser and beavier than it self: This Circumstance being absolutely necessary to account for the Phænomenon we are now upon. For if the internal Regions of the Globe were serm and solid, (as is commonly supposed; the wholly gratis, and without ground:) The Comet had passed by, yet there could have been no Elevation of any Continent, and the Proposition before us must still have remained insoluble.

LIX. As the Fountains of the great Deep were broken up at the very Beginning of the Deluge, so were they stopp'd at the end of 150 Days, on the seventeenth Day of the seventh Month.

LIX. That the Fountains of the great Deep in all the Regions near the Ark, to which this Phænomenon does properly belong, would be stopped at this very Time is plain, because now, and not before nor after, the highest Part of the vast Tide of the Waters of the Deluge was just arrived thither, and fo stopp'd the Exit of the Waters, till then afcending from the inward Parts of the Earth; and by opposing their Course, and immediately preffing upon and running down those Fissures into the Bowels of the Earth, would effectually change the Face of Affairs there: would stop the Fountains of the Deep, and make those very Outlets whence the subterraneous Waters had till then spouted forth, become the Inlets to the same Waters, and to all the rest also on the Face of the Earth; and the Means of draining them all off the same by degrees afterwards.

LX. The Abatement and Decrease of the Waters of the Deluge was first by a Wind, which dried up some: And, secondly, by their Descent thro' those Fissures, Chaps and Breaches, (at which part of them had before ascended) into the Bowels of the Earth, which received the rest. To which latter also the Wind, by hurrying

the Waters up and down, and so promoting their lighting into the before-mention'd Fisfures, was very much fubservient.

LX. In order to the giving a fatisfactory Account of this Proposition, and of the draining the Waters of the Deluge off the Surface of the Earth, (which to some has feem'd almost as difficult to folve as their first Introduction;) it must first be granted, that the Air could receive and fustain but very inconsiderable Quantities, in comparison of the entire Mass which lay upon the Earth; yet some it might, and would naturally do; which accordingly both the Wind here mention'd, and the Sun also took away, and turn'd into Vapour immediately after the ceafing of the latter Rains. But as to all the rest, there is no imaginable Place for their Reception, or whither their natural Gravity oblig'd them to retreat to, excepting the Bowels of the Earth; which must therefore be distinctly consider'd in this Place. Now we may remember, from what has been formerly faid, that the Quantity of Solids, or earthy Parts in the upper Orb's primary Lem. 81. Formation, was very much greater than that of cum Co- Fluids, or watery Parts; and confequently, that the inward Regions of the Earth being generally dry and porous, were capable of receiving mighty Quantities of Waters, without any fwelling, without any Alteration of the external Figure, or visible Bulk. And, indeed, if we allow, as we ought, any considerable Crassitude to this upper Orb, its interior Regions might eafily contain a greater Quantity of Waters than what was upon the Earth at the Deluge: So that all the Difficulty is now reduc'd to this, By what Pipes, Canals, or Passages, these Waters could be convey'd into the Bowels of the Earth? Which, in Truth,

roll. & Solut. 6. priùs.

Truth, can admit of no Dispute; nothing sure being to be conceiv'd more natural Inlets to these Waters, than those very perpendicular Fissures, which were the Outlets to part of them before. As foon therefore as the Waters ceas'd to afcend upwards through those Breaches, they must, to be fure, descend downwards by the same; and this Descent is more natural than the prior Ascent could be esteem'd to be; which was a Force upon them, compelling them, against their Natures, to arise upwards, when this Retreat into the same Interstices is no other than their own proper Gravity requir'd and inclin'd them to. The Cafe here is in part like that of a Sieve, first, by Force, press'd down into a Vessel of Water, till it were fill'd therewith, and then fuffer'd to emerge again; where, through the very fame Holes at which the Waters afcended into, they would afterward descend out of the Sieve again, and retreat into their own Element, as before. All that in particular deserves here to be farther noted, is, the Interest of the Wind, or of the Agitations of the Waters, (Goings and Returnings in the Hebrew Phrase) made mention of in this Proposition. And these Commotions are, in Truth, very useful, and very necessary Assistants to the draining of the Waters from off the Earth. For when the most part of the Fissures were in the Mountains, 'twould have been a difficult Thing to clear the Valleys and lower Grounds, had there been a perfect Calm, and every Collection of Waters remain'd quietly in its own Place. But when the Waters were fo violently agitated and hurried from one Place to another, they would thereby frequently light into the Fissures, and Breaches, and so descend as well as the rest into the Heart of the Earth; very agreeably to the Affer-

Affertion of this Proposition. As to the Objection against this Method of draining away the Waters of the Flood, that these Fissures would be fill'd at the Beginning of the Deluge, and perhaps in some Places drain away some of its Waters immediately, and fo hinder the Increase of the Flood for 150 Days, which yet the facred Hiftory mentions, I can fee no Force at all in it: For let the Cracks and Fissures be full during the Deluge, nay, let the Waters be in some meafure draining away continually by fome of them into the Bowels of the Earth; yet till this Drain took away more than the Rains, and the running in of the Water, and perhaps other Fissures brought, the Flood would continually increase notwithstanding. And certainly the Pores, Vacancies and Interstices of 100 or 200 Miles of dry Earth, i. e. Earth that can still admit vast Quantities of Water (which the Thickness of the upper Crust may well amount to) are capable of receiving 5 or 6 Miles of Water into them; especially if we observe, that its inward Strata are not, as some imagine, almost wholly compos'd of tough Clay, common Stone, Whin Stone, Coal, Metalline Ores, and the like; but are very much made up of Turf, Sand, dry Earth, Gravel and fuch like, which will all receive great Quantities of Water, without any confiderable Increase of their visible Bulk: For the Truth of which, I appeal to the following Table of the feveral Strata of a Well at Amsterdam, mention'd by no Geogr. p. worse an Author than Varenius, which is the best

and deepest that is readily to be met with. 46.

	Feet
Garden Mould	- 7
	- 9
Soft Clay	- 9
Sand	- 8
Earth	- 4
Clay	- 10
Earth	- 4
Sand in which the Piles for,	
the Amsterdam Buildings	10
are fix'd	With the same
Clay	_ 2
TTT!	- 4
Dry Earth	- 5
3.6.1	- I
0 1	- 14
Sandy Clay -	
Sand mix'd with Clay -	- 5
Sand mix'd with Sea-shells -	- 1
1 Cl D	102
Currel	19 19 19
	- 31
In all	232
SHOP IN THE REAL PROPERTY AND ADDRESS OF THE PARTY OF THE	

Corollary 1. Seeing the most of the Fissures were in the Mountains, and those at the first most open, and the Pressure of the incumbent Waters then greatest, the decrease and going off of the Waters would be greatest at first, while the generality of the Mountains were under Water; and less and gentler afterwards.

Coroll. 2. Several low Countries now bordering on the Seas, might, for many Years after the Deluge, be under Water, altho' by the Descent of more of the Waters into the Bowels of the Earth, they might become Dry-land afterward; and by their Smoothness and Equability, shew their once baving Kk

y 5.

lain under, and been made so plain by the Waters. Instances of which are now very observable in the World: In particular, those Parts of Cambridge-shire and Lincolnshire which border on the German Ocean, appear very evidently to have originally been in the same case, as any careful Observer will easily pronounce; and the same is more remarkably true of Holland, and other Parts of the Low-Countries.

Schol. 'Tis perhaps worth our Enquiry, whether most Mens Notions of the Time for the abating of the Waters of the Deluge be not very precarious at least, if not wholly mistaken. 'Tis the general Opinion, taken from the Mosaick History of the Flood, that the Waters were wholly subsided, and the Earth laid as dry in a manner as 'tis at present, by that time Noah came out of the Ark, or in the Space of about a Year from the beginning of the Flood. 'Tis true, Moses says, that on the

Gen. viii. Seventeenth Day of the seventh Month the Waters 3, 4. were abated, and the Ark rested on the Mountains of

Ararat: That on the first Day of the tenth Month the Tops of the Mountains were seen: That on the

13. first Day of the next Year the Waters were dried up from off the Earth. And then lastly, That on the

* 14, &c. twenty seventh Day of the second Month was the Earth dried, and Noah call'd out of the Ark. But all this may be very true, and yet vast Quantities of the Waters of the Deluge might at the same time remain on the Face of the Earth. And as the present Ocean may be still a part of the same, so the rest of them might require a hundred or two hundred Years before they arriv'd at or near to their present Subsidence and Condition. And this, I think, is the Truth of the Case; and is so far from contradicting the sacred History, that it may be established by an Observation or

two from thence, as well as by the prefent Phanomena of Nature. As to the facred History of Moses, 'tis first evident, that the mountainous Regions about Ararat, or the Gordyean Mountains, especially since they were, from my Hypothesis, particularly elevated above the rest, might be wholly clear of the Waters in a Year's Time; and yet the lower Plains and Valleys in a very different Case, and still to a great Depth under the Water: And 'tis as evident, 2dly, That we have no authentick Account of the lower Plains being become dry and habitable, even in Regions more elevated than many others, I mean about the middle Parts of our Continent, till the building of Babel, the Confusion of Languages, and the Dispersion of the Nations over the Earth; none of which happen'd, even according to the Hebrew Chronology, before the fecond Century from the Deluge, in the Days of Peleg. And then as to the present Phanomena of Nature, I think they Gen. x. 2. determine the Question before us, and sufficient- & xi. 1, 2. ly demonstrate the longer Abode of the Waters of the Deluge upon the Earth than is commonly allow'd: For as many maritime Countries (which I have already observed, and others have noted the fame) do, by their remarkably even and Corol. 2. smooth Surface, shew they have been made so in supra. length of Time, by the Motion of the Sea, which Mr. Ray's now lays the Sand in the fame manner; fo does Theolog. the Confideration of the Nature and Position of Discourses the Strata of the Earth in some Places now fully P.28, 29. confirm the same Observation. Near my former 2d Edit. Habitation, at Lowestoft in Suffolk, upon the Sea-Coast, there is a pretty high and remarkable Cliff, at the least twenty Foot above the Surface of the Ocean adjoining; and yet 'tis to the very top Stratum of all almost as evidently the Pro-FEEDURA K k 2 duct

duct of the Waters, laying Heaps, Strata, and Beds of Sand and Chingle; as that very Shore on which we stand, and which is daily made and removed by the Tides and Waves of the prefent Ocean. And as I do not doubt from the always equal Height of the Ocean every where, that 'tis frequently thus in other Places also; so this is, I think, a plain Evidence that the Ocean has been at least 20 Foot higher than 'tis now; and that for a long time together; fufficient I mean to heap up fuch mighty Beds of Sand and Chingle as the present Observation does require. Which of it felf is at once a Demonstration that all the lower Regions near the Sea have formerly been drown'd, and lain under Water; and at the same time does fully confirm that length of Time which I affert was taken up in the entire Subsidence of the Waters at the Deluge.

LXI. The Antediluvian Year was in absolute Space of Time nearly equal to our present and ancient Lunar one, or above 10 Days shorter than our present Solar Year.

LXI. This has been accounted for under the XI. Hypothesis, with the LI. and LIX. Lemmata already.

LXII. Yet the Antediluvians had full 360 Days in their Year.

LXII. This has also been accounted for under the same XI. Hypothesis and Lemmata already.

LXIII. The dry Land, or habitable Part of the Globe, is, fince the Deluge, divided into two vast Continents, almost opposite to one another; which, as is most probable, are separated by a great Ocean interpos'd between them.

LXIII. The Figure in which the Comet left the Earth, and which it would in some measure retain

retain ever after, was, as may be seen in our Scheme, an Oval or Oblong Spheroid; whose longer Axis a b would determine the highest extant Parts of the Earth; and whose shorter Axis cd by a Revolution about the Centre perpendicularly to the longer Axis, would alike determine the lowest or most depress'd Parts thereof. When therefore so much Water was run down into the Earth as the Apertures could receive; all that remain'd (excepting the ancient lesser Seas somewhat augmented every where) must be found in the lowest Vallies, or near the shorter Axis's Revolution, all round the Globe, composing a mighty Ocean; while the two elevated Regions near the two Ends of the longer Axis, were extant above the Waters, and compos'd those two opposite Continents of the Earth, made mention of in this Proposition.

Corollary 1. 'Tis probable that America is entirely separated from our Continent by the interpos'd Ocean, without any Neck of Land, by which it has been by many imagin'd to communicate with Tar-

tary.

elyodda.

Coroll. 2. Possibly some of the American Continent were preserved from the Deluge, as well as we know some were preserved in this Continent; tho we have no Records left among them to give us notice thereof. 'Tis evident that the whole Earth in Moses is no more than the then known Parts of the Earth or World; and 'tis evident that Men knew nothing then of the American World: So that the Silence of the sacred Historian relating to that World is of no Validity as to this Matter. And since the other Arguments seem to imply it was not peopled from this Continent, I think 'tis the most probable that some were saved there from the Deluge as well as here.

LXIV. One of these Continents is considerably larger than the other.

LXIV. Since in all the Tides, and so in those Protuberances which occasion'd the present Continents, that which respects the Body producing the same, is larger than its opposite one; 'tis evident, so it ought to be here, and the Continent situate about the Point b, considerably larger than the opposite one about a, agreeably to this Proposition.

Corollary. In this Posture of the Abys, and its incumbent Orb, the Earth is correspondent to the Egg, its ancient Symbol and Representative, not only in its inward and entire Constitution, but in some measure in its external Figure also; the Resemblance between them becoming by this means in a manner

Universal.

LXV. This Continent lies most part on the North-Side of the Equator; and the smaller, as far as is yet certainly known, most part on the South.

- LXV. The Position of the Continents depended mainly on the Time of the Year when the Comet passed by. For since the Comet descended in the Plain of the Ecliptick from the Regions almost opposite to the Sun, and came to its nearest Distance about 130 Degrees onward from the Point in the Ecliptick opposite to the Sun, before which, and yet scarce till after the Conset were past 90 Degrees, or the Periphery of the Ecliptick, would the Tides be great enough to burst the Orb of Earth, and fix the Centres of the Continents; by confidering the Place of the Earth in the Ecliptick, and counting about 100 Degrees onward, one may determine the Latitude of the Point on the Earth directly expos'd to the Comet's Body, and by consequence of its opposite

Continents lay. Now the Earth being about the middle of Taurus to an Eye at the Sun (which I always in such Cases suppose) at the Time of the passing by of the Comet, about the middle of the second Month from the Autumnal Equinox; the latter Part of Leo (being 100 Degrees onward from the Point opposite to the Sun) will nearly determine the Latitude of the larger Continent dbc, as by consequence will the latter Part of Aquarius that of the smaller dac: On which Accounts tis evident, that the larger must be mostly on the North, and the smaller mostly on the South Side of the Equator.

LXVI. The Middle or Centre of the North-Continent, between the utmost Bounds, North and South, East and West, is about sixteen or eighteen Degrees of Northern Latitude; and that of the South about sixteen or eighteen Degrees of Southern Latitude.

LXVI. This Proposition (which more nicely determines that Position of the Continents which the last more generally afferted) is thus demonstrated. Each Continent must retain that Position which it had when its Compages was burst by the Elevation of the Abyss. Now the bursting of the Orb is to be suppos'd before the Comet's nearest Distance; and by confequence the Centres of the two Continents a and b ought to have the Latitude of the Points about 90, or rather nearer an 100 Degrees onward beyond that opposite to the Sun, or beyond the Sun it felf. So that the Centre of the Northern Continent, near the South-East Point of Arabia; and of the Southern, near the Source of the vast River De la Plata, ought to be about the same Latitude with the 20th Degree of Leo, and of Aquarius, or near 16 Degrees, the former of Northern, the latter Kk 4

of Southern Latitude, as this Proposition afferts

them really to be.

Corollary 1. If therefore we were to determine the Time of the Year of the Comet's passing by the Earth, or the commencing of the Deluge from the Position of the Centres of our two opposite Continents, which depend thereon; we ought to assign it near the middle of the second Month, from the Autumnal Equinox; agreeably to the Time already six'd both from the sacred History, and the Calculations of Astronomy at the eleventh Hypothesis foregoing.

Coroll. 2. Hence all those Corollaries to the third and fourth Argument of the said eleventh Hypothesis are mightily consirmed: To which I refer the Reader for their second Perusal; the Importance of their Subjects well-deserving the same at

bis Hands.

LXVII. The Distance between the Continents, measuring from the larger or Northern, South-Eastward, is greater than that the contrary way, or South-Westward.

LXVII. Seeing the Motion of the Comet about its nearest Position was much more considerable than the Diurnal one of the Earth; and seeing withal the greater and higher Protuberance would arrive at a sufficient Force to burst its incumbent Orb or Continent somewhat sooner than the lesser and lower; it will follow that the Point be would not be just opposite to the Point a, but nearer the Place q in the Figure. By which means the Distance from q by c to a would be greater than from the same q by d to a; or from the Centre of the great Continent to that of the lesser South-Eastward, than South-Westward: Exactly as this Proposition requires.

Fig. 7.

or even circular Circumference: But mighty Creeks, Bays, and Seas running into them; and as mighty Peninfula's, Promontories, and Rocks jetting out from them, render the whole very unequal and irregular.

LXVIII. If the Surface of the Earth before the Deluge had been even and fmooth, without Mountains and Vallies; and their Confequents, Seas and dry Land, the paffing by of the Comet must indeed, as before, have certainly caus'd a Distinction of the two Continents, and must have interpos'd an Ocean between them; but then these two Circumstances would have obtain'd also, first, that all the Waters of the entire Globe would have left the Continents, and folely compos'd an Ocean; and fecondly, That the Termination or Boundaries of the Ocean and the Continents would have been circular, round, and even on every Side. But fince the Surface of the Earth was uneven, irregular, and diftinguish'd every where into Moantains, Plains and Vallies, into Seas and dry Land, the present Terraqueous Globe, with those Inequalities of the Termination of each Continent mention'd in this Proposition, is a most easy and natural, nay a plainly necessary Result of this great Mutation at the Deluge.

Corollary 1. Hence tis farther evident, that the Surface of the Antediluvian Earth was not plain and even, but had those Distinctions of Mountains and Valleys, Seas and dry Land, which from other Ar-

guments bad been before establish'd.

Coroll, 2. Hence therefore it appears (what should have been before observed) that all the Earth might be planted and peopled before the Deluge, even the the Navigation were then either not at all, or not considerably known: There being no Ocean or separate

separate Continents; and scarce any such thing as an Island or Countrey but what with Ease might be gone to by Land.

LXIX. The depth of that Ocean which separates these two Continents is usually greatest farthest from, and least nearest to either of the same Continents; there being a gradual Descent from the Continents to the middle of the Ocean; which is the deepest of all.

LXIX. The reason of the gradual Declivity towards the middle of the Ocean, is very plain from the Figure hereto belonging. For fince the Earth's Surface became in some degree an Oval, or oblong Spheroid, 'tis necessary that there should be (as far as the other Irregularities of the Globe would permit) a Descent from the Ends of the longer Axis b and a, to those of the shorter c and d in their entire Circumvolution; which gives a most obvious Account of the present Phænomenon.

