

2. That by that Universal Flood all Mankind were destroyed except eight persons, namely, *Noah*, his Wife, his three Sons, *Shem*, *Japhet*, and *Ham*, and their Wives.

3. That all the Race of Mankind after this Flood, were derived by natural generation from these three Sons of *Noah* and their Wives.

4. That the particular Descendants from these three Sons of *Noah*, are truly described and set forth in the 9th, 10th, and 11th Chapters of *Genesis* by their several Names, and drawn down from that Root to the filling and peopling of the whole Earth: *Gen. 32. These are the Families of the Sons of Noah, after their Generations, in their Nations; and by these were the Nations divided in the Earth after the Flood.*

5. That after the Flood, in the time of *Phaleg*, the Languages of the World, especially of the Families of *Cham* and *Japhet*, were confounded, and the Nations proceeding from these Families dispersed.

6. That the Family of the *Israelites* was deduced through these ensuing Patriarchs, *viz.*

Sem.

Arphaxad, born two years after the Flood, *Anno mundi*, 1658.

Salah.

Heber.

Peleg.

Reu.

Serug.

Nahor.

Terah.

Abram.

Isaac.

Jacob marries *Rachel* and *Leah*, *Anno mundi*, 2192.

Levi, and the Twelve Patriarchs.

Kohath.

Amram.

Moses, born in the Year of the World, 2373.

So that from the Flood to the Birth of *Moses* the Descendants from *Jacob* grew into a great Nation, for in the 80th Year of *Moses* Life the Males of the Children of *Israel*, that were above 20 Years old, were above 600000, besides the *Levites*, and besides Women, and Children that were under 20 Years old, *Numb. 2. 32.* and this great Increase of this People happened within the compass of about 260 Years. And thus, according to the *Jewish* Account in the Holy Text, the Period between the Flood and the *Exitus* of the People out of *Egypt* was about 800 Years: But indeed the Account of the *Septuagint*, partly by the Interfection of *Cainan* in the Genealogy, and partly by adding 100 Years to that *Technogonia* of the Patriarchs before *Abraham*, have made the Period larger by 884 Years. So that according to that Account, the *Exitus ex Egypto* was at least 1684 Years after the Flood.

Now this History of *Moses* of the peopling of the World by the Posterity of *Noah*, doth these two things:

1. It gives us an Account of the Original of all the Nations in the World, not from bare allusion of Names, nor from bare Coalitions into Civil Societies in which they were formed, as *Romulus* was the Founder of

of the *Populus Romanus*, and *Pelasgus* of the *Pelasgi*; but it gives us the Account of their Origination by Propagation from the Natural Roots and Parents of them. 2. Although notwithstanding this Instance, it may be possible, that though the Natural Derivation of all Mankind was from *Noah* and his three Sons, yet the Progenitors or Ancestors of *Noah* might have no Original, but might be Eternal, according to the *Hypothesis* of *Aristotle*: yet when I find the same Author that gives me an Account of the Derivation of all the World from *Noah* and his three Sons, and that with most clear evidence and credibility, it gives me a very great Moral Evidence of the truth of his Relation touching the first Origination of Man by Creation: For doubtless both were derived to him by a constant Tradition from those from whom he was descended, and it is not reasonable to suspect the truth of the one, since we have a strong Moral Evidence for the truth of the other; namely, the General Flood, and the preservation of *Noah* and his Family, and the derivation of all Mankind from him and his Sons: He that hath sufficient reason to believe the History touching the latter, will have little reason to doubt the truth of the Relation touching the Origination of Mankind, which as in it self it seems reasonable, and no other possible Supposition to compass it but by a Supernatural Production, so it hath a most excellent congruity with the subsequents of the Holy History touching the Descendants from the first Man, the Flood, and the Re-peopling of the World from *Noah*.

Now the Moral Evidences of the credibility and truth of this History are these:

1. *Moses* that wrote it, had the best opportunity that could be to give a true Narrative of this Fact touching the Flood, and the Productions of Mankind by Generation from the Children of *Noah*: For, 1. It is evident by the Writings of this Man that he was a very Learned knowing Man, inquisitive after all sort of Learning; a Man in great Power and Esteem in the Court of *Egypt*, and after that a great Governour of a very great People, which he governed with admirable Wisdom; and by this means had opportunity to furnish himself with all Monuments and Evidences of Antiquity that might be conducive to the Discovery of former things, and his Learning, Judgment and Ability to make an excellent use of these helps was also remarkable. Again, 2. He lived not far remote from the transaction of these things that he wrote, in comparison of the Writers or Historians of after Ages: He dyed above 500 Years before *Homer* lived, which yet is the ancientest Historian that *Greece* affords, and he lived within the Period of 800 Years after the Flood and the division of the World among the Posterity of *Noah*. *Livy* and other Historians give us an account of the Affairs of *Rome* for above 600 Years before they were born, and many other Historians for a much longer time, and we give them credit; and certainly such an Occurrence of such remark as the Universal Flood and the Re-peopling of the World must needs be fresh in memory for such a Period of about 800 Years; especially considering that the Peopling of the World was a gradual and successive business, that must needs preserve its Memory even upon its own account, for it was still current, and many were concerned in it in the preservation of the laying the first Foundations of their States and Republicks.