LXX. The greatest Part of the Islands of the Globe are fituate at small Distances from the Edges of the great Continents; very few appearing near the middle of the main Ocean. aucous Globe, with those In-

LXX. Since Islands are only such high Regions as would be extant above the Surface of the Waters, tho' they cover'd the neighbouring Parts; and fince the Ocean, as we have now shewn, was deepest in the middle between the two Continents; 'tis plain that, cæteris paribus, the higher Regions would more frequently be extant near the Continents, than about the middle of the faid Ocean; as this Proposition afferts.

LXXI. The Ages of Men decreas'd about one half prefently after the Deluge; and in the succeeding 1300 · Years were gradually reduced to that Standard at which they have stood ever fince. ederably known: There being no Ocean or

LXXI. The first part of this is already suffi-Solut. 44. ciently accounted for in that Proposition, where Priùs. the Causes of the Change in the Duration of Men's Lives at the Flood were in general enquir'd into. But the reasons of the gradual Decay in the succeeding Ages are here to be affign'd. Now here 'tis not impossible that the considerably long lives of the first Postdiluvian Patriarchs might in part depend on the vigorous Constitution of their Fathers, not to be immediately impair'd to the utmost, or destroy'd in their Posterity, till by Degrees, and in length of Time it was effected. But besides, 'tis to be consider'd, which I take to be the principal Thing, that feeing the corrupted Atmosphere, with the pernicious Steams arising from the newly acquir'd Chaotick Crust, or Sediment of the Waters, and their unhappy Effects on the Eruits, as well as living Creatures upon the Earth, must be allow'd the Occasion and Cause of the shortning of human Life; such Regions as were freelt from, or most elevated above the faid Sediment, or Chaotick Atmosphere, must have chiefly continu'd as they were before, and fo the ancient Longevity would chiefly be preferv'd therein. Which being suppos'd, and what has been already advanc'd withal confider'd, this Proposition will be easy, plain, and natural; and a peculiar Attestation to the present Hypothesis. For seeing Noah and the Ark were landed on the most elevated Region of the Earth, and freest from the Sediment of the Waters, as well as the Groffness of the Chaotick Atmosphere below, that Place would scarce differ for a good while from the Antediluvian State of Things, and the Lives of Animals would retain very near their ancient Duration; which accordingly we find was really done. Noab furvived the Deluge

no less than 350 Years, and compleated 950 in the whole (fomewhat beyond the moderate Proportion of the Antediluvians themselves; as the Table belonging to this Phænomenon will eafily fhew.) But then by reason both of the Descent

Gen. xi. 2. of his Posterity into the Plains, and lower Grounds, and principally by the gradual Subsidence of those Regions themselves into the gross Atmosphere below, they became gradually liable to those Diseases, and that Shortness of Life, which we before shew'd to have been the fad Effects thereof, and to which all Mankind has fince

been subject.

Corollary 1. Mankind increased vastly more soon Graunt, p. 59, 85,86. after the Deluge than in these latter Ages of the World. For whereas a Country is near 400 Years now in doubling its Inhabitants, had the same rate held ever since the Deluge, Mankind at this Day would not have reach'd the Number of many thousand Souls; which yet is esteem'd to be many hundred, if not some thousand Millions. So that 'tis evident, That the Antediluvian Fruitfulness, and numerous Stock of Inhabitants, (which are also themselves hereby fully establish'd,) must have prevail'd, servata proportione, among the primitive Postdiluvians for some Centuries, or else no Account were to be given of the present Numbers of Men upon the Face of the Earth; whereby the Verity of this Proposition, the Veracity of Moses therein, and the great Importance thereof, are mightily confirm'd.

Coroll. 2. Hence by the Table of the Decrease of Men's Lives after the Deluge before-mention'd, we may nearly determine the Ages of Men for the first 1300 Years after the Deluge, from the length of their Lives given. Thus Job, who appears to have liv'd at the least about 180 Years, must have been contemporary with some of the Patriarchs between Serug

Job xlii. 16.

and

and Jacob, to whom that Duration of human Life belong'd; and thus we may examine and very probably determine the Ages of the most ancient Kings mention'd in prophane Histories, from the like Dura-

tion of their Lives or Reigns.

Coroll. 3. Hence the Chinese Antiquities appear worthy of Regard, because the length of their first Kings Reigns imply them to be very ancient, and to begin, if not before, yet at, or soon after the Deluge, as we have elsewhere observed. And if the Egyp-Chronitian and Assyrian Dynasties did more plainly agree Old Test. with this ancient Longevity, they would be more un-P. 64, 65.

exceptionable than now they are.

Coroll. 4. The Antediluvian and Postdiluvian Years mention'd in Scripture were true Years of Twelve, not fictitious ones of one Month apiece; as some, that they might reduce the Age of the first Patriarchs to the short Term of Life since usually attain'd to, have been willing to surmise. This Fancy is strangely absurd, and contrary to the sacred History, and in particular irreconcilable with this Proposition. For bad the ancient Years been Lunar, of one Month, and the latter Solar of twelve, by which the same Duration of Human Life had been differently measur'd; the Number of Years which Men liv'd, must have alter'd in the Proportion of twelve to one of a sudden, at such a Change in the Year referr'd to, and not gradually and gently, as 'tis bere evident they did.

LXXII. Our upper Earth, for a confiderable depth, even as far as we commonly penetrate into it, is Factitious, or newly acquir'd at the Deluge: The ancient one having been cover'd by fresh Strata or Layers of Earth at that Time, and thereby spoil'd or destroy'd as to the Use and Advantage of Mankind.

LXXII. 'Tis not to be suppos'd, that the Waters of the Deluge were merely the pure Element

ment of Water, fincere and unmixed. What came from the Comet's Atmosphere, must partake of its earthy heterogeneous Mixtures; and what was fqueez'd up from beneath, must carry up much Dirt and earthy Matter along with it. Besides which, as soon as the stormy Weather began, and as the vast Tide of Waters went along from East to West, the soak'd and loosen'd Tops of Mountains would easily, by the Winds and Waves together, be wash'd off, or carried away into the Mass of Waters, and increase the Impurity and earthy Mixtures thereof. On all which Accounts, the Waters of the Deluge would be a very impure, thick, and muddy Fluid, and afford fuch a Quantity of earthy Matter as would bear fome small Proportion to that of even the Water it felf. Now this earthy Matter being heavier than the Water, would by degrees fettle downwards, and compose first a mighty thick, dirty, muddy Fluid in the lower Regions of the Waters, and at last a plain earthy Sediment at the Bottom of them; which would at once spoil and bury the old Surface of the Ground, and become a new Crust or Cover on the Face thereof. Now, that we may fee whether this Sediment or Cruft could be fo thick and confiderable as this Phænomenon requires, let us suppose, as before, the perpendicular height of the Waters of the Deluge to have been some 6 Miles above the common Surface of the Plains and Seas, and the 60th part only of the entire Fluid on the Face of the Earth to have been earthy Parts fit to compose the Sediment or Crust before mention'd. Let us also remember what has been already observ'd from Sir Isaac Newton, That Earth is nearly Five Hypoth.2. times as dense and heavy as Water: So that the take up the 300th Part of the whole Space, either in the Waters, or when 'twas settled down by it self, and became a new Crust or Orb upon the Earth. If we then divide 31,680 the Number of Feet in 5 Miles, the whole height of the Waters, (not here to allow for the inconsiderable Spaces possessed by the extant Parts of the Earth) by 300, the Quotient will shew the Crassitude or Thickness of this Sediment or Crust covering the Face of the Earth, viz. about 105 Feet, one Place taken with another indifferently. Which Quantity sully accounts for the Proposition we are upon, and agrees with the Observations made in the Bowels of our present Earth, to as great Accuracy as one could defire or expect.

Corollary 1. Hence it appears, That the Earth was generally uninhabitable for several Years after this Flood: This new factitious Sediment of the Waters requiring no little Space of Time e're it would be fully settled, its Strata consolidated, its Surface become hard and dry, and its Vegetables sprung out of it; before which Time it must have been uninhabitable by Man, and the other dry Land

Animals.

Coroll. 2. Hence we may see the Care and Wisdom of Divine Providence for the Preservation and Maintenance of Noah, and of all the Creatures in the Ark, after their coming out of the same again; by ordering all things so, that the Ark should rest on the highest Mountain in the World, and that the Waters should so little surpass the same, that the Sediment thereof could neither spoil the Fruits of the Ground, nor render the Surface uninhabitable, as it did on the other Regions of the Earth. For since the Quantity of the Sediment would generally be proportionable every where to the perpendicular beight of the Waters over the Surface of the Ground below:

below; though it would cover all the other Regions of the whole Earth, yet on this highest of all the Mountains, (cover'd but a few Days, or perhaps Hours, with any Waters, and they never above fifteen Cubits perpendicular beight) the Quantity of the Sediment would here be perfectly inconsiderable, and the Earth would not be at all alter'd from what it was before, nor its Vegetables burt by this universal Deluge. So that this, and this only was the Spot of Ground capable of receiving the Ark, and of sustaining the Creatures therein; till afterwards the rest of the Earth became fit for their Descent and Habitation. To this Spot therefore, by such a wonderful Adjustment of all the requisite Circumstances of the Deluge, preserv'd and distinguished from all the rest of the World, the Divine Providence did conduct the Ark; and on this was laid the Foundation of the present Race of Mankind, and of all those Terrestrial Animals which are now on the Face of the whole Earth; which otherwise had perish'd at their Exit out of the Ark, notwithstanding their wonderful Preservation therein during the Rage of the Deluge.

Coroll. 3. Hence appears a certain way of determining whether this Account of the present upper Earth, as derived from the bare Sediment of the Waters of the Deluge, be true or not. For 'tis but sinking a Well on the Top of the highest Gordyean Mountain; and if the Strata appear to be thin and many with Garden Mould, and Sea-Shells, &c. at a great depth as 'tis in other Places, this Account must be false; but if there appear large Strata and sew, without any Garden Mould, Sea-Shells or the like, this Account will appear true, and fully attested by

so remarkable a Phænomenon.

Gen. viii. Coroll. 4 Hence we may easily understand whence the Olive-branch was brought by the Dove to Noah.

For fince the Trees adjoining to the Ark, or on the neighbouring Tops of the Hills had suffer'd small Damage by the Flood, and had since the clearing of the Waters enjoy'd almost the whole Spring and half the Summer; they must be as flourishing, and full of as many new and tender Sprouts as ever; one of which might therefore be easily broken off by the Dove, and brought to Noah in her Mouth; which new, dry and firm Sprout or Branch, being a clear Evidence, that the Waters were not only gone, and the neighbouring Ground dry a great while before, but that the Earth was still as formerly, fit for the Production of its wonted Trees and Fruits, must exceedingly tend to the Satisfaction of Noah, and the Confirmation of his Faith and Hope in an entire Deliverance, and in the future Renovation of the World.

LXXIII. This factitious Crust is universal upon the Tops of the generality of Mountains, as well as in Plains and Vallies; and that in all the known Climates and Regions of the World.

LXXIII. This is necessarily consequent from the Universality of the Deluge already accounted for. And tho' the generality of the Mountains would usually have a thinner Sediment or Crust than the Plains or Vallies, in Proportion to the lesser height of the Waters over each of them respectively; yet they being at the Deluge much inferior to the height of the Gordyean Mountains, must be generally cover'd with the same Crust, (unless the Storms and Waves wash'd it down again after its first settling upon any of them,) as the Observations shew they really now are.

Corollary 1. 'Tis bence evident, even abstractedly from the sacred History, that there has formerly been an Universal Deluge, much higher than the ge-L 1 neraity

nerality of the Mountains. So that hereafter, since the so useful Observations of Naturalists, and principally of Dr. Woodward hereto relating, we scarcely need to endeavour to secure the Credit and Veracity of the Mosaick History of the Deluge by the ancient Records, and the universal Attestation of Antiquity; (which Testimonies yet are too evident and numerous to be denied;) but may from our own Eyes, at the neighbouring Mines and Coal-Pits, satisfy our selves of the exact Truth of this part of the sacred Volume, which has been so much excepted against by ill-disposed Persons. So wonderful is the Method of the Divine Wisdom in its seasonable Attestations afforded to the sacred Scriptures! That not only the Very Day, as we have seen, when the Flood began, assured by Moses, may still, after more than four thousand Years, be proved not only from Plutarch's express Testimony, but from Astronomy it self, to have been the true one; which the Learned are chiefly capable of judging of, and being primarily influenc'd by: But the Reality and Universality of the Deluge it self is demonstrable from such common and easy Observations, in all Parts of the World, at the neighbouring Mines or Coal-Pits, that the Vulgar P. 34, 35. and most Illiterate may be Eye-witnesses of the certain Effects of it, and so fully convinced of the Fide-

Vid. Dr. Bentley's Serm. 4.

lity of the sacred Historian therein.

Coroll. 2. 'Tis no wonder that so few or rather' none of the Antediluvian Cities, Towns, Buildings, or other Remains are any where to be met with since the Deluge: They being all generally buried, perhaps above an hundred foot deep in the Earth, by the Sedi-

ment of the Waters.

LXXIV. The Parts of the present upper Strata were, at the Time of the Waters covering the Earth, loofe, feparate, and divided; and fo floated in the Waters among one another uncertainly,

LXXIV.

LXXIV. This Proposition needs no farther Explication; being already plain from what has been already said.

LXXV. All this heterogeneous Mass thus floating in the Waters, by degrees descended downwards, and sub-fided to the Bottom, pretty nearly according to the Law of Specifick Gravity; and there compos'd those several Strata or Layers, of which our present upper Earth does consist.

LXXV. This Proposition is as easy as the former; and included in what has been already said.

LXXVI. Vast Multitudes of Fishes, belonging both to the Seas and Rivers, perish'd at the Deluge; and their Shells were buried among the other Bodies or Masses which subsided down, and compos'd the Layers of our upper Earth.

LXXVI. Where so heterogeneous a Mass of Corpuscles were dispers'd every where through the Waters; and towards the Bottom, especially at the latter end of their Subsidence, render'd the same very thick and muddy; 'tis naturally to suppose, that Multitudes of Fishes, partly stifled with the Spissitude and Grossness of the Fluid; (scarce there deserving that Name;) and partly poison'd with the kinds of some of those Corpuscles which they took in, together with their Nourishment therein, would be destroy'd and perish in the Waters: Which being granted, the rest so easily sollows, as not to need any farther Explication.

LXXVII. The same Law of Specifick Gravity which was observed in the rest of the Mass, was also observed in the Subsidence of the Shells of Fishes; they then in the main finking together with, and accordingly being now found inclosed among those Strata or Bodies which are nearly of their own several Specifick Gravities: The L l 2 heavier

heavier Shells being consequently still inclosed among the heavier Strata, and the lighter Shells among the lighter Strata, in the Bowels of our present Earth.

LXXVII. This Phænomenon is so natural and necessary, considering the gradual Increase of the Thickness of the gross Sediment downward, and the equal Subjection of Shells to the Law of Specifick Gravity with all other Bodies, that I shall

not infift any farther upon it.

Corollary. This single Phænomenon of the Shells of Fish inclosed in the most solid Bodies, as Stone and Marble, and that all over the World, according to their several Specifick Gravities, at great depths within the Bowels of the Earth; which is so strange in it self, so surprizing to the Spectators, and so unaccountable without the most unusual and precarious Miracles be introduced, on any other Principles; and yet so easily and naturally solved in the Hypothesis before us; is a strong, I had almost said an invincible Argument for the Verity thereof; and as undeniable almost as a Physical Affertion is capable of: That is, 'tis, (as far as we can in reason pronounce) without a Miracle, certainly true.

LXXVIII. The Strata of Marble, or Stone, and of all other folid Bodies, attained their Solidity, as foon as the Sand, or other Matter whereof they confift, was arrived at the Bottom, and well fettled there. And all those Strata which are folid at this Day, have been so ever fince that Time.

LXXVIII. Seeing this upper Crust or Sediment was compos'd in great part of the earthy Corpuscles or Masses of a Chaos, as well as the Primitive Earth was at the Mosaick Creation: The very same Reasons assignable for the Coalescence and Consolidation of the former, are equally to be suppos'd in the present Case, and render

render it equally reasonable with the other. And if the dense Fluid, or any Parts or Steams from that, were instrumental to the original Union of Parts, at the primary Formation of the Earth, 'tis probable there was no want of it at the Deluge; the Atmosphere of the Comet, and the Fountains of the Deep, being both capable of fupplying fufficient Quantities, among the larger Plenty of their watery and earthy Masses; as is plain from what has been already faid. Neither in case some of it were acquir'd by the Means aforemention'd, is it to be expected that we ought to fee it still on the Face of the Earth, as we do the Ocean: For feeing this Dense Fluid is much heavier than Water or Earth, it would be at the very Bottom of all, and so either be enclos'd in the Pores and Caverns at the Bottom of the Sediment, or transform'd into a different Body by its Composition with the earthy Parts it was enclos'd withal, and which did confolidate together.

LXXIX. These Strata of Stone, of Chalk, of Coal, of Earth, or whatever Matter they consisted of, lying thus each upon other, appear now as if they had at first been parallel, continued, and not interrupted: But as if, after some Time, they had been dislocated and broken on all Sides of the Globe, had been elevated in some, and depressed in other Places; from whence the Fissures and Breaches, the Caverns and Grotto's, with many other Irregularities within and upon our present Earth, seem to be deriv'd.

LXXIX. When the Sediment fettled down gradually upon the Surface of the ancient Earth, it would compose Strata or Layers as even, continued, and parallel, as one could defire, and as the said Surface did permit. And had the said Surface been fix'd and unalterable, this Evenness and Parallelism, this Uniformity and Continuity of the Strata would have remain'd unalterable L13 also

also to this Day. But fince, as we have formerly shewn, the entire Orb of Earth was at the Beginning of the Deluge crack'd, chap'd, and broken; and for many Years afterwards would, by degrees, settle and compose it self towards its former Figure and Rotundity again; tho' the Series and Connexion of the Strata might, before they were consolidated, be as regular as you can imagine, yet when the Basis or Foundation on which they rested, and the Surface on which they were spread fail'd by degrees, in feveral Places, and Proportions, by the rifing of some Columns upwards, and the fettling of others downwards, this upper Orb or Crust, where the Strata were not become entirely folid like Stone and Marble, must follow, in great part, the Fate of the other, and be dislocated, elevated, or depress'd in Correspondence to that whereon it rested; and have thereby a Set of Caves and Fissures directly overagainst those which were before in the ancient But as for fuch Places where the new Strata were become stony or folid, and incapable of a Compliance with the under Earth, by the fettling downward or Elevation of its immediate Basis the Primitive Earth, those Caverns and Grotto's, those Caves and Hollows which appear within the Earth, or its Mountains, would naturally arise; while the folid Strata, like Beams or Arches, fustain'd the impending Columns, notwithstanding the Sinking and Failure of their immediate Foundations; by which Causes the Surface and Upper Regions of the Earth would become very uneven, and full of small Irregularities, fuch as the present Phanomena assure us of.

Corollary 1. Hence we see a plain Reason why Mountainous and Stony Countries are only or principally pally Hollow and Cavernous: Some lesser Mountains being perhaps occasioned by the Subsidence of the neighbouring Columns, and the Caverns they enclose thereby produced; and the Solidity of the Strata being the proper Cause of such Caverns in other Cases: Of which the softer, more loose, and pliable Earth

was accordingly incapable.

Coroll. 2. Though the ancient Earth were settled, and become uneven in the same degree, and in the same Places as the present is; and that before the Consolidation of the new Sediment; yet the Series of the several Strata one under another on each Side of any Fissure, would in some Measure correspond to one another, as if the confimilar Strata had once been united, and had afterwards been broken and funk down unequally; as is manifest from the consimilar Situation and Subsidence of the consimilar Corpuscles; whereby the like Order and Crassitude of each Stratum might be still preserved, though not so exactly, as if the sustaining Surface had been even and smooth when the Sediment compos'd those Strata, and the Fissures had afterward been made through both Orbs at once, and caus'd such Inequality.

Coroll. 3. Hence would arise mighty and numerous Receptacles of Water within the Earth, especially in the Mountainous Parts thereof. For usually where a solid Stratum sustain'd the Earth above, while the Parts beneath sunk lower, and thereby produc'd a Cavern, the Waters would ouze and slow into it from all Quarters, and cause a Conslux or inclosed Sea of Waters in the Bowels of the Earth: Which Cavities might sometimes communicate with one another, or with the Ocean; and sometimes contain restagnant Waters, without any Outlet: All which are very agreeable to the present

Phanomena of the Earth.

L14 Coroll.

Coroll. 4. Hence appears the Reason of the raging of Earthquakes in Mountainous Countries, and of the bursting forth and Continuation of Volcano's there. For these Caverns, which we have observed the Mountainous Countries to be mainly liable to, are sit to receive and contain together Nitrous and Explosive, Sulphureous and Instammable Steams, in great Quantities; and withal to admit the Air to san, and assist that Explosion or Instammation, which seems to be the occasion of those dreadful Phanomena in our present Earth.

Coroll. 5. If therefore there be no other Caverns than these accounted for just now, and taking date from the Deluge; 'tis very probable there were sew or no Volcano's; or Earthquakes so much depend-

ing on them, before the Flood.

Coroll. 6. In case what has been, or might farther be said, be not found sufficient to account for some Observations made, concerning the inward Parts of our Earth; but Dr. Woodward's Hypothesis of the Disruption of the before-united Strata, by a general Earthquake, or the explosive Force of the Steams of Heat ascending from the Central Parts, be found necessary; such a Supposition will by no means disagree with the present Theory. For when the subterraneous ascending Steams were every way stopp'd, and their ordinary Course from the central to the superficiary Parts obstructed, by the new Sediment or Crust growing fast and settled, and in some Places stony and impenetrable; they would be every where preternaturally affembled, especially in the Cracks, Breaches and Fissures of the ancient Earth, in greater Quantities than usual, and so might by a violent Rarefaction, or Explosion, burst through the upper Crust, and cause all those Fissures, little Hills, Caverns, Grotto's, and Inequalities which Dr. Woodward's Observations require, and this Proposition takes noticenotice of. In this case therefore the particular and distinct Consideration of the Phænomena, must determine and arbitrate between the former more natural and gentle, and this latter more violent and extraordinary Method of accounting for the present Face of Nature upon and within the Earth.

LXXX. Great Numbers of Trees, and of other Vegetables, were also, at this Subsidence of the Mass aforesaid, buried in the Bowels of the Earth: And such very often as will not grow in the Places where they are now lodged: Many of which are pretty entire and perfect, and to be distinctly seen and consider'd to this very Day.

LXXX. Seeing the latter part of the Deluge, Solut. 58. after the seventeenth Day of the seventh Month, priùs. which was either the twenty feventh Day of March, or the first Day of April, was very windy, flormy, and tempestuous; and seeing all along the Waters would have a mighty Current from East to West, especially towards the Beginning of the Deluge, the most extant and mountainous Parts of the Earth would be mightily expos'd to the Fury both of the Winds and Waves; which confequently would tear up, or wash away the loofe and unfolid upper Earth, with all its Furniture of Trees and Plants; and not feldom carry them great Distances from their former Seats. Now these Vegetables, if no Earthy, Metallick, or Mineral Maffes adher'd to them, being Bulk for Bulk, lighter than the earthy Sediment, would fettle down last of all, and would lye upon the Surface of the Earth, and there rot away and disappear. But if considerable Quantities of the heaviest Strata, or of the Metallick or Mineral Matter, as would fometimes happen, adhered to them, they would fink lower, and be inclos'd in the Bowels of the Earth, either near to, or far from

from the Place of their own Growth, according as the Billows and Storms happen'd, to dispose of them. All which Changes and Dislocations of the Soil and Surface, with their Fruits and Plants, might leave once fertile Countries bare and barren; and lodge such Vegetables in others, which of themselves, before the new Sediment, much more since the same, were wholly incapable of such Productions, according to the Exigency of the Proposition before us.

LXXXI. It appears from all the Tokens and Circumstances which are still observable about them, that all
these Vegetables were torn away from their ancient
Seats in the Spring-Time, in and about the Month of
May. But then this must be restrain'd to the Vegetables found in these Northern Climates; for otherwise,
'tis always all Seasons to one Place of the Earth or
other. Otherwise we should have lost a great Part of
the Antediluvian Plants, even all those whose Seeds were
not ripe at the Time when they were born away into
the Water.

LXXXI. Since we have already prov'd, that Solut. 58. the windy and stormy Weather which tore up prius. these Vegetables, did not begin till the seventeenth Day of the feventh Month from the Autumnal Equinox; and fince it appears that the higher any Mountain or Continent was, the lefs while, and in a less degree would the Waters prevail upon it; and fo little fometimes, as not wholly to destroy the growing Vegetables, at this due Time of the Year; 'tis evident, that whether the Sediment were newly fettled, and had enclos'd them or not, fo many as were torn up from these highest Parts of the Earth must be in that Forwardness as the Months succeeding the Beginning of the Storms (April, May and June) usually bring them to, very agreeably to the Proposition before us. However, 'tis certain that the

the Waters deriv'd from the Comet's Atmosphere it felf, which I look upon as the principal Caufe of this Deluge, falling upon confiderably more than half of the whole Surface of the Earth, and immediately moving with a great, but decreafing Velocity Westward, would by degrees arrive at the Place where the Ark was built, or at China; and as foon as the deepest Part of these Waters approach'd that Place, it would immediately bear it away, and carry it Westward; and this prodigious Current of Waters it was, in my Opinion, which mainly wash'd away the Surface of the Earth, especially from all Places at all elevated above the rest; and this Current leaving Asia and Europe in the Spring-time of the Year, as appears by its bringing the Ark by the end of March as far as Armenia, at this time its lower Parts would be got still much more Westward. So that we fee a plain Reason why the European Vegetables which were then growing on the Earth, and afterwards buried in the Sediment of the Deluge, should all shew the Spring-time for the Date of fuch their Eradication, it being but a just Confequent of the Position of Europe; and of the course and way of the main Current of the principal Waters of the Deluge.

Corollary. Hence the ancient Years beginning at the Autumnal Equinox, and the consequent commencing of the Deluge the seventeenth Day of the second Month from thence, and not from the Spring, is evidenc'd by this very Observation which Dr. Woodward, the Author thereof, supposes would prove the contrary. So that the Time of the Deluge's commencing assign'd by our Hypothesis, appears at last to be consirm'd both by the Scriptures, by the Ancients, by Astronomy,

by Geography, and by Natural Observation; and is consequently by so very remarkable a Concurrence and Correspondence of them all, put beyond any reasonable Doubt or Scruple.

LXXXII. All the Metals and Minerals among the Strata of our upper Earth, owe their present Frame and Order to the Deluge, being repos'd therein during the Time of the Waters covering the Earth, or during the Subsidence of the before mention'd Mass.

LXXXII. This can have no Difficulty in it, feeing our upper Earth is factitious, and composed of the foresaid Sediment of the Waters of the Deluge; which including the Corpuscles of Metals and Minerals, as well as others, would alike afford every one those Places which they have ever since posses'd.

LXXXIII. These Metals and Minerals appear differently in the Earth, according to the different manner of their first Lodgment: For sometimes they are in loose and small Particles, uncertainly inclos'd among such Masses as they chanc'd to fall down withal: At other times, fome of their Corpuicles happening to occur and meet together, affix'd to each other; and feveral convening, uniting, and combining into one Mass, form'd those Metallick and Mineral Balls or Nodules which are now found in the Earth: And according as the Corpufcles chanc'd to be all of a kind, or otherwise, so the Masses were more or less simple, pure, and homogeneous: And according as other Bodies, Bones, Teeth, Shells of Fish, or the like, happen'd to come in their way, these Metallick and Mineral Corpuscles affix'd to, and became conjoin'd with them; either within, where it was poffible, in their Hollows and Interffices; or without, on their Surface and Outfides; filling the one, or covering the other: And all this in different Degrees and Proportions, according to the different Circumstances of each individual Cafe.

LXXXIII. All these things are but proper Effects of such a common Subsidence of all these Masses Masses and Corpuscles together in the Chaotick Sediment as is above-mention'd: And no longer or more particular Account is necessary, or can be satisfactory, till Dr. Woodward's larger Work, (which we in Time hope for,) affords us the Observations more nicely and particularly than we yet have them. To which therefore the Inquisitive Reader must be referred in this and the like Cases.

LXXXIV. The inward Parts of the present Earth are very irregular and confus'd. One Region is chiefly Stony, another Sandy, a third Gravelly. One Countrey contains some certain kinds of Metals and Minerals, another contains quite different Ones. Nay, the same Lump or Mass of Earth not seldom contains the Corpuscles of several Metals and Minerals confusedly intermix'd one with another, and with its own earthy Parts. All which Irregularities, with several others that might be observed, even contrary to the Law of specifick Gravity, in the placing of the different Strata of the Earth, demonstrate the original Fund or Promptuary of all this upper factitious Earth, to have been in a very wild, confused and Chaotick Condition.

LXXXIV. Seeing the Sediment of the Waters was compos'd of what earthy Matter was uncertainly brought up out of the inner Earth, and of what a true and proper Chaos afforded, these Phænomena are as natural and accountable therefrom, as on any other mechanical Hypothefis they must appear strange, perplexing, and inexplicable to Philosophick Minds. For certainly by the irregular Disposition of Bodies in such a Chaotick Sediment, and by the as irregular Tempefts and Commotions of the Waters, particularly by that constant and notable Current of the main Mass of them from East to West, arising from their not yet fully accompanying the Earth in its diurnal Motion, and its confequent Effects, the genuine Order, Crassitude, and Position of

the Strata, subsiding still all the while according to their several Specifick Gravities, would be sufficiently disturbed and interrupted; and upon the whole, just such an irregular Crust would be formed by the Sediments of Waters as we find in fact this upper one of our Earth really is.

LXXXV. The uppermost and lightest Stratum of Soil or Garden Mold, as 'tis called, which is the proper Seminary of the Vegetable Kingdom; is since the Deluge very thick spread usually in the Vallies and Plains, but very thin on the Ridges or Tops of Mountains: Which last for want thereof are frequently stony, rocky, bare and barren.

LXXXV. Two plain Reasons are to be given for this Phænomenon: (1.) The Quantity of Water, and its Sediment; and by consequence of Soil or fertile Earth was less over the Mountains than over the Plains and Vallies. (2.) After the Subfidence of the Sediment, and before its entire Consolidation, the Tops of Mountains were most expos'd to the Fury of the Winds and Storms; which would therefore more eafily bear away that lightest and least united Stratum which lay uppermost in those bleak Places, than in the more retir'd and skreen'd Plains and Vallies; and by diminishing the Soil in the former, and thereby augmenting it in the latter Places, most eafily make all things correspond in this Propofition.

LXXXVI. Of the four ancient Rivers of Paradise there are still two remaining, though not exactly in the old Channels: But the other two are so utterly lost, that the Mosaick Description does not at all agree to them at present.

LXXXVI. That the great Rivers would still retain in great measure their old Courses, has been observ'd already: And seeing the Fountains,

and the general Inequalities of the Earth, on which their Origin and Channels depend, were the same generally before as since the Deluge, there can be no doubt thereof. As to the Rivers of Paradise themselves, their Channels being now bury'd perhaps more than an hundred Feet under the Sediment of the Waters of the Deluge, 'tis in vain to expect that the Postdiluvian Rivers should correspond to the Description of those Antediluvian ones. 'Tis well that the prefent Tigris and Euphrates are not fo much chang'd as the rest, that we may not be destitute of all means for the finding out the original Situation of those four Primitive Rivers, and thereby of that Country and Garden of Eden, which was the primary Habitation of Mankind.

LXXXVII. Those Metals or Minerals which the Mosaick Description of Paradise, and its bordering Regions, takes such particular notice of, and the Prophets so emphatically refer to, are not now met with so plentifully therein.

LXXXVII. The present upper Earth being, as we have seen, factitious, and a new Crust since the Flood covering over the ancient Surface thereof, those primitive Treasures must lie too deep in the Bowels of the present Earth to be easily approach'd by us, and so are entirely lost as to the present Use or Enjoyment of Mankind.

LXXXVIII. This Deluge of Waters was a fignal Instance of the Divine Vengeance on a wicked World; and was the Effect of the peculiar and extraordinary Providence of God.

LXXXVIII. Tho' the passing by of a Comet, and all those Effects of it in the drowning of the World, of which we have so largely discours'd hitherto, be not to be styled in the common use

2. priùs.

of the Word, Miraculous, (though in no very Vid. Solut. improper Sense, all fuch Events may have that Appellation, of which before;) yet is there the greatest Reason in the World to attribute this mighty Turn and Catastrophe of Nature, to the Divine Providence, and the immediate, voluntary, actual Interpolition of God; and that in these ensuing Particulars, and on these following Accounts; which I shall be the shorter upon, as having in the Place fore-mention'd explain'd my Mind somewhat largely about things of this Nature. (1.) The Bodies made use of in this and the like Changes of Nature, are originally the Creatures of God, and continually preferv'd by him; and fo what they are instrumental in, ought most justly to be ascrib'd to the principal Caufe, the great Creator and Confervator of them all. (2.) All those Powers of Attraction or Gravitation, &c. and those Laws of Motion by which these Bodies are capable of producing such Effects, are alike owing to the Divine Operation, Appointment, and Efficacy, both in their primitive Impression, and continual Energy; and fo still the Effects themselves are to be ascribed to a Divine Original. (3.) That particular Constitution of the Earth on the Face of the fluid Abyss, and other such Dispositions, whereby it became subject to an universal Deluge, were also the Consequents of the Divine Power and Providence in the Formation of the Earth. (4.) That peculiar Situation or Constitution of the Orbits and Motions of Comets, whereby they, by reason of their passing through the Planetary System each Revolution, are fit to cause such great Mutations in it, was the Effect of the particular Order and Disposition of God, in the primary Frame of the Universe. (5.)

The Coincidence of the Trajectory of a Comet's Orbit either exactly or nearly with the Line of the Earth's Orbit can have no other Foundation in Nature, than a like defign'd and contriv'd Appointment of God. (6.) The fo nice and exact Adjustment of the Motions of both the Comet and the Earth; that the former should pass just so near, and impart such a certain Quantity of Waters, neither more nor less than would drown the World, and just cover the highest Mountain, and yet reach no farther; in short, as would secure the Ark for future Generations, and yet not leave one dry-Land Animal besides alive; this Exactness is a most peculiar and strange Effect of the most wife and fagacious Providence of God in this mighty Revolution. But (7.) Lastly, (to omit repeating some things before observ'd as we pass'd along) The precise Time of the passing by of the Comet, and thereby of destroying the World, is, in the most peculiar Manner and highest degree, the result of the divine Providence. That exactly at a time which was fit and proper, and in an Age that justly deserv'd so great a Judgment, the Comet should come by, and overwhelm the World, is very remarkably and extraordinarily the Finger of God himself. That Omniscient Being who foresaw when the Degeneracy of human Nature would be arriv'd at an unsufferable Degree of Wickedness, the Iniquities of the World would be compleatly full; and when consequently his Vengeance ought to fall upon them; predisposed and preadapted the Orbits and Motions of both the Comet and the Earth, so that at that very Time, and only at that very Time, the former should pass close by the latter, and bring that dreadful Punishment Mm upon 380

upon them. Had not God Almighty on purpose thus adjusted the Moments and Courses of each, 'twere infinite odds that such a Conjunction or Coincidence of a Comet and a Planet, would never have happen'd during the whole Space, between the Creation and Conflagration of this World; much more at such a critical Point of Time when Mankind, by their unparallel'd Wickedness were deserving of, and only dispos'd for this unparallel'd Vengeance, no less than almost an utter Excision.

And this I take to be the Secret of the Divine Providence in the Government of the World, and that whereby the Rewards and Punishments of God's Mercy and Justice are distributed to his rational Creatures, without any Disturbance of the fettled Course of Nature, or a miraculous Interpolition on every Occasion. Our Imperfection is such that we can only act pro re nata, can never know before-hand the Behaviour or Actions of Men; neither can we foresee what Circumstances and Conjunctures will happen at any certain Time hereafter; and fo we cannot provide for future Events, nor predispose things in fuch a manner that every one should be dealt with, or every thing done no otherwise than if we were then alive and present, we should think proper and reasonable, and should actually do. But in the divine Operation 'tis quite otherwise: God's Prescience enables him to act after a more fublime Manner; and by a constant Course of Nature, and Chain of Mechanical Caufes, to do every thing fo, as it shall not be distinguishable from a particular Interpolition of his Power, nor be otherwise than on such a particular Interposition would have been brought to pass. He who has

has created all things, and given them their feveral Powers and Faculties, forefees the Effects of them all: At once looks through the entire Train of future Caufes, Actions, and Events, and fees at what Periods, and in what Manner 'twill be necessary and expedient to bring about any Changes, bestow any Mercies, or inflict any Punishments on the World: Which being unquestionably true, 'tis evident He can as well provide and predispose natural Causes for those Mutations, Mercies or Judgments before-hand, he can as easily put the Machine into such Motions as thall, without a Necessity of mending or correcting it, correspond to all these foreseen Events or Actions, as make way for fuch Alterations afterward by giving a random Force to the whole: And when these two Ways are equally possible, I need not fay which is most agreeable to the Divine Perfections and most worthy of God. So that when the universal Course of Nature, with all the Powers and Effects thereof, were at first deriv'd from, and are continually upheld by God; and when nothing falls out any otherwife, or at any other time, than was determin'd by divine Appointment in the Primitive Formation of the Universe: To affign Physical and Mechanical Causes for the Deluge, or such mighty Judgments of God upon the Wicked, is so far from taking away the Divine Providence therein, that it supposes and demonstrates its Interest in a more noble, wife and divine Manner than the bringing in always a miraculous Power would do. Let us suppose a Fulmen or Thunderbolt originally, and on purpose, put into such a Motion, as without any farther Interpolition of Providence, would direct it to the Head of a Blasphemer; Mm 2 and

and whilft he was curfing his Maker, strike him dead upon the Spot; which the Prescience and Power of God shew to be equally possible with a present Miracle: I think such a violent Death would be as properly extraordinary, and a Divine Judgment, as any other whatsoever: Which I take to have been the very case of the Deluge, which I am here peculiarly concern'd about. Nature is God's Constitution, and ever subservient to him; and the State of the Natural is always accommodated to that of the Moral World. What is done by Nature and Second Causes, is most properly done by God at last, who is ultimately and really almost all we can mean by those Names.

Corollary. What has been here said upon this Occasion, if rightly understood and apply'd to all other Cases, would clear our Minds from many of those Perplexities about the Divine Providence which are ready to disturb them. For Instance: We pray to God for fruitful Seasons, for Health, for Peace, for the Success of our Endeavours, for a Blessing on our Food and Physick, and deprecate the contrary Miseries from us: Yet at the same time we see the Seasons depend on the settled Courfe of the Sun, or other natural and necessary Causes; we find our Health or Sickness to be the proper Effects of our Diet and Regimen; we observe Peace and War subject to the Intrigues of Princes, and the plain Refults of visible Conjunctures in buman Affairs; we know that worldly Prudence and Cunning bas a main Stroke in the Success of Mens Labours; we feel the advantageous Effects of some Food and Physick, and have Reason to believe the same does very much result from the Goodness of the Drugs, the Fitness of the Proportion, the Disposition of the Body, and the Skill of the Physi-

clan;

cian; and can frequently give a plain and Mechanical Reason of the different Operations of all those things; neither do we hope for the Exercise of a miraculous Power in these or the like Cases. The Consideration and Comparison of all these things together frequently puzzles the Minds of good Men, especially those that are more Contemplative and Philosophical, and makes them wonder what Interest our Devotions, or what Advantage our Prayers can have. Causes will work according to their Natures, let Men's Supplications be never so importunate: And to expect a Miracle in answer to every Petition, is more than the most Religious dare pretend to. This Dilemma bas bad a contrary Effect upon the Minds of Men; while the Philosopher was in Danger of doubting of the Success, and so ready to grow cold in his Devotions; and the more unthinking, yet more religious, Man rejected the Consideration of the Manner, or the Operation of second Causes, and more wisely look'd up only to God, and imagin'd bim immediately concern'd in every Occurrence, and on that Principle doubted not the Effect of his Prayers. But 'tis, methinks, evident that neither of these were exactly in the Right; and equally so, that the due Consideration of what has been abovesaid, would prevent the Dilemma, and take away all reasonable Scruple. 'Tis true, that Natural Causes will operate as usual. 'Tis a so true that Miracles are not ordinarily to be expected: But withal'tis as true that the same all-wise Creator, who appointed that constant Course of Nature, foresaw at the same time all those Dispositions of Men, and in particular those Devotions of his Worshippers, to which fuitable Rewards were to be provided, and fuitable Answers returned; and therefore has so ordered the Series of Natural Causes, as to make that very Provision for the same, which otherwise he would have done Mm 3

by the miraculous Interposition of his Providence; and which therefore is equally to be ascribed to him with the greatest Wonders. 'Tis true, the Frame of Nature is now constant and settled: But'tis true also that it was so settled on the Prospect of the moral Bebariour, and in correspondence to the good or bad Actions of Mankind, foreseen and presupposed in the Primitive Constitution of all: And by Consequence whatever Benefits or Afflictions the constant Course of Nature and second Causes bring to us, are equally capable to be the Matter of our Prayers or Deprecations, of our Humiliation or Gratitude before God, as the immediate Effects of a miraculous Power; and the Divine Providence no less to be acknowledged and addressed to in the former than in the latter Case. But because our Imperfection is so great that the Consideration of the Priority of the future Actions of Men to the Prescience of God in the Order of Nature; and the Dependance of the latter on the former, is too bigh for our Comprehensions, and tho' demonstrable by, yet inscrutable to the Reason of Mankind; and because we are therefore still ready to conceive what is foreknown by God to be necessary and inevitable; let the moral Behaviour of Men be as it will: Because, I say, this Prescience of God is too Divine a thing to be easily penetrated and applied by us to all Occasions, I confess 'tis the most Obvious and the most Prudent, as well as the most Scriptural Way to keep within our Faculties, and always to suppose an immediate Exerting of a new Power in every new Turn in the World; and without the troublesome Inquisition into the Nature and Design of the Primitive Constitution of the Material World, to refer all Things to an immediate Providence: Into which every one must ultimately and originally be resolved, and which has as well and as congruously taken

taken care of all Events, as if such a miraculcus Efficiency were really concerned on every individual Occasion. Which whole Matter thus explained, may be of Use to those who through the not understanding the Method of the Divine Providence, and its Confistency with an uninterrupted Course of Nature, have perplexed their own Minds, and endangered their Religion: Which pernicious Scruples true Philosophy, when rightly understood, is the only Means of dispelling and preventing. Nothing being more true or more momentous than this, that 'tis ever our Ignorance or Mistakes only, that fully the Providence of God, or diminish our religious Affections to him.

LXXXIX. Since the Deluge there neither has been, nor will be any great and general Changes in the State of the World, till that Time when a Period is to be put to the present Course of Nature.

LXXXIX. Seeing we know no other Natural Caufes that can produce any great and general Changes in our fublunary World, but fuch Bodies as can approach to the Earth, or, in other Words, but Comets; and feeing withal, the next Approach of a Comet, will, in probability, bring the present State of Things to a Conclufion, and Burn the World, of which prefently; 'tis evident the Earth is secure enough all the intermediate Space: And as hitherto we accordingly find it has been, so we need not fear but it will be, preferv'd till the fore-mention'd Conflagration.

Scholium. That Comets are not incapable of causing such great Changes as I have here already, or shall afterwards ascribe to them, give me leave to quote the Testimonies of two great Astronomers and very competent Judges in this case: I

M m 4

mean

mean the two famous Oxford Professors, the late Astron. p.Dr. Gregory and Dr. Halley. The Words of the former are these: Alius etiam erit quandoque Cometæ sive effectus sive usus: Si nempe Cometa prope Planetam transeat, (ita ferentibus eorum Orbitis & motibus) bunc ita attrabet ut ejus Orbita immutetur, (mutatâ etiam ex mutua actione Cometæ Orbita) unde Planetæ Periodus etiam mutabitur. Sed & Satelli-

tem ita per attractionem deturbare poterit Cometa, ut, relicto suo Primario, ipse evadat Primarius, circa Solem deinceps rotatus. Præterea, mutationes multo maximas in ipso Planetæ Globo producere poterit, non solum prolectando fluidum, si quod sit, sed per alias etiam avalitates: si a a corpus tam mastum Es. si

etiam qualitates; si v. g. corpus tam vastum, &, si ex solis vicinia prodeat, ignitum, Tellurem nostram è propinquo prætervehatur. Dr. Halley's Words are

Act. Phi- e propinquo præter sebatur. Di Hattey's Words are losoph, p. as follow: Inter omnes Nullus propriore appulsu 1898, Terris minatus est quam ille anni 1680. Hic inito 1899. Calculo non amplius ad Boream distabat ab Orbe No. 297.

nostro annuo quam semidiametro Solari, (sive radio Lunaris Orbitæ, uti existimo,) idque Novemb. 11°.

1°. 6′. P. M. Quo tempore, si Terræ quoad Longitudinem conjunctus fuisset, Parallaxis sane Lunariæqualis in Cometæ motu observari potuisset. Hæc Astronomis dicta sunto: Quæ vero ab bujusmodi allapsu vel contactu, vel denique collisione Corporum cælestium (quæ quidem omnino non impossibilis est) consequi debeant; rerum Physicarum studiosis discutienda

relinguo.

Scholium 2. Having now finish'd my Account of the Deluge, I shall here add a mighty Attestation which the most considerable Adversary of my Theory, has given to this part of it: And being the Confession of an Adversary, Dr. Keill, and therefore to be sure no other than what was extorted by the plain Force of Reason and Argu-

ment,

ment, is, I think, of great Confequence in the present case, and sufficient to induce all others who are either less competent Judges of the Nature of that Evidence I have brought, or have not fo carefully confider'd it, to re-examine it more carefully than they have yet done, and not to be deterr'd by any leffer Mistakes I may have been at first guilty of, from enquiring whether in the main I have not Evidence for what I have afferted. Dr. Keill's Words are thefe: I cannot but acknowledge, that the Author of the New Theory of the Earth, bas made greater Discoveries, and proceeded on more Philosophical Principles, than all the Theorists before him have done. In his Theory there is some very strange Coincidents, which make it indeed probable, that a Comet at the Time of the Deluge pass'd by the Earth. It is surprizing to observe the exact Correspondence between the Lunar and Solar Year, upon the Supposition of a Circular Orbit, in which the Earth moved before the Deluge. It cannot but raise Admiration in us, when we consider, that the Earth at the Time of the Deluge was in its Perihelion, which would be the necessary Effeet of a Comet that pass'd by at that Time, in drawing it from a Circular to an Elliptical Orbit. This, together with the Consideration that the Moon was exactly in such a Place of its Orbit at that Time, as equally attracted with the Earth, when the Comet passed by, seems to be a very convincing Argument that a Comet really came very near, and pass'd by the Earth, on the Day the Deluge began.

flugration with a Witness: and tuch

Prelent,

one as would entirely ruin the Make of the

CHAP. V.

A Solution of the Phænomena relating to the General Conflagration; and of the Conjectures pertaining to the same, and to the succeeding Period, till the Consummation of all Things.

See Cicero De Nat. Deor. l.2. c. 46. XC. A S the World once perished by Water, so it must by Fire at the Conclusion of its present State.

XC. As we have given an Account of the Univerfal Deluge from the Approach of a Comet in its Descent towards the Sun; so will it not be difficult to account for the General Conflagration from the like Approach of a Comet in its Ascent from the Sun. For 'tis evident from what has been already explain'd, that in case a Comet pass'd behind the Earth, though it were in its Descent, yet if it came near enough, and were it felf big enough, it would fo much retard the Earth's annual Motion, and oblige it to revolve in an Ellipfis fo near to the Sun in its Peribelion, that the Sun it felf would fcorch and burn, diffolve and destroy it in the most prodigious Degree; and this Combustion being renew'd every Revolution, would render the Earth a perfect Chaos again, and change it from a Planet to a Comet for ever after. 'Tis evident this is a sufficient Cause of a general Conflagration with a Witness; and such an one as would entirely ruin the Make of the prefent,

present, and the Possibility of a future World. On which last Account, if we allow the following Phænomena, we must not introduce this, at this Period however; but see whether a Conslagration of a less destructive, and more refining Nature be not to be expected, and may not be accounted for. And here let it be observ'd, that the Central Heat of it self seems sufficient to burn up, and dissolve the upper Earth; (as those who with Dr. Woodward, own the Power and Vehemence of the fame now, and its aftonishing Force, and terrible Effects in Earthquakes, Eruptions of Volcano's, and other Phænomena of present Nature, ought to allow;) if these two Things were by any means remov'd; I mean the Waters of the Seas and Ocean, and the Coldness of the Air: For 'tis the vast Quantity of Waters of the Earth, and the Coldness of the middle Region of the Air every where, and of the whole Air in the Frigid Zones, returning the Vapours cold down again, which were fent up into them never fo bot, which feems still to prevent the Effects of the subterraneous Heat, and to hinder the Conflagration of the Earth. If therefore the passing by of a Comet be capable of emptying the Seas and Ocean, and of rendring the Air, and its contiguous upper Surface of the Earth extremely hot and inflam'd, no more, I suppose, will be necessary to a general Conflagration: Or if any more Affistance be afforded by the Presence of the Comet, it will be ex abundanti, and only contribute still the more certainly, and the more fuddenly, to kindle fuch a fatal Fire, and fo dreadful a Combustion. Now that both those requisite Conditions for a general Conflagration would be the Confequents of this Paffage

Passage of an ascending Comet, is plain and evident: For (1.) On the Approach of the Comet, a vast Tide would arise in the great Abyss; and by the new, more confiderable, and more violent Elevations thereof into the Protuberances and the Spheroid Surface of the whole, the old Fissures and Breaches would be open'd again, and not a few new ones generated; not only, as at the Deluge, in the Mountainous or more loofe Columns, extant above the Surface of the Waters of the Globe; but in all Parts, and under the Seas and Ocean, as well as in other Places; which Fissures must immediately swallow up the main Mass or Bulk of the Waters upon the Face of the Ground, and fend them to their Fellow Waters in the Bowels of the Earth; which was the first and principal Step towards a general Conflagration. And then (2.) The Vapours acquir'd from the Comet's Atmosphere, which at the Deluge were, by reason of their long Abfence from the Sun in the remote Regions beyond Saturn, pretty cool; at this Time must be suppos'd, by reason of their so late and near Approach to the Sun about the Peribelion, exceeding hot and burning; and that to fo extraordinary a Degree, that nothing but the Idea of the Mouth of a Volcano, just belching out immense Quantities of liquid and burning Steams, or Torrents of fiery Matter, can in any measure be suitable to the Violence thereof. Imagine therefore, the Earth to pass through the very middle of this Atmosphere, for 10,000 Miles together, and to bear off with it a Cylindrical Column thereof, whose Basis were somewhat larger than a great Circle on the Earth, and whose Altitude were the Number of Miles just now mention'd; and then

then tell me whether the Air, and its adjoining uppermost Region of the Earth, will not be fufficiently hot and fcorching; which was the other Step to the general Conflagration. Befides all which, what Quantities of this fiery Exhalation, or Torrent of melted liquid Matter would run down the Fissures into the Bowels of the Earth, and by joining with the Central hot Steams already there, invigorate them, and accelerate the direful Inflammation; and what piercing and fcorching fiery Corpufcles the Central Body it felf during its Vicinity, would also send out; and what an additional Power would thereby be afforded the prevailing Heat, I need not fay. Upon the whole, I may appeal to the Reader, if the Concurrence of all Vid. Theo. these external Causes, to say nothing here of 1.3. c. 7. any internal Dispositions in the Earth, it self thereto, do not appear abundantly fufficient within a little Time to fet the World on Fire, and bring on that terrible Conflagration which both Sacred and Profane Testimonies conspire to forewarn us of; and fo whether the Theory of Comets does not afford us almost as commenfurate and compleat an Account of the future Burning, as it already has done of the ancient Drowning of the Earth.

XCI. The same Cause which will set the World on Fire, will also cause great and dreadful Tides in the Seas, and in the Ocean: with no less Agitations, Concussions, and Earthquakes in the Air and Earth.

XCI. Seeing the Eruption of the Central Heat, (the Cause, 'tis probable, of all our Earthquakes) the Presence of a Comet; (the Cause once already of the most prodigious Tides that

that ever were) and the inflam'd Chaos, or fcorch'd Atmosphere of a Comet, (a smaller Part of which probably has occasion'd all our Tempests, our Meteors, our Thunder and Lightning ever fince the Deluge) will all concur at once, and with joint Forces conspire together; nothing in the World can be suppos'd more terrible, nor more exactly correspondent to the Phænomenon before us.

XCII. The Atmosphere of the Earth, before the Conflagration begins, will be oppress'd with Meteors, Exhalations, and Steams; and thefe in fo dreadful a manner, in fuch prodigious Quantities, and with fuch wild confused Motions and Agitations, that the Sun and Moon will have the most frightful and hideous Countenances, and their ancient Splendor will be entirely obscur'd; the Stars will feem to fall from Heaven; and all manner of horrid Representations will terrify the Inhabitants of the Earth.

XCII. Those who consider how great a Comet's Atmosphere appears to us after its Perihelion, and what large Quantities of its newly fcorch'd Masses our Air must be clogg'd and burthen'd withal, will expect no other Effects than those here mention'd; and will easily believe that all fuch horrible Appearances would enfue, and that in the most amazing Degree, and extravagant Instances possible. The Theo-1.3. c. 11. rist's Representation of this Matter will be, generally speaking, but a fair and just Idea there-

of.

XCIII. The Deluge and Conflagration, are referr'd, by ancient Tradition, to great Conjunctions of the Heavenly Bodies; as both depending on, and happening at the fame.

XCIII. In our Accounts of the Deluge and Conflagration, there is a notable Conjunction of of the heavenly Bodies indeed; not such an imaginary one as the Astrologers so ridiculoufly make a stir about; the bare Position of two or more of the celestial Bodies in or near the same streight Line, from the Eye of the Spectator, while they are at the most remote Diftances from one another; which is a poor jejune Thing indeed: But a real one with a Witness; when three of the heavenly Bodies, the Earth, the Moon, and the Comet, not only are in an Astrological Heliocentrick Conjunction, or only feem to an Eye in the Sun to be conjoin'd together, but are really fo near as to have the mightiest Effect and Influences on one another possible; which we have sufficiently shewn in the present Theory, and which does peculiarly correspond to the Phænomenon before us.

Corollary. 'Tis not impossible but the ancient Tradition, that the Deluge and Constagration some way depended on certain remarkable Conjunctions of the heavenly Bodies, misunderstood, and afterward precariously and widely misapply'd, might give Occasion and Rise to Astrology; or to that mighty Quoil and Pother so many in all Ages have made about the Conjunctions, Oppositions, and Aspects of the heavenly Bodies, and the Judiciary Predictions therefrom; which even the Improvements of solid Philosophy in our Age have not been able yet to banish wholly from among us; the Occasion whereof is otherwise exceeding dark and unaccountable.

XCIV. This general Conflagration is not to extend to the entire Diffolution or Destruction of the Earth, but only to the Alteration, Melioration, and peculiar Disposition thereof into a New State, proper to receive those Saints

and Martyrs for its Inhabitants, who are at the first Refurrection to enter, and to live and reign a Thousand Years upon it, till the second Resurrection, the general Judgment, and the final Consummation of all Things.

XCIV. Seeing the Abyss consists of a dense cum Co- and compact Fluid, not capable of any Rareroll. priùs. faction or Dissolution by the most violent Heat imaginable, 'tis evident that the Caufes here affigned can only extend to the upper Orb, or habitable Earth, without any farther Progress. So that the Effect of this Conflagration will be the Reduction of this upper Earth, and its Atmosphere, into a confus'd, mix'd, and Chaotick State; much fuch an one as was before observ'd to have preceded the original Formation of it. So that as the Heat decreases, 'tis but reasonable to expect a kind of Reiteration of the Mosaick fix Days Creation, or a Renovation of the Primitive State of the Earth; to the Description of which therefore I must refer the Reader.

XCV. The State of Nature during the Millennium will be very different from that at present, and more agreeable to the Antediluvian, Primitive and Paradisiacal ones.

XCV. This is apparent from the Conclusion of the former Solution.

XCVI. The Earth in the Millenvium will be without a Sea, or any large Receptacle filled with mighty Collections and Quantities of Waters.

Solut. 6, & XCVI. The Primitive Seas depended main7. priùs. ly on two Things; the former, the Concurrence of the Central and Solar Heat for no less
than nine or ten Months together, in the Elevation of sufficient Quantities of Vapours: The
latter,

latter, the Earth's considerable Solidity attain'd before the Descent of the same Vapours which were to compose the Seas, of which we are speaking: So that if either of these be wanting in this reiterated Formation of the Earth, 'tis evident the Essect must fail, and the Globe be no longer a Terraqueous one after the Conslagration. Now the next Proposition but one, afferting the Probability of the entire Absence of the Sun, must infer a Probability of the entire Absence of Seas also, according as this Proposition afferts.

XCVII. The Earth in the Millennium will have no Succession of Light and Darkness; Day and Night; but a perpetual Day.

XCVII. In case the Earth's diurnal Rotation, upon which these Vicissitudes depend, were retarded fo as to be only exactly equal and commensurate to its annual Motion, (which is the Case in the Moon's diurnal and menstrual Revolution at present, as we have before observ'd) the Earth would constantly expose the same Lem. 42. Hemisphere to the Sun, (as the Moon does now priùs. to the Earth) and all Succession of Day and Night for ever cease; the one half of the Globe enjoying a perpetual Day, while the other was involv'd in Darkness, or excluded all Advantages from him, and thereby enduring a continual Night, fo far as natural Caufes are here to be confider'd. And that this Retardation of the Earth's diurnal Rotation (even without a recurring to the miraculous Power of its first Author) is accountable from that paffing by of a Comet, which we affign for the Occasion of the Conflagration, is very easy and obvious: For in case its Ascent and Passage by, be on the East Side, or before the Earth; and in case it Nn approach

approach so near as to rub against it, 'tis evident fuch an Impulse is contrary to the Course of the diurnal Rotation, and is therefore capable (the Proportions of every Thing being adjusted by Divine Providence) of putting fuch a Stop to the same as is necessary to the present Phænomenon, and fo may put a Period to that constant Succession of Light and Darkness, Day and Night, which has obtain'd ever fince the Fall of Man; and withal distinguish the Surface of the Earth into two quite different and contrary Hemispheres; near the Vertex of one of which the Sun it self, and near that of the other, its opposite Point in the Heavens, will be always fituate.

Corollary. Seeing such a Rub of the Comet would affect the annual Motion of the Earth as well as the diurnal, 'tis possible it might retard the former as well as the latter, and reduce the Elliptical Course and Orbit of the Earth, to its ancient Circular one again, or into some other Elliptical one of a very different Species from the here to the San Maschel Moon

present.

approach

7, 8, 9.

XCVIII. The State of the Millennium will not stand in need of, and fo probably will be without the Light and Presence of the Sun and Moon.

XCVIII. Seeing the Earth would be on the foregoing Supposition distinguished into two quite different Hemispheres, the one of which would be wholly destitute of the Light and Prefence of the Sun; and, fo far as appears by St. John, supply'd by a supernatural Light, fix'd and permanent above its Horizon, (at least as to the main and middle Parts of it, diftinct from those Apoc. xx. darker four Corners of the Earth, whence Gog and Magog shall at length attempt to destroy

the

the Saints inhabiting there, and which poffibly may be the Σκότ 🚱 εξώτερον fo often mention'd in Vid. etiam the New Testament:) 'tis clear that the first Apoc.xxii. Branch of this Proposition is accountable thereby, 14, 15. fo far as this Phylical Theory is concern'd therein. And as to the Moon, feeing 'twas only a fignal and peculiar Providence that caus'd her equal Acceleration, and confequent accompanying the Earth at the former paffing by of the Vid. Gre-Comet; and that no fuch Providence need here gor. Aftrobe expected; 'tis evident that that Rub or Stop-Schol. 1. page of the Earth's Annual Motion, which retards Solut. 92. the same, and does not retard the Moon's also, priùs citat. may separate these Planets, and procure their Orbits, Courses, and Periods to be quite different from one another's ever after; according to the greatest Rigour of the present Proposition.

XCIX. At the Conclusion of the Millennium, the Final Judgment and Consummation of all things, the Earth will defert its present Seat and Station in the World, and be no longer found among the Planetary Chorus.

XCIX. If any Comet instead of passing by, or gently rubbing the Earth, hit directly against it, in its Course either towards or from the Sun, it must desert its ancient Station, and move in a quite different Elliptick Orbit; and so probably of a Planet become again a Comet, for the suture Ages of the World.

N. B. Some of the Figures belonging to the Comet's Course at the Deluge were fitted to the two first Editions of this Book, before I suspected that the Comet which I saw A. D. 168; was that very Comet which occasion'd the Deluge. They ought to have the Angle between the Trajectory of the Comet, and the Line connecting

SOLUTIONS. Book IV.

452

ing the Sun and Comet about 35° where the Moon will be about 2^d 21^h past the Syzygy. The nearest Distances also, af and xy, Fig. 2. ought to be greater, and the Comet it self larger than before, to compensate the same. Nor does the Observation of the Comet's Bigness properly contradict either the former or latter Hypothesis. Any Exactness in the Measure of even its Diameter not being to be had; and its particular Density being wholly unknown also.

N. B. It is fit here to rectify one confiderable Mistake in pag. 217. where the Note ought to run thus: And there is no more Difference in the Case of the Samaritan Numbers, than that we are obliged to abate \frac{1}{8} in the supposed Motion of the Perihelion: Which as it seems of late quicker than in the old Astronomy; so may it be allowed to have gone still somewhat slower in the more ancient Ages, next after the Deluge. Nor will the Positions and Revolutions of the several Comets through the Planetary Regions admit of a perfect Uniformity in such Motions.





COROLEARIE

COROLLARIES

From the WHOLE.

I. SEEING the new and solid Improvements of Philosophy do all along give such rational Accounts of those ancient Theorems, which have been propagated down from the eldest Ages, without being then understood, or intelligible to their Propagators; 'tis reasonable to trust and rely on such Ancient Traditions, not only Sacred, but Prophane also, in these or any other parallel Cases; they being in all Probability the most valuable Remains, and most venerable Truths which the primitive Parents of the World deliver'd down to their Posterity in succeeding Generations.

II. Seeing most of these ancient Theorems are very much beyond the distinct Knowledge of those who deliver them; contrary to the common Opinion of Mankind, judging usually by sensible Appearances; and in themselves, considering the low State of Natural Knowledge at the same Times, were highly improbable, if not utterly incredible to inquisitive Minds: and indeed several of them relating to the Chaos, the Creation, the primary Constitution and State of the World, and the Deluge it self, impossible to be discovered without Supernatural Revelation; and yet seeing, after all, N n 2

they do now appear almost as agreeable to Reason, and the most solid Mechanical Philosophy, as any new Discoveries, built on the exastest Observations of present Nature whatsoever; 'tis apparent that these ancient Accounts, especially those contain'd in the Holy Scriptures, were not originally deriv'd from the Natural Skill and Observation of the first Authors, or any other meerly Human Means, but from the immediate and Supernatural Revelation of God Almighty; who was therefore much more conversant with Mankind in the first, than he has been in these last Ages of the World; as the Old Testament-History every where assures us.

III. The Measure of our present Knowledge ought not to be esteem'd as the Kertherov, or Test of Truth; or to be oppos'd to the Accounts receiv'd from prophane Antiquity, much less to the inspired Writings. For notwithstanding that several Particulars relating to the eldest Condition of the World, and its great Catastrophes, examin'd and compar'd with so much Philosophy as was till lately known, were plainly unaccountable, and, naturally speaking, impossible; yet we see, now Nature is wore fully, more certainly, and more substantially understood, that the same Things approve themselves to be plain, easy, and rational.

IV. 'Tis therefore Folly in the highest Degree, to reject the Truth, or Divine Authority of the Holy Scriptures, because we cannot give our Minds particular Satisfaction as to the manner, nay or even possibility of some things therein asserted. Since we have seen so many of those things which seem'd the most incredible in the whole Bible, and gave the greatest Scruple and Scandal to Philosophick Minds,

fo fully and particularly attested, and next to demonstrated from certain Principles of Astronomy and Natural Knowledge; 'tis but reasonable to expect, in due Time, a like Solution of the other Difficulties. 'Tis but just, sure, to depend upon the Veracity of those boly Writers in other Assertions, whose Fidelity is so entirely established in these hitherto equally unaccountable ones.

V. The obvious, plain, or literal Sense of the sacred Scriptures, ought not, without great Reason, to be eluded or laid aside: Several of those very Places, which seem'd very much to require the same bitherto, appearing now to the minutest Circumstances, true and rational; according to the strictest and most literal Interpretations of them.

VI. We may be under an Obligation to believe such Things on the Authority of the Holy Scriptures as are properly Mysteries; that is, though not really Contradictory, yet plainly Unaccountable to our (present Degree of) Knowledge and Reason. Thus the facred Histories of the Original Constitution, and great Catastrophes of the World, have justly been in the past Ages the Objects of the Faith of Jews and Christians, though the Divine Providence had not afforded so much Light, as that they could otherwise satisfy themselves in the Credibility of them, till the new Improvements in Philosophy. And this is but just and reasonable; for sure the Ignorance or Incapacity of the Creature does by no means afford sufficient Ground for Incredulity, or justify Men in their rejecting Divine Revelation, and impeaching the Veracity or Providence of the Creator.

VII. Seeing the Natural and the Moral World are alike subject to the Divine Providence, and that N n 4 the

the same Author has indited those Writings which relate to both; the Discovery of the Verity of the Holy Scriptures in the most difficult Points relating to the one, ought to make us entirely secure of the like Verity of the same Scriptures relating to the other; notwithstanding any Difficulties still remaining about them. As the wife, proportionate, and harmonious Order and Regularity of the Natural World, where no Freedom of the Creature interposes, and gives any Occasion for Disorder, justly obliges us to believe the most wife and equal Methods of Providence to be equally exercised about the Moral one also; although the Intricacies arising from the Abuse of the Liberty of Will in rational Creatures, render them bitherto more obscure to us in the latter Case than in the former: So certainly the Establishment of the Verity of the Scriptures in the most barsh and difficult Assertions touching the Natural World, (the proper Case in which the Improvement of Philosophy was likely to afford Means for our Determination) ought to assure us of the like Verity of the same Scriptures in the other Points, more particularly the Subjects of Divine Revelation, less capable of affording any other Means of Satisfaction, and yet more directly the Design, Scope, and Drift of the Sacred Writers, and the Concern of Divine Providence than the other.

Τῷ δὲ Βασιλεῖ τ΄ Αιώνων ΑΦθάρω, 'Αοράτω, Μόνω Σοφῷ Θεῷ Τιμη κὰ Δόξα εἰς τὰς Αἰῶνας τ΄ Αιώνων. ΑΜΗΝ.

AN

APPENDIX,

CONTAINING A

NEW THEORY

OF THE

DELUGE:

BEINGA

Plain Abstract of what the AUTHOR has said on this Subject in different Treatises.

MA

APPENDIX.

CONTRACTOR

NEW THEORY

OFTHE

DELUGE:

BEINGA

Plain Abfired of what the Aurusa has faid on this Subject in different Treatifes.



YRORT WENT

ANEW

THEORY

OF THE

DELUGE.

PREPARATORY PROPOSITIONS.

OMETS are a Species of Planets, or Bodies revolving regularly about the Sun; and this in fuch eccentrical Elliptick Orbits as are nearly Parabolical.

II. The Plains in which the feveral Comets revolve are exceeding different from, and at all imaginable Angles of Inclination with one ano-

ther, and with the Ecliptick.

III. The Direction of the Course of Comets in their Orbits is not determin'd one way, (as is that of the Planets, from West to East) but is uncertain; uncertain; about one half of them being direct

in their Motion, and the other retrograde.

IV. The Comets in their Descent to, and A-scent from the Sun, pass through the Planetary System, and usually through that intire System, from Saturn to Mercury.

V. The Comets therefore may approach to any of the Planets themselves, if their several Plains and Positions and Periods be rightly adjusted for that Purpose, but not otherwise.

VI. The Law of Gravity, or mutual Attraction of Bodies equally belongs to the Comets as to the Planets; and the Effects of the fame in the Acceleration and Retardation of Bodies; in the Flux and Reflux of all Fluids upon or beneath the Surface of the Planets or Comets themfelves, and the like, are equally to be allow'd in the one case as in the other.

VII. Comets are, generally speaking, of the same Magnitude with Planets, and as they are some bigger and others lesser: I mean this of their real solid Bodies, as distinct from their

Atmospheres and Tails. For,

VIII. Besides these Bodies or Nuclei themselves, which are solid, compact and durable,
the Comets are encompassed with a vastly large,
confused and Chaotick Atmosphere; their remoter Regions being sull of thin Vapours; and
those nearer the Centre sull of grosser Exhalations, part of which, when near the Sun, evaporate into prodigiously rare Tails, and when
they come very near the Sun, into prodigiously
long ones also.

IX. The Phænomena of Nature, particularly those of Mountains, and of the Variation of the Magnetick Needle; do best agree to the Hypothesis of a dense Fluid within the Earth; on the

Surface

Surface of which our upper Crust rests; and cannot fairly be folv'd without it. Whence we ought to allow that to be most probably the real Constitution of our Earth. [See New Theory,

passim.]

X. The Deluge of Noah began the 17th Day of the fecond Month from the Autumnal Equinox, or according to the present Hebrew Chronology, on Friday, Novemb. 28. in the 2349th Year before the Christian Æra, or according to the more accurate Chronology of the ancient Hebrew, in the Days of Josephus, and of the Samaritan, agreeing almost exactly therewith, Decemb. 2. in the 2926th Year before that Æra. The former Part of this Proposition has been Hypoth. 9. proved in my New Theory; and the latter, in my Essay towards restoring the True Text of the Old Testament: to which I must refer the Reader. we know that it revolves in about 575

PROPOSITION.

Mumber of Years, or m-

That Comet which last appear'd A. D. 168, see New in its Descent to the Sun, the first Day of the Theory, Deluge of Noah, came very near to our Earth, Hypoth. and was the Physical Cause of the same Deluge. This appears from the Evidence following:

(1.) We have some Testimonies in Antiquity, fet down by Hevelius in his Cometographia, and N. Theor. it is imply'd in both Plato's and Pliny's Accounts, p. 185that a Comet did not only appear at the Time 189. of the Deluge, but had an Influence upon the fame also.

(2.) The Astronomical Theory of this Comet, Deluge built upon the most exact Observations and Cal-Demonst. culations that ever were made about them, and P.6, 7, 8. stated from Sir Isaac Newton's wonderful Disco-

veries,

veries, by Dr. Halley, our famous Professor of Geometry at Oxford, does now clearly shew. that this very Comet did come by at the Time here affign'd. For the Reader is to know, that Sir Isaac Newton and Dr. Halley have lately difcover'd that Comets have their Periods as fix'd and regular as the Planets, though usually much larger; that one of those Comets has return'd three or four Times already, and has its Period about 75 Years; and that another of them has probably come round twice also after a Period of about 129 Years; and, which is the greatest Discovery of all, that this last most remarkable Comet has also several Times been seen already, within the Period of certain Records, I mean in the 44th Year before the Christian Æra: and again A. D. 531 or 532; and yet again, A. D. 1106. Besides its last Appearance A. D. 1682, whereby we know that it revolves in about 575 Years; and that by consequence, if we go still backward about that Number of Years, or rather a little farther, we shall discover all the Times when it has come round in the ancienter Ages of the World. I add, or rather a little farther backward, for fince, as Sir Ifaac Newton well observes, this Comet goes so very near to the Sun every Revolution, as to pass through the Sun's own Atmosphere, if it have any, it may be a small Matter retarded by it every Period, and by confequence its Velocity and Orbit, as also its Periods, may have been in general, taking feveral Revolutions together, a small Matter diminish'd; when we go backward to remote Ages, we must allow elder Periods to have been fomewhat longer than they are at present. In order therefore to discover whether

Princip. Edit. 2. p 480, 481.

this Comet came into our Regions at the Time affign'd, let us compute the Interval of this Comet's revolving as nice as may be. This Comet then, which had its last Period just 575 Years; admits we know of fo much Inequality, that its two former Periods one with another, were but 5744 Years, though whether they were fingly equal, or which was the longer of those two Revolutions, we cannot now determine, by reason of the Want of Accuracy in the Historians, as to the Time of the Year when it appeared in the 6th Century. Let us therefore keep within this Latitude of three quarters of a Year Difference, attested to by Fact; and suppose, as we justly may, that in general those Periods have a little diminished, and so were somewhat larger formerly; and fee how nearly this Calculation will bring us to the Time affign'd for the Beginning of the Deluge. 'Tis evident by Dr. Halley's Computation, in his Synopsis of Co-In Calce. metsy as well as from Sir Isaac Newton's own Scheme, that this Comet crofs'd our annual Orbit, in its Descent Novem. 11. A. D. 1680, a little past One of the Clock in the Afternoon. Before that Time then we must suppose at least feven Periods to have interven'd, and that one with another, the former fix Periods were 5752 Years, as we know the last was just 575. Now fix Times 5751 with once 575, is 4028; which is exactly the Number of Years necessary in this Case, according to the present Hebrew. Nor need I make a new Computation for the more accurate Account of the ancient Hebrew and Samaritan, fince the Difference of the two Chronologies is, in a manner the very fame Number of Years [577] with one intire Periodical Revo-Jution of this Comet, and fo occasions no Diffe-

11.18

rence in the present Case. So that 'tis plain that Comet did descend into our Regions either at, or very near the Time when the Flood of Noah began; i. e. at or very near the Time, when it ought to have descended in order to approach near the Earth.

Del. Dem. P. 5.

(3.) The fame Astronomical Theory of Comets demonstrates, that the descending Part of the Orbit of this Comet was in the same Place where it ought to have been, in order to approach near the Earth, at the Beginning of the Deluge. For the descending Part of the Comet's Orbit cuts the Orbit of the Earth now in the fecond Degree of Cancer, as Dr. Halley's Table, and Sir Isaac Newton's Scheme both shew; which implies, that when the necessary Precesfion of the Equinox of about 46gr. in 4028 Years is allow'd for, we shall find that this defcending Orbit was, at the Beginning of the Deluge, about the 17th Degree of Taurus, or very near the Place where the Earth also was at the fame Time. And this Character will agree, though not fo exactly, with the other Chronology alfo.

(4.) The same Astronomical Theory of Comets demonstrates, what is most of all remark-Del. Dem. able, that the Position of the descending Node of this Comet was most exactly such as was necessary to its Approach to the Earth, at the Beginning of the Deluge. This Node is now in the End of the 2^d, or Beginning of the 3^d Degree of Cancer, close by the Intersection of the Comet's Trajectory with the Line of the Earth's annual Motion, as is plain in Dr. Halley's Table, and Sir Isaac Newton's Scheme, and therefore according to the former Allowance of about 468% for the Precession of the Equinox,

that

rence

that Place of mutual Intersection, which was abfolutely necessary in order to bring the Comet very near the Earth, was at the Beginning of the Deluge, about the 17th Degree of Taurus, or the very Place where the Earth was at the fame Time. And that the Reader may the better discern the Necessity and Exactness of this wonderful Coincidence, he must observe that the Plains of all the known Orbits of the Comets are different from that of the Ecliptick; that, in particular, the Plain of the Orbit of this Comet is greatly fo; the Angle of Inclination being above 60 gr. That therefore there is but one Place of Intersection in the entire Orbit of this Comet that could render it capable of approaching very near the Earth in its Descent: that without this wonderful Coincidence of these Trajectories, or their exact mutual Interfections, as here stated, both the other Agreements, I mean that of the Comet's Period, and of the Situation of the descending Part of its Orbit would have been to no Purpose, as to the Introduction of a Deluge upon the Earth. He must also observe, that by Dr. Halley's own Calculation, this Interfection is still so near the true Line of the annual Orbit of the Earth, that the Comet this very last Descent came, Novem. 11. about as near to that Line as the Moon it felf, to that Line I mean which the Earth now describes; which yet feems to be fomewhat more remote from the Sun than that which the Earth describ'd before the Flood, as will hereafter appear: He must therefore observe farther, that this Interfection would be much nearer to the Line of the Earth's Motion, when that annual Orbit was leffer, than it is at present; and that by confequence, the Comet would then approach

much nearer to the Earth, as within some 10,000 Miles, which as we see hereafter the Phænomena of the Deluge do require. And he ought farther to observe, that as it was 575 to one odds against the Period of the Comet's agreeing to the right Year of the Deluge; and 360 to I against the descending Part's Position in the proper Degree of the Ecliptick; fo was it above 2000 to 1 odds against the Comet's Intersection of the Plane of the Ecliptick, fo very near to the Line of the Earth's Motion, as it really does at this Day; and much greater odds against its Intersection of that Plane, as it must have done if it came within 10,000 Miles of the Earth. All which exact Coincidences do not only render our present Assertion extremely probable; it being next to impossible that all these Circumstances should have so exactly agreed by Chance, as they must have done if there were no relation between this Comet and the Deluge of Noah. Which way of Reasoning will be still stronger, if we consider,

Del. Dem. P. 4, 5.

(5.) That this Comet appears to be exactly of a due Magnitude for the Solution of the Deluge also; as if it were peculiarly fitted for that Purpose. For though the Comets admit of a vast Variety, as to their Bigness, yet will none but a very small one, and of a particular De-Lem. 55, gree of Smallness too, agree to the Phænomena

of the Deluge, as I have shew'd elsewhere. & 85. Now by Mr. Flamsteed's Observations 'tis plain, cum Cothat this Comet had its apparent Diameter the \$5.p.203. last Return about 20" only, when it was as far

off as the Sun, or if we deduct 9" for that dense Part of its Atmosphere which always hides the Nucleus it felf, we shall have that Diameter about 11", while the Moon's would be about 6"

at

at the same Distance. Now the Cube of 11" Ibid. or 1331, being six Times the Cube of 6" or 216, the Comet must have been about six Times as big as the Moon, or the seventh Part so large as the Earth, which is the very Bigness I have shew'd elsewhere the Phænomena of the De-Ibid. luge requir'd. And if we consider, that the greatest primary Planet Jupiter, is almost 8000 Times greater than the least, Mercury; we shall find, as before, that 'tis highly improbable, that the particular Bigness of this Comet, as suited so exactly to the Case of the Deluge, should see Lem. yet have no relation to the Deluge notwith-38. standing.

N. B. These Circumstances, at least all but the last, are peculiar to this Comet and its Orbit, and do not belong to any of the rest now known, which render them much more considerable in

the present Case.

COROLLARIES.

I. Hence we easily account for the Change of N. Theor. the annual Orbit of the Earth, from Circular, Hypoth. as it was most probably before the Deluge, to 7, 10. Elliptical, as it has certainly been ever since. This being the natural Effect of the Attraction of the Comet, as it passed by before the Earth, which must accelerate its annual Motion, and thereby enlarge its Orbit, and lengthen its periodical Time.

II. Hence we easily account for the just Quantity of the Enlargement of that annual Orbit and Period, viz. so much as the Difference of the present Elliptick Period or Year, is from the Antediluvian circular one; which is both

002

the exact Difference of those Orbits, and exactly equal to the Moon's Epact, or Difference of the Solar and Lunar Year with us, and is what this Comet about fix Times as large as the Moon, and approaching within about 10,000 Miles of 3 N. Theor, the Earth would produce, as the Calculation

Lem. 58. does shew.

III. Hence also we easily account for the Pofition of the present Elliptick Orbit of the Earth, which as it ought has its Peribelion in, or very near that Place where the Comet passed by at the Deluge, and changed the Circle into an El-N. Theor. lipfis, as the Calculation does shew. And note, Hyp. 11. that this Character best agrees to the exacter No. 3. p. Chronology.

N. Theor. Moon's Continuance with the Earth ever fince the Deluge, notwithstanding its Acceleration by the Comet, which would naturally have alter'd its annual Period, and have separated it therefrom: for it appears by the Astronomical Tables, that the Time of the Beginning of the Deluge already affign'd, was about three Days and a half past the New Moon, at which Time the Distance of the Comet from the Moon, and its confequent Attraction of the Moon was equal to its Distance from the Earth, and its Attraction of the Earth by it, which would keep them together afterward, as the Calculation does shew. Nor is the like Coincidence wanting in the exacter Chronology.

> V. Hence we learn the Occasion of the Confusions in Astronomy and Chronology as to the Years Solar and Lunar, fince the Flood; viz.

that

that the Length of the Year was changed at the N. Theor. Deluge; but in fuch a way, that that Change Corol.post could not be observ'd by any.

VI. Hence we easily account for the Suste-N. Theor. nance of those vast Numbers of Mankind and Phanom. other Animals which it appears the Antediluvian 35. Earth had upon it. There being probably no Comparison between the primary Fruitfulness of the original Earth, which seems to have been, as we shall see hereafter, free from an Ocean, and from very large Seas, which we have now, N. Theor, and the present less Fruitfulness of the Earth, a-Phan. 45. rising from our Postdiluvian Sediment of the Waters of the Deluge, and that in great Measure as overwhelm'd with Water also.

VII. Hence we easily account for the better N. Theor. Temperature of the Antediluvian Air, as to its Phæn. 38, different Climates and Regions; free from vio-39,40,41. lent and destructive Heat and Cold, Exhalations and Meteors, Contagions and Pestilences, Rains and Storms, than what we at present experience. These afflicting Circumstances since naturally arising from that Chaotick Atmosphere of the Comet, which our Earth carry'd off at the Deluge, and which has ever since constituted no small Part of our Earth's present Atmosphere; from which therefore the Antediluvians were intirely free.

VIII. Hence we easily account for that won-N. Theor. derful Phænomenon of our Postdiluvian Air, the Phæn. 42. Rain-bow: which 'tis plain had no Place before the Flood. This being a natural Essect of such a stormy Atmosphere as ours is since the Deluge, which often precipitates the Vapours that

have long remain'd in it, till they become large and numerous spherical Drops of Rain; whence alone the Rain-bow is deriv'd; and does not let those Vapours which arise in imperceptible Fumes in the Day, descend gradually in Mists in the Night, as they did on our Earth in the Antediluvian Air, and feem to do in the Air of the Moon to this Day.

43, 44, 74.

N. Theor. IX. Hence we easily account for the greater Phænom. length of the Lives of the Antediluvians than of the Postdiluvians, and for the gradual Diminution of that Longevity after the Flood till the Days of King David. For the better Temperature of the Antediluvian Air, with the probably better Vegetables of the Primitive Earth; together with the no Permission of the eating of Flesh, are such Foundations for a greater Longevity then, that we need not wonder at the shortening of Men's Lives upon the Alteration of Circumstances so material as those are at the Deluge. And fince the Mixture and Fermentations of the Chaotick Particles, deriv'd from the Comet into our Atmosphere, would naturally be gradual, 'tis no Wonder if this their Effect in corrupting our Air and Constitutions, and in shortening human Life have been gradual also.

Phæn. 45.

X. Hence also we easily account for those N. Theor. mighty Waters, which our Ocean and large Seas do now contain; but which the Antediluvian Earth feems not to have had. These being the natural Remains of that immense Quantity of Water which the Vapours gain'd from the Comet's Atmosphere, and the Water which was by their Weight forced from the inward Parts of the Earth, at the Deluge afforded us: of which

which more distinctly under the next Parti-

XI. Hence accordingly we eafily account for those 40 Days and 40 Nights violent Rain; when the Windows or Floodgates of Heaven were Gen. vii. . open'd at the Deluge, and which afforded the 11, 12. main Quantity of Waters at that Time. It being evident upon Computation, that the Comet's N. Theor. Atmosphere, through which the Earth pass'd, Solut. 60. though at the Distance of 10,000 Miles, and which the Earth would carry off with it, would be equal to a Column of Vapours of about 100,000 Miles in Altitude, and whose Base was a great Circle of the Earth: which Column, though it were prodigious rare, would yet, when condenfing gradually into Rain, and gradually falling down upon the Earth, afford abundantly enough for this violent Rain before us. Nor has there ever been affign'd a different Caufe of these vast Rains at all sufficient for an universal Deluge, in any other Hypothesis whatsoever.

XII. Hence also we easily account for the Beginning of those Rains, and of that Deluge, exactly and only on the Year, Month and Day affign'd; fince that and only that Year, and Month and Day, this Comet did or could approach near enough to the Earth to afford it Water for this Deluge. I mean this within an intire Period of 575 Years. Nor does it appear, that any other ancienter or later Return of this Comet happened when the Earth was near the fame Place of its annual Orbit, which yet is abfolutely necessary for that Purpose. Nor does the Situation of any other known Comet render Del. Dem. its near Approach to the Earth so much as pos-p. 3, 4. fible. 004

fible. Which Circumstances give us the plainest phyfical Account of the exact Time of the commencing of the Deluge, according to both the facred and prophane Testimonies thereto relating.

XIII. Hence also we easily account for that Gen. vii. other main Cause of the Deluge, the breaking up of the fountains of the great deep: For when the near Approach of the Comet to the Earth had render'd the Shape of that internal dense Fluid, on which its upper Crust rested, so very oblong and oval; and its Surface fo much larger than before, as to occasion the opening of its perpendicular Fissures, which are visible at this Day, especially in stony and mountainous Places; when this, I fay, was the cafe; the vast Weight of the new additional Waters from the Comet would attempt to press this upper Earth deeper into the dense Fluid below, especially in the Vallies, which Pressure would naturally squeeze up the fubterraneous Waters, through the mountainous Fiffures then open, and would throw them out upon the Earth, and so joyn the subterraneous to the cometical Waters, for the Supply of a Quantity sufficient for so vast a Purpose as that of an universal Deluge. Nor has any other Hypothesis, I think, accounted for these secondary Waters for the Deluge, any more than for the former.

XIV. Hence also we easily account for the exact Time of the thus breaking up or opening Gen. vii. all these Fountains of the great deep; viz. the very first Day of the Deluge; that Day, and that only being, in this Theory, the peculiar one, when the Comet was near enough to open the same Fiffures

XV. Hence we eafily account for the exact Time of Noah and his Family, and all the Animals going into the Ark, viz. the very fame Day when the Flood began: fince it appears by the Situation of the Centre of the Main or Northern Continent of the present Earth, arising probably from that highest Elevation of the internal dense Fluid, which was rais'd by the nearest Approach of the Comet thereto, and by the Situation of the Place where Noah lived before the Deluge; which feems to have been in China, far Eastward from that Centre, and from those Gordyean Mountains where the Ark rested afterwards; it appears, I fay, by these Situations, as compar'd with the diurnal Motion, that the Ark was in that Hemisphere of the Earth, which was still free from any Rains, this Day of the violent Descent of the Vapours of the Comet's Atmosphere, or first Day of the Deluge; and that therefore this was as proper a Day for the Entrance of Noab, his Family and the other Animals into the Ark, as any other whatfoever.

XVI. Hence we easily account for the Universality of this Deluge; that all the Regions of the Earth, all the bigh bills under the whole heaven Gen.vi.19, were covered, even Ararat it self, the very highest 20. then of them all, and that on which the Ark Phæn, 41, rested, 15 Cubits deep. It being no wonder that the before mentioned Column of Vapours, whose Base was a great Circle of the Earth, and whose Altitude was no less than about 100,000 Miles, should afford Water to drown the whole Earth. It being plain by Computation that such a Quan-N. Theor. tity of Vapour, though it were 500 times as rare Solut. 60. as Water, would, when it was turn'd into Water, cover

cover the Earth to a much greater Altitude, than that of any Mountain whatfoever.

XVII. Hence we eafily account for the af-Gen. viii. swaging of the Waters by a wind passing over the earth, and by the goings and returnings of those 2, 3. Waters continually upon the ceasing of the Rains, and the Stoppage of the Eruption of the fubterraneous Waters. For 'tis plain that after the Comet was gone, the Descent of the Vapours in Rain would at last exhaust and clear the Air of its Vapours, and put an end to the Rain; that also the natural Gravity of the Particles of the Earth, which had been pull'd a little afunder at the Deluge, would make them gradually fettle closer and closer together, 'till with the Help of the incumbent Water they put a Stop to the ascending Streams, especially in the lower Fissures, that the Wind would carry off some of those Waters into the Air in Vapour, and would hurry the Waters themselves over the Fissures for their draining off by the same into the Bowels of the upper Earth, which was the main Receptacle: it N. Theor, being plain, that many of its Strata would re-Solut. 63. ceive mighty Quantities of them, and that they are in most Places full of fuch Water at this Day. Only we are to note here, that neither the Scripture, nor the Phænomena of Nature, sup-Ibid. pose the intire draining away of the Waters to have been near fo fudden as has been generally suppos'd, but the contrary; and that accordingly our Method of drawing them off, which is that of a very gradual Descent through the Fisfures, and a Diffusion of them by degrees every

way through the proper Strata of our Earth, does give the best Account of that Matter.

XVIII. Hence

XVIII. Hence we easily account for the two grand Continents of our present Earth, with the great Ocean which is now between them; viz. that the one Continent is larger than the other; that the larger lies most part on the North, and the smaller most part on the South side of the Equator; that the middle of the larger lies about 16 or 18 Degrees of Northern, and that of the fmaller about the fame number of Degrees of Southern Latitude; that the Distance between the Continents, measuring from the Northern Southeastward, is greater than that South-westward; that these Continents are unevenly terminated, with many Islands, usually nearest to, and the deepest Parts of the Ocean usually farthest from those Continents. All these Circumstances being no other than the natural Confequences of that double Tide and Elevation of the subterraneous Fluid, and incumbent Earth, at the Time of the Year affign'd for the Beginning of this Deluge, by the Approach of the Comet; and the Impoffibility of the Earth's intire Restoration to its original or fpherical Figure again; all which has been shewn particularly to the Readers in the New Theory it felf, and may tolerably well be apprehended by the confidering Readers of this Epitome.

XIX. Hence we easily account for the Phænomena of our present upper Earth, its Strata and Contents; those I mean which I have given an exact and particular Account of in the New Theory, from Dr. Woodward's Natural History of the Earth, viz. that it is evidently every where Phænominew and factitious since the Deluge, and lies up- & Solut. on the old or Antediluvian Surface; that its Par- 75—90. ticles

ticles were at the Time of that Deluge loofe and divided; that this heterogeneous Mass subsided gradually downwards, and that nearly, though not exactly, according to the Law of specifick Gravity; that it carry'd down with it, and inclos'd in itself vast Multitudes, not only of Trees, Plants, and Vegetables, but also of Fishes which are at this Day lodg'd therein, and their Shells found fometimes in the very middle of Beds of Stone and Marble; all which Circumstances are exceeding remarkable, and the plainest Demonstration that there has been anciently such an univerfal Deluge. Nor are these strange Phænomena other than the natural Refult of fuch chaotick and confused Vapours as the Atmosphere of a Comet mix'd with the Waters fqueez'd out of the Bowels of the Earth, must leave for its Sediment upon the ancient Surface. Nor is the depth of this factitious Earth of 200 or 300 Feet, at all too great for the Sediment of Waters which cover'd, even at that Time, the highest Mountains; which Mountains yet in that oval Shape of the Earth then, must have been much more elevated than any that are now upon it.

XX. Hence we easily account for the lengthening of the Space of a Day, or Retardation of the diurnal Revolution of the Earth, which is but necessary for the adjusting the Solar and Lunar Years before the Deluge. For upon Computation the additional Quantity of Matter derived from the Comet, and spread over the Earth, would retard the diurnal Motion, and lengthen the Day in the Proportion of the present Lunar Year of 355 Days, to a Solar of 360 Days, Hyp. 11. which seems to have been the Astronomical Year of the Antediluvians, as it appears to have thence been

been the Civil Year over all the World for many N. Theor. Ages after the Deluge. Of which Phænomena Hyp. 10. this Retardation of the diurnal Motion of the Earth, which must necessarily arise in our Account of the Deluge from a Comet's Atmosphere, gives us the most easy and agreeable Solution possible.

XXI. Hence we also easily account for the Change that was made of the Course of the four Rivers of Paradife by the Deluge, whereby the Mosaick Description, suited to their Antedilu-Gen. ii. vian, does not now agree to their Postdiluvian 10-14. State. For the Channels of those old Rivers being now, according to this Account, buried fome hundreds of Feet under the Sediment of the Waters of the Deluge, 'tis no great wonder that the new Rivers of the fame Countrey, do not well anfwer to the Descriptions of the old ones. Tho' still the present Rivers Tigris and Euphrates do preserve in general the Situation of the ancient Paradife to this Day: as I have elsewhere shew'd.

N. Theor. Hypoth.4.

XXII. Hence, laftly, we eafily account for this Deluge as it was Divine; and as it was a just and terrible Judgment brought by the Providence of God for the Destruction of a wicked World. For though the Solutions here given are mechanical, and depend upon the known Laws of Matter, Motion and Gravity; and the Calculations are strictly astronomical and geometrical; as in all physical Solutions they ought to be: Yet is all this no Impediment to the Interpolition of God and his Providence in this grand Catastrophe, but rather a fure Demonstration of the same. For the principal Foundation of Mechanism, I mean the Power of Gravity, is it felf now known to be the direct Interposition of the Divine Power. The

The Orbits and Periods of Comets and Planets are known to be no way fix'd by Necessity or Chance, but to have been originally ordered and adjusted by Divine Providence. Nor could such a Coincidence as this of the near Approach of this Comet to our Earth, just at such a Time, when the Wickedness of the World was so prodigiously great; just to such a Distance as should drown the rest of the old wicked World, without destroying the Earth it self, or even the small righteous Remains of it in the Ark; just in such Circumstances as should make way for the Preservation and Recovery of Mankind, and the other Animals by a new Stock afterward, and all this exactly according to the Denunciations and Threatenings of God by Noah 120 Years before

Gen. iv. 3. Threatenings of God by Noab 120 Years before it came; be without the immediate Concern of Divine Providence; and without affording a most convincing Demonstration of God's Justice in drowning the wicked and impenitent, and of his Goodness in preserving the one righteous Family then in the World, to all suture Genera-

the old World: but of faving Noah, the eighth Person a Preacher of righteousness, when he brought this amazing flood upon the world of the ungodly. But of this and many other Particulars, with the noble and important Consequences from these Solutions, especially as so exactly agreeing with the Accounts given us in Holy Scripture, I have

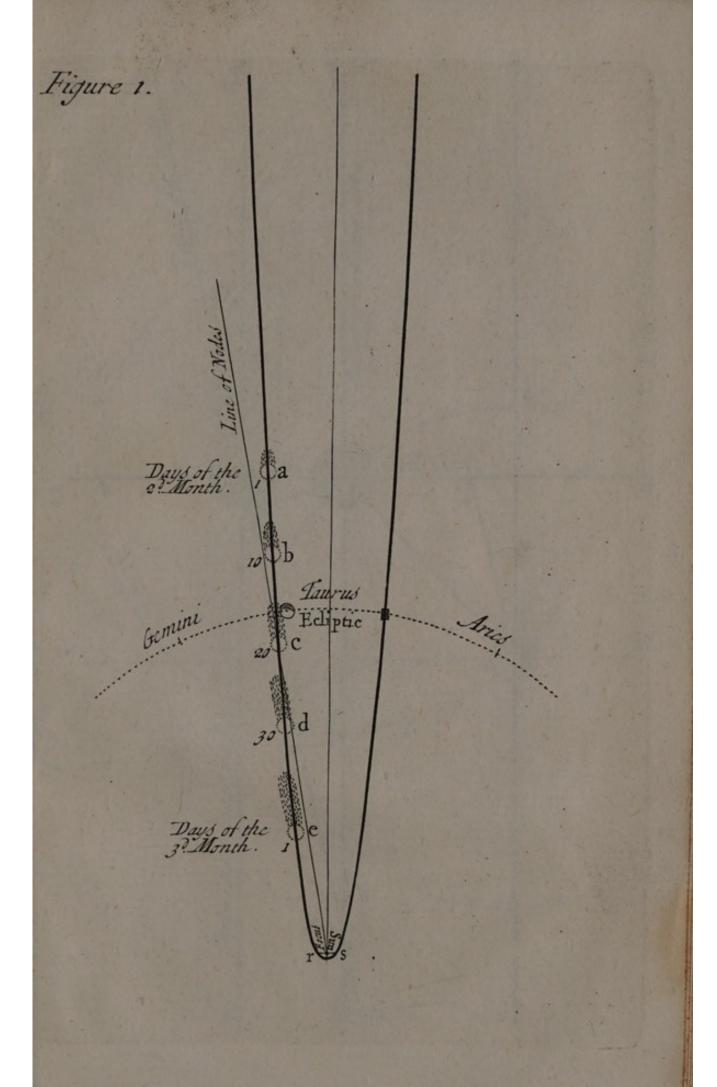
N. Theor. the Accounts given us in Hory Scripture, Thave Del. Dem. treated more largely elsewhere: whither there-Astron. fore I must refer the curious Reader, who desires Princip. of more compleat Satisfaction.

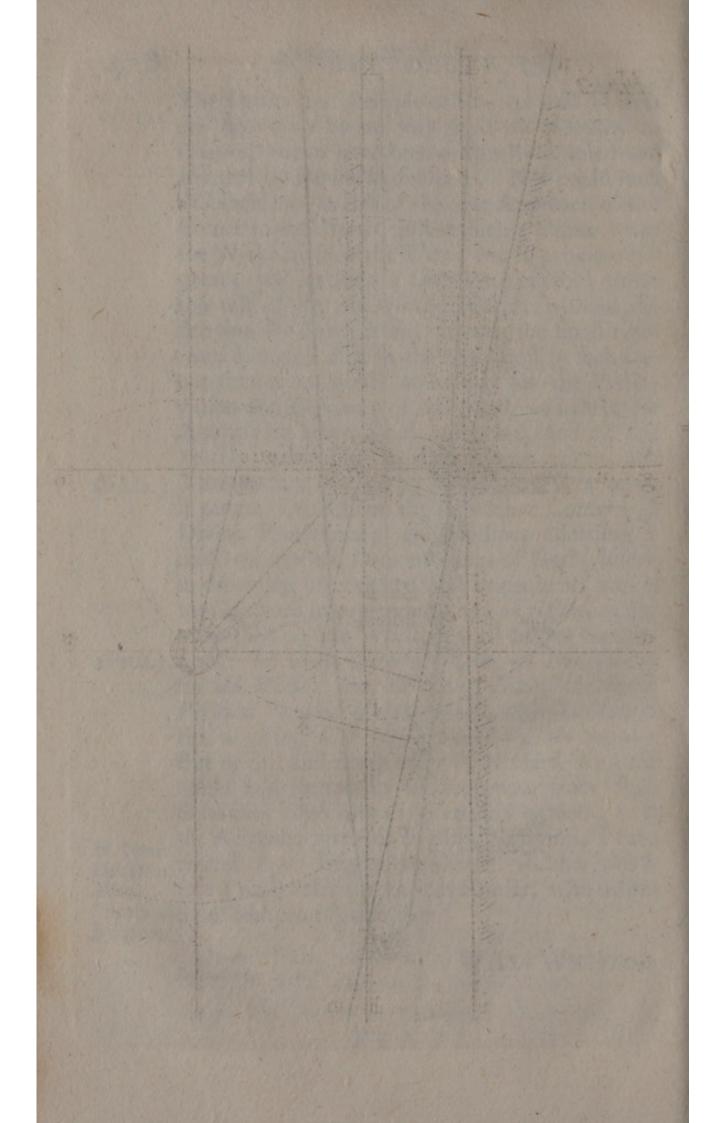
Religion.

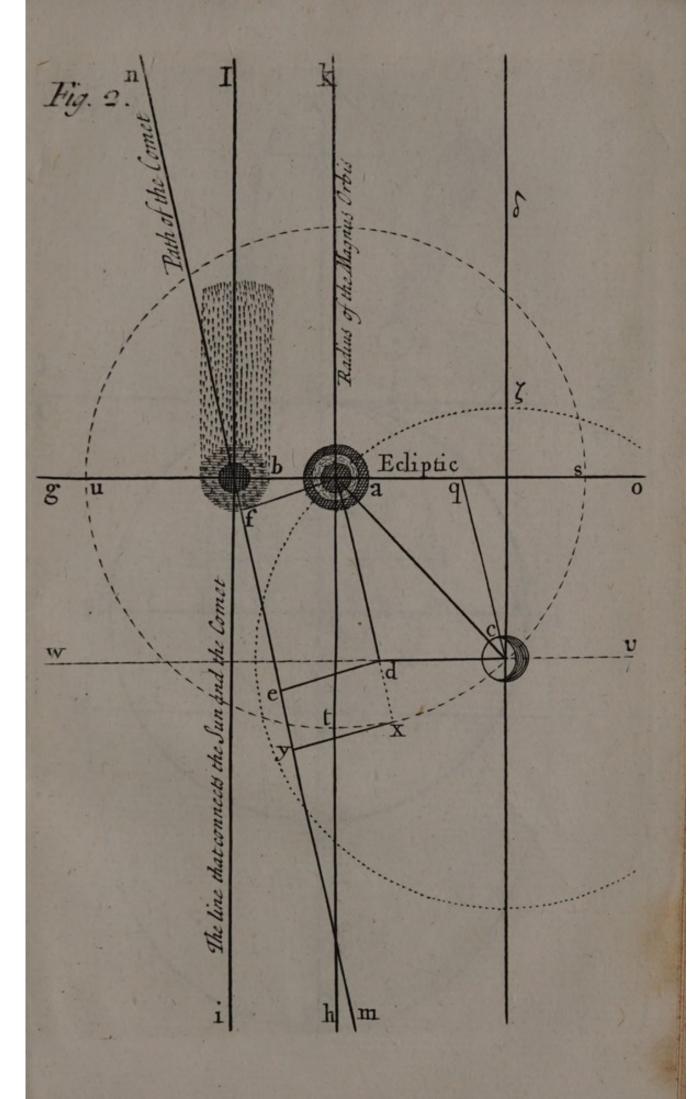
London,

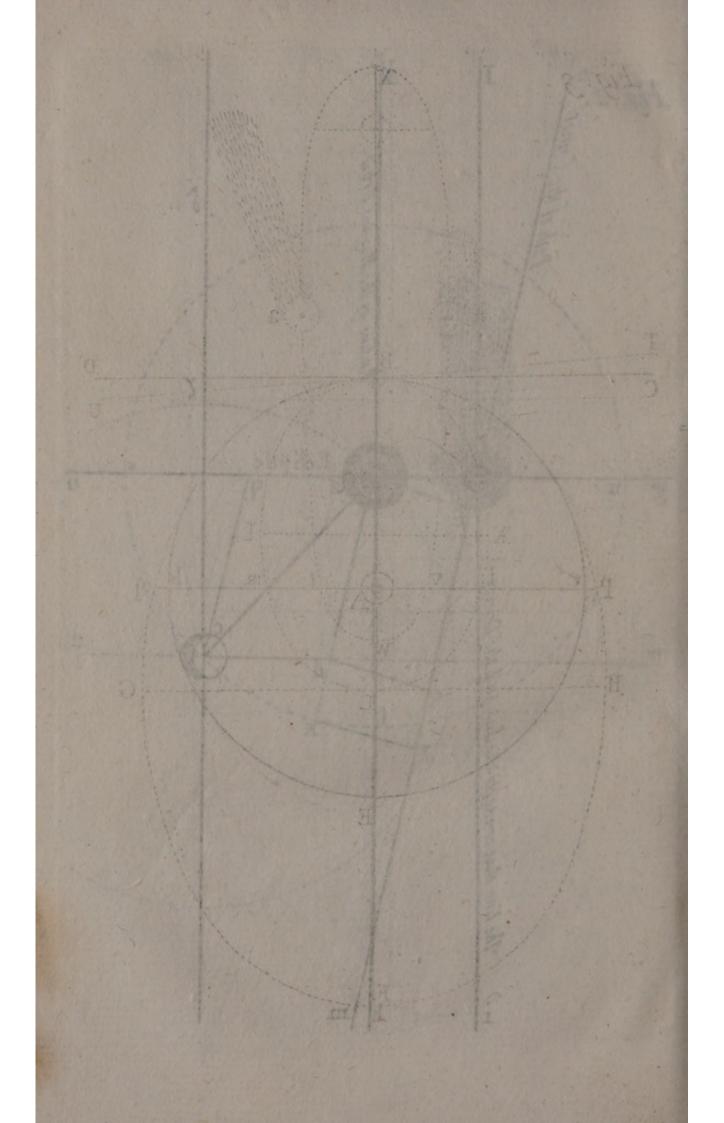
London, September 29. 1736.

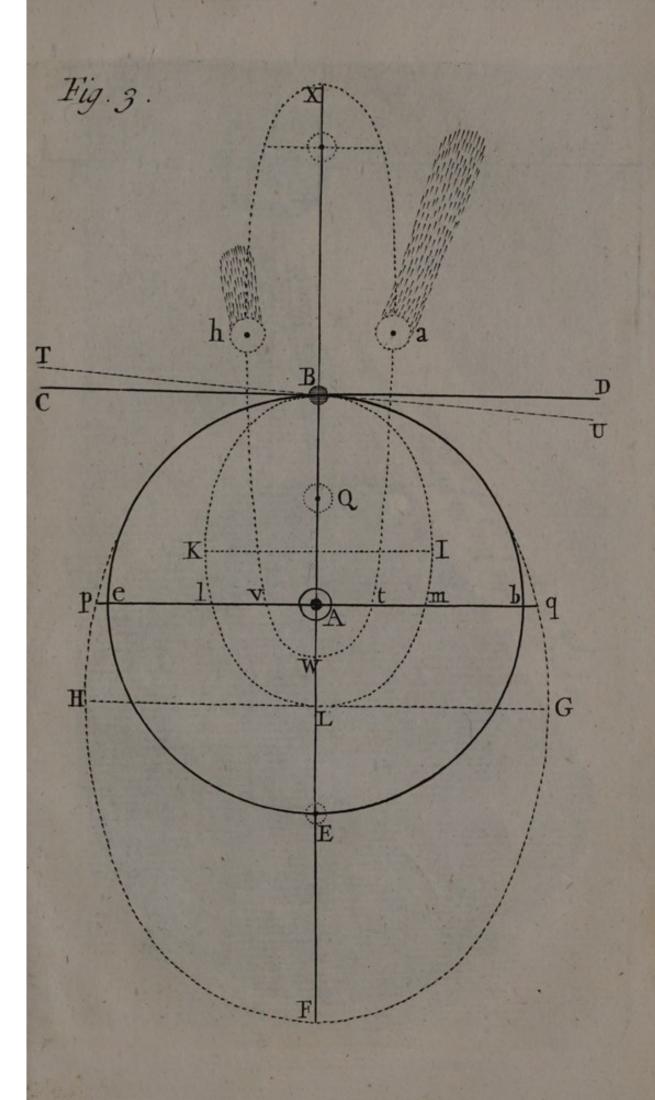
London, WILL. WHISTON.

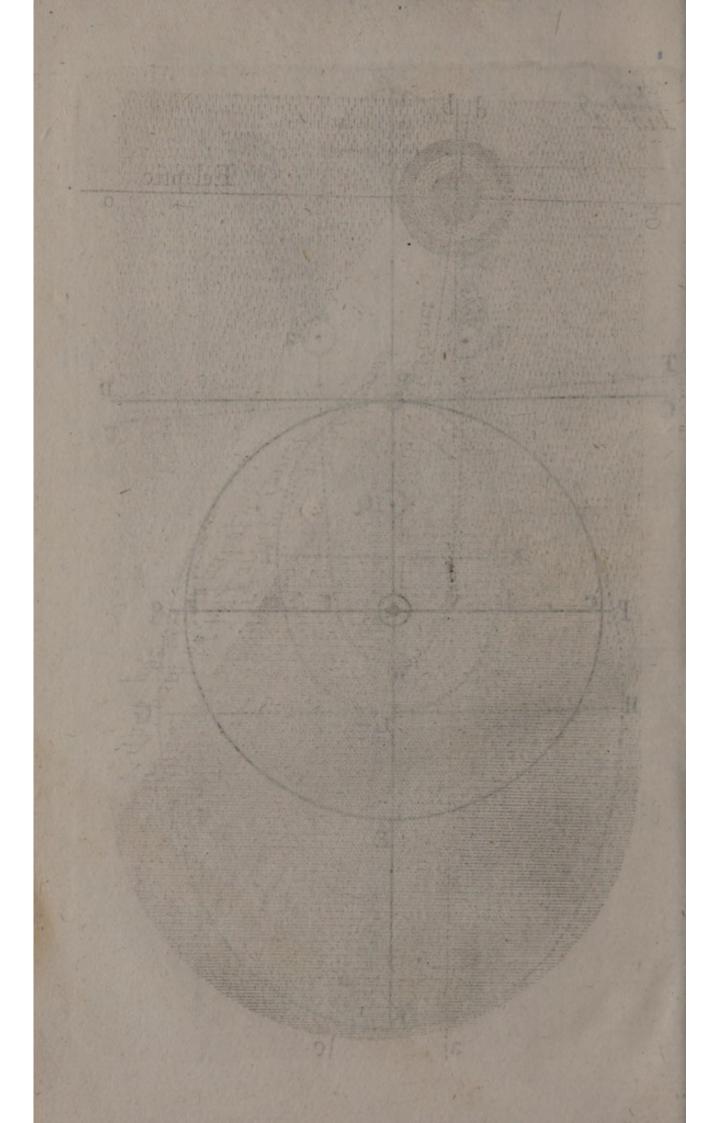


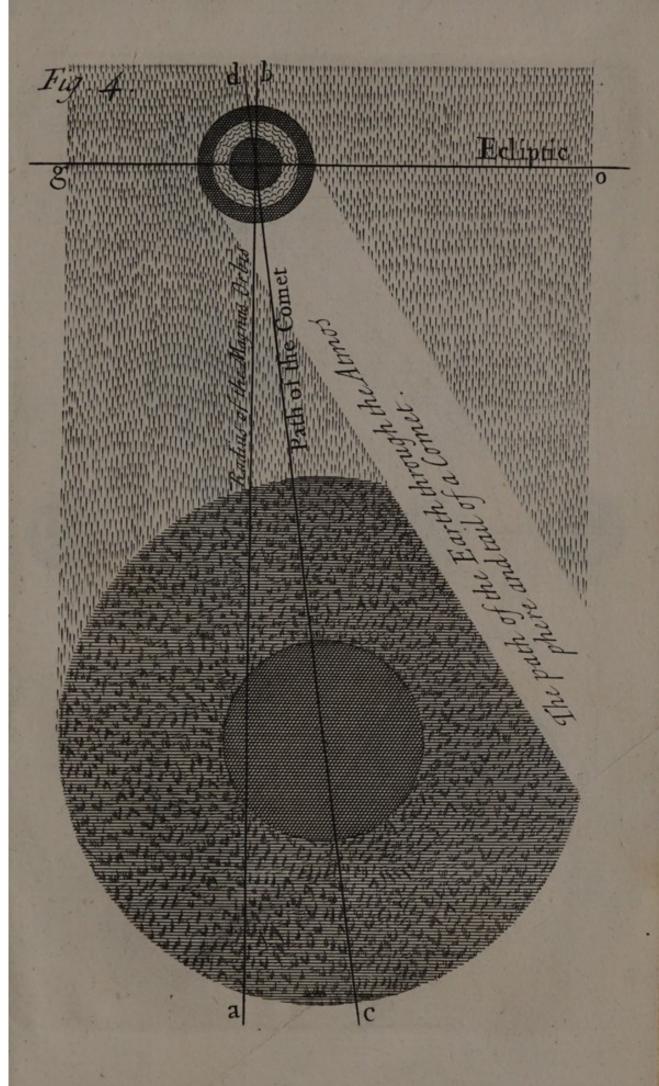


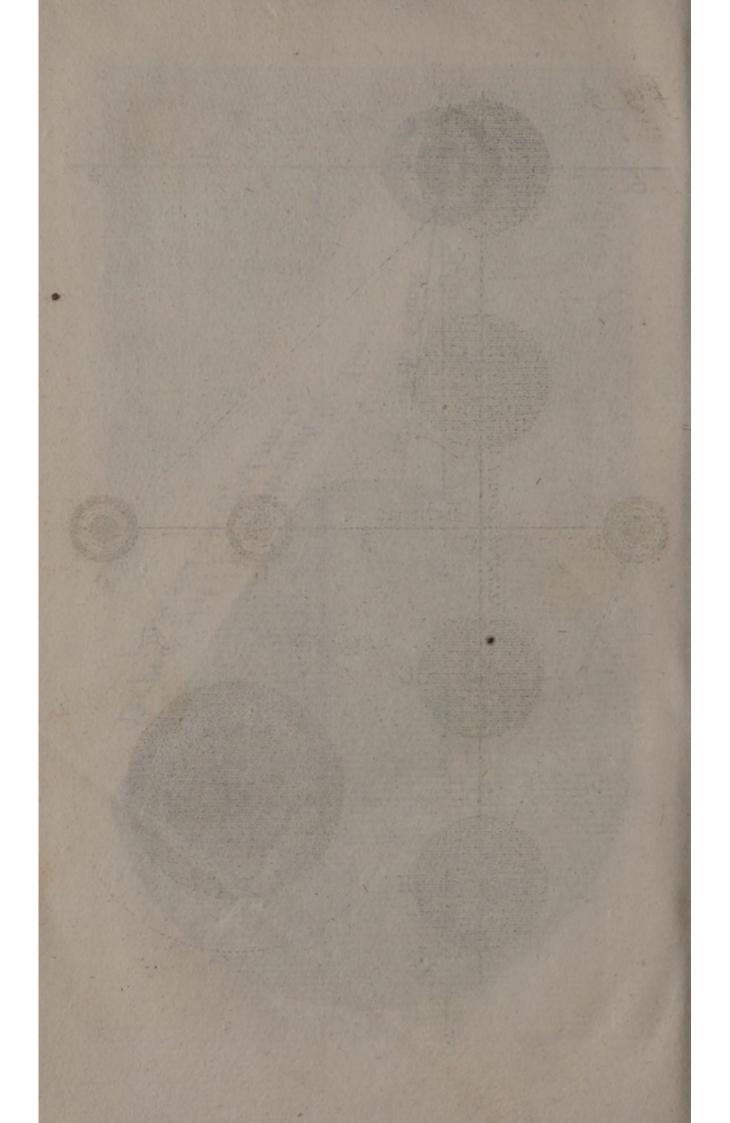


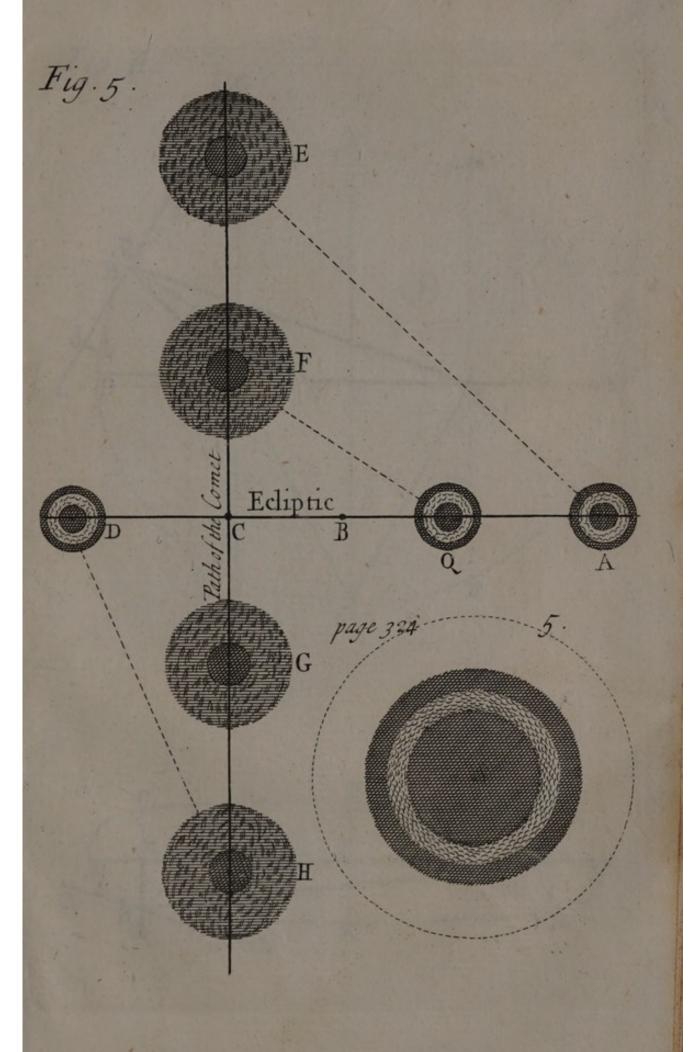


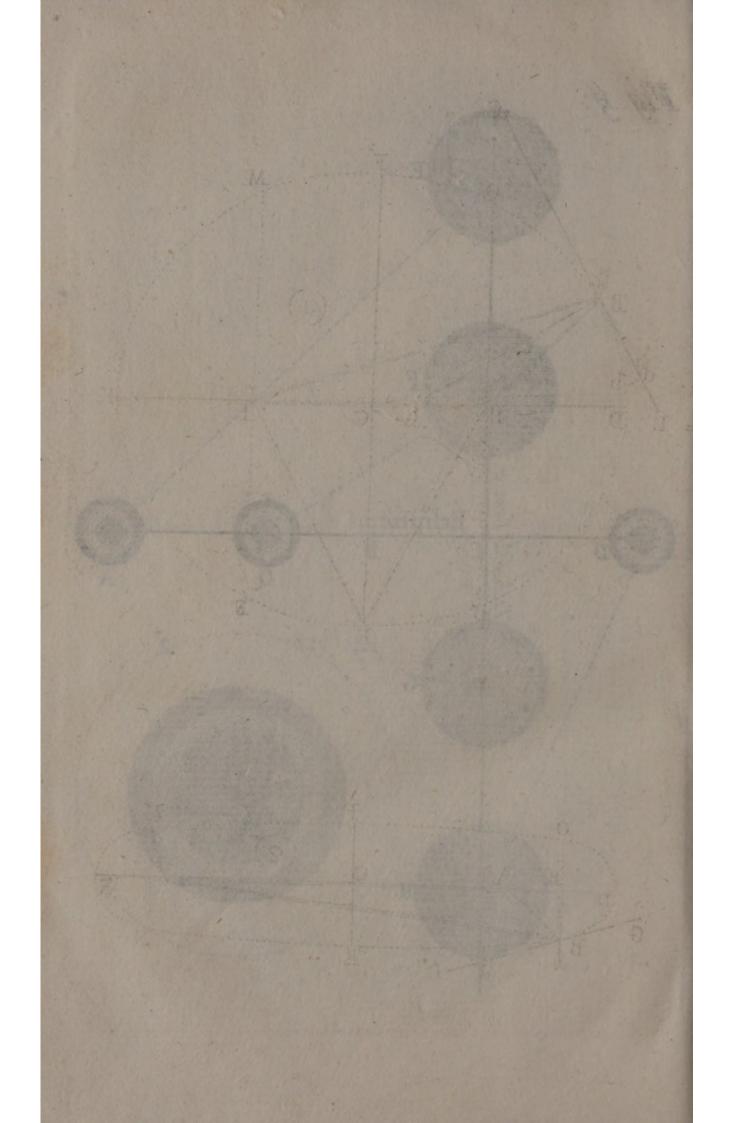


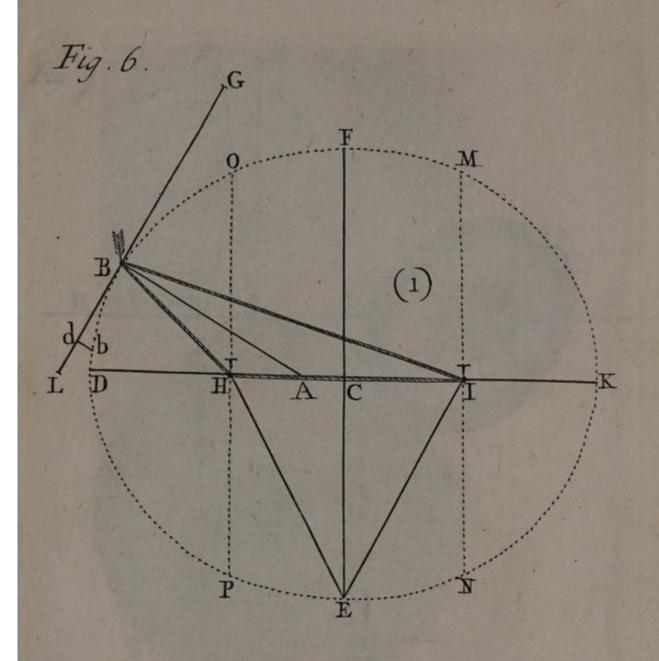


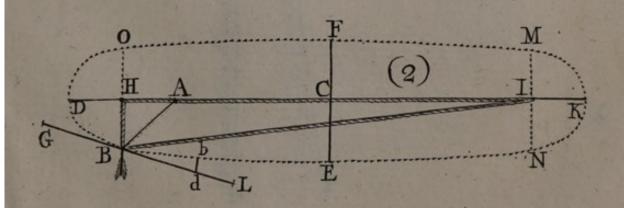


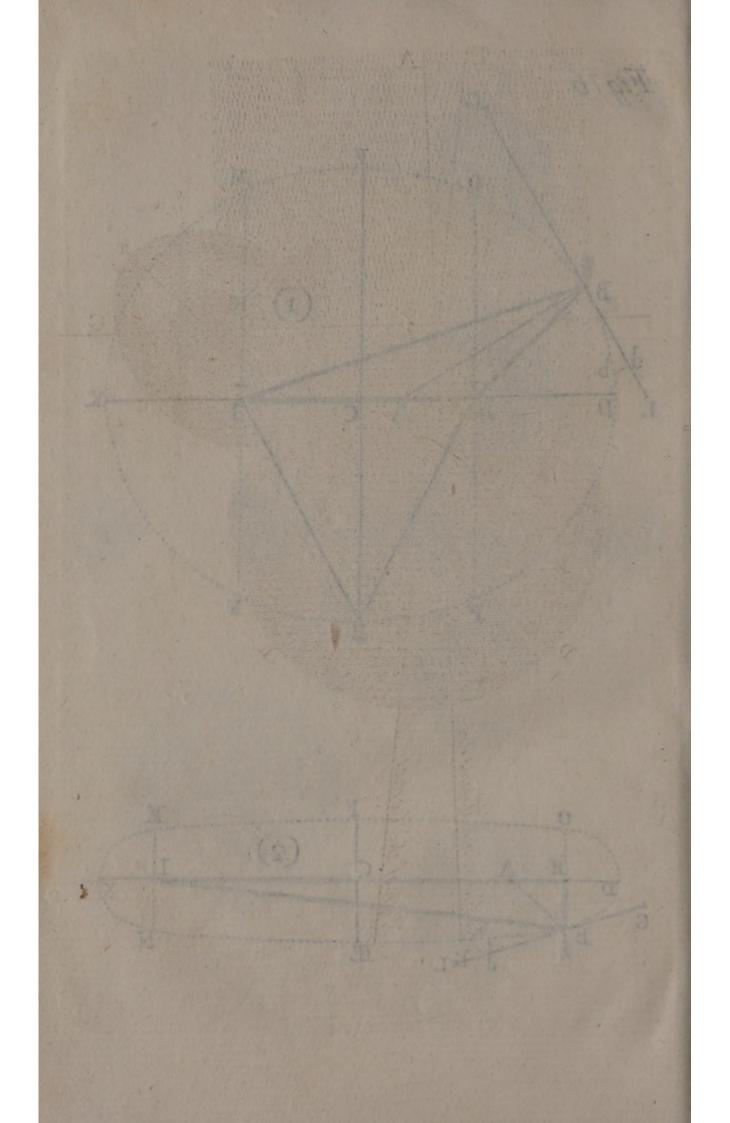


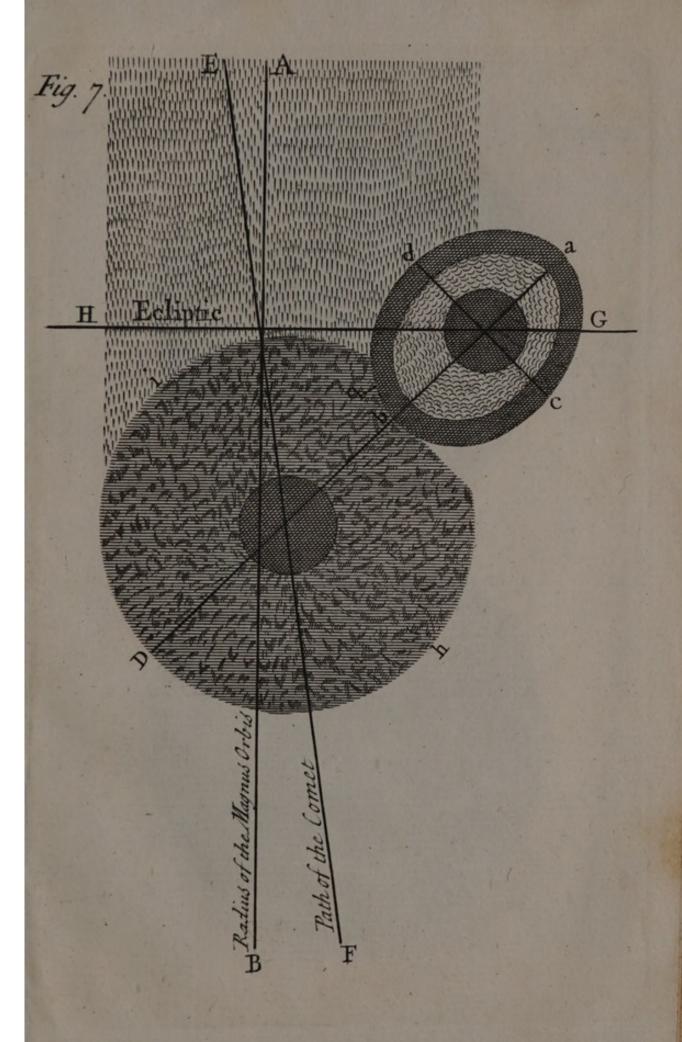






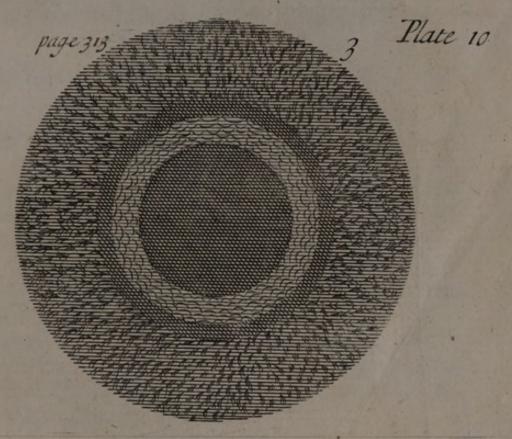


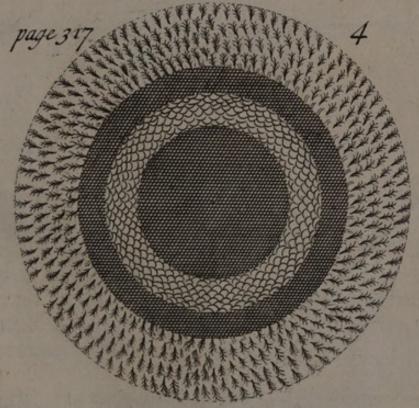


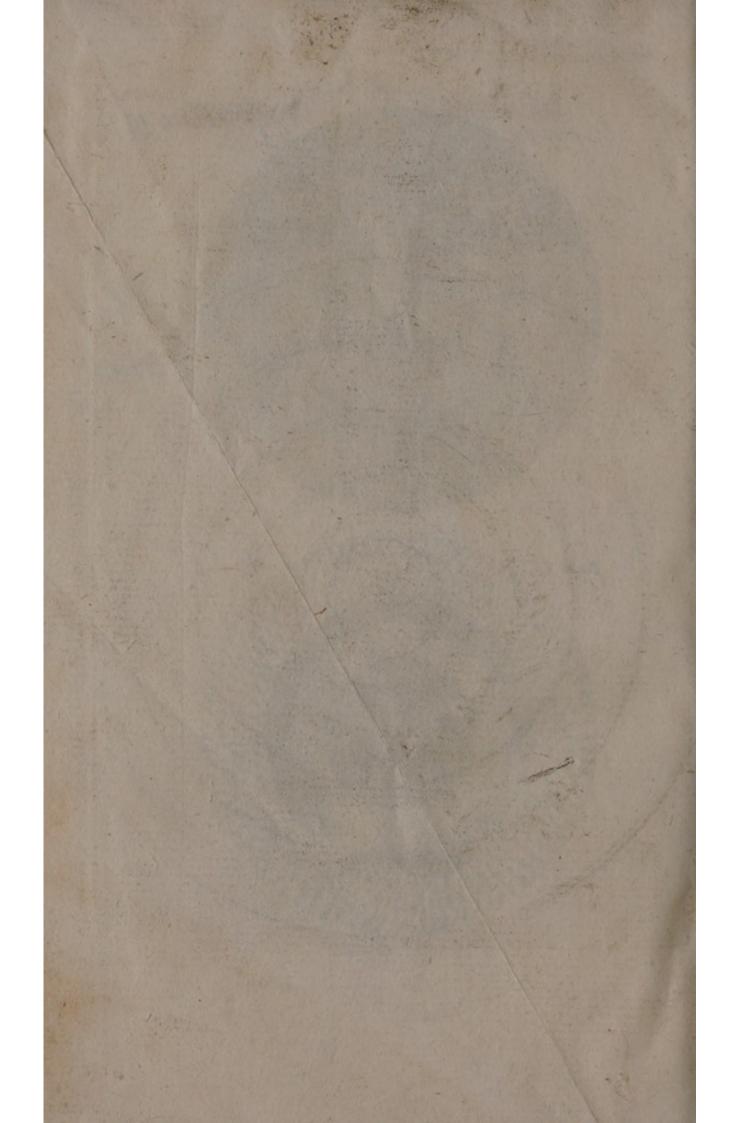














Just published, beautifully printed in one Vol. Quarto, (Price, sixteen Shillings, bound.)

MOSIS Chorenensis Historiæ Armeniacæ Libri III. accedit Ejusdem Scriptoris Epitome Geographiæ. Præmittitur Præsatio, quæ de Literatura & Versione sacra Armeniaca agit; & subjicitur Appendix, quæ continet Epistolas duas, primam Corinthiorum ad Paulum Apostolum, alteram, Pauli Apostoli ad Corinthios, nunc primum ex Codice MS. integrè divulgatas.

Armeniacè ediderunt, Latinè verterunt, Notifque illustrarunt, Gulielmus & Georgius, Gul. Whistoni Filii, Aulæ Clarensis in Academià Can-

tab. aliquandiu Alumni.

Printed for John Whiston, at Boyle's Head near Water-Lane, Fleet-Street.

Where may be had,

Remarks on Spencer's Poems and Milton's

Paradise Regain'd. Price 2 s.

The Primitive Eucharist Reviv'd, or an Account of the Doctrine and Practice of the two first Centuries, concerning the Celebration of the Lord's Supper, occasioned by a late Treatise, intituled, A plain Account of the Nature and End of the Sacrament of the Lord's Supper. By WILLIAM WHISTON, M. A. Price 1 s. 6 d.

As also, the following Books, written by the same Author, and most of his other Works.

An Enquiry into the Evidence of Arch-Bishop

Cranmer's

Cranmer's Recantation, or Reasons for a Suspicion that the pretended Copy of it is not Genuine. Price 6 d.

Six Differtations. I. The Testimony of Josephus concerning Jesus Christ, John the Baptist, and James the Just, vindicated. II. The Copy of the Old Testament made Use of by Josephus, proved to be that which was collected by Nehemiah. III. A Reply to Dr. Sykes's Desence of his Differtation on the Eclipse at Christ's Passion. IV. The Chronology of the sacred Scriptures, and the Truth of their Predictions confirmed by Eclipses and Astronomical Observations. V. Remarks on Sir Isaac Newton's Observations on Daniel and the Apocalypse. VI. A Demonstration that our Saviour's Ministry continued at least four Years. Price 4 s.

The Testimony of Phlegon, concerning the Darkness and Earth-quake at our Saviour's Passion, vin-

dicated. Price 1 s.

Historical Memoirs of the Life of Sam. Clarke,

D. D. Price 1 s. 6d.

Three Essays. I. The Council of Nice vindicated, from the Athanasian Heresy. II. A Collection of Ancient Monuments, relating to the Trinity. III. Primitive Liturgy. Price 4 s. 6 d.

Sermons and Essays on several Subjects. Price

45. 6d.

An Essay towards restoring the true Text of the Old Testament, with a large Appendix, and a Supplement about the Canticles. Price 6 s.

Primitive Christianity Reviv'd, 5 Vol. Compleat.

Price 11. 55.

The same, in one Volume, all English. Price 6 s.

Where may be had ready Money for any Library or Parcel of Books.



SHOULD SEE STATE OF THE PARTY O The Tellinony of Tillion, conserving the factor