3. As the Period or distance of time was not great, so if we consider

the longevity of Mens Lives in those times, the Period was not much longer than three Generations, and so the Tradition of things might be preserved fresh and certain unto the time of *Moses* without any great difficulty: For *Shem* that was an Eye-witness of the Flood was contemporary with *Abraham*, *Abraham* was contemporary with *Jacob*, *Cohath* the Son of *Levi* was contemporary with *Jacob*, and with *Amram* the Father of *Moses* and Son of *Cohath*: So that the Tradition of the Flood, and all that succeeded, might be handed from *Shem* to *Abraham*, from *Abraham* to *Jacob*, from *Jacob* to *Cohath*, from him to *Amram*, and from him to *Moses*. 4. Besides all this, without any more Hands in the delivery of it over, it appears that *Abraham*, *Isaac*, *Jacob* were great Men, had great Families and Wealth; were Men of great Note and Observation for their Learning and Knowledge, Men that had great Expectations, having a Promise of that Land to be given to their Posterity; and although they kept Sheep and Cattel according to the custom of those Eastern Countries, yet they were great Princes, and Men of excellent Education: doublets *Abraham* instructed his Son in all the Knowledge that he had received by Tradition from his Ancestors, the like did *Isaac*, and after him *Jacob*. And therefore it might very reasonably be thought that the Traditions of former things were kept fresh and pure in this Line of Men.

And though we have no Writings extant ancients than *Moses*, yet probably in his time there might be Books, or at least Monuments and Inscriptions of things done before his time, which might preserve the Memory of things past as well as our Books do now: For it is not to be doubted but Writing was much ancients than *Moses* his time, *Job* speaks of Writing as a thing in use in his time, *Job* 19. 23, 24. and *Josephus* tells us of certain Pillars erected by *Seth*, wherein the Monuments of Learning and History were preserved, *Joseph. l. 1. Antiquitat. cap. 2.* and *Moses* mentions Books written by others, either before or in his time.

I very well know that *Moses* had a greater means to know all those things that to a Jew or a Christian are of greater weight than all these, namely, the Infallible Conduct, Revelation and Inspiration of the Divine Spirit: But the truth is, we are fallen into an Age of many Christians in Name and Profession, that yet think it below them to believe upon that account without some farther Evidence that may satisfy their Reason; I have therefore subjoyned these and the following Considerations to make it appear, That upon the bare account of Moral Evidence more is to be said for the truth of the History of *Moses* than may be said for the truth of any other History of things transacted before the life of the Historiographer.

2. Again, we usually allow such an Historian to be worthy of belief, even in those things whereof we have no other Evidence than the Credit of the Historian, if we find many things delivered by him to have so great an Evidence of Truth that they cannot well be doubted by any reasonable Man. I will admit that *Moses* delivers many things that were antecedent to him, and can have now no other Evidence than the Credit, Prudence, and Fidelity of the Historian himself; as touching the Derivation of the Nations of the Earth from the several Sons of *Noah*, and though

though possibly when he wrote there was a vigorous and authentical Tradition or other authentical Evidence of the Truth of them, which it may be is now so lost that we have no other Evidence thereof but the bare Relation of *Moses* (this I do for the present admit, though in the sequel it will appear that there are other concurrent or collateral Evidences that assert and attest it) yet it is plain that the same *Moses* writes many things that have so undoubted and so solid a Tradition asserting it, that no Man can doubt it that will not first deny his own Reason. As for instance, Can there be any doubt but that the Family of the *Israelites* were derived from *Abraham*, *Isaac* and *Jacob*, and the 12 Patriarchs; that they were brought out of *Egypt* under the Conduct of *Moses*; that they lived in the Wilderness forty Years, and were there miraculously fed by Quails and Manna, since this was written in that very Time and Age that could and would have contradicted it, if false? Can there be any doubt but the History of his making the Ark and the Tabernacle were true, since both continued for many hundred Years after? Can there be any doubt of the History of the Fiery Serpents, and the Cure of their Biting by the Brazen Serpent, which continued in the Wilderness until the time of *Hezekiah*, which was many hundred Years after, with an unquestionable Tradition of the reason of its Making? Can there be any doubt whether he divided the Land of *Canaan*, in such manner as is set down, in his life time, namely, to the two Tribes and a half on the farther side of *Jordan*; and his Prescripts for the future dividing of the rest, since it was enjoyed according to those Prescripts for many hundreds of Years after, and part of it until the coming of Christ? Can there be any doubt that he gave those Laws Moral, Judicial and Ceremonial recorded by him, since those very Laws have been for the space of near two thousand Years the very Rule and Model by which the Sacred and Civil Concerns of that People were always ruled and governed, and that in contemplation of the same Law that was given by the Hand of *Moses*, and so recorded in his Books of *Exodus*, *Leviticus*, *Numbers* and *Deuteronomy*? I say we have not greater Evidence that there was such a Man as *Alfred*, *Edward* the Confessor, or *William* the Conqueror; or that there were such Laws of the Confessor, such a Survey of *England* called *Doomsday* made by *William* the Conqueror, such an Abbey founded by him in Memory of his Victory in *Sussex* called *Abbatia de Bello*; such Laws made by *H. 1.* as are transcribed in the Red Book of the *Exchequer* under that name; such a Charter of King *John* made at *Reiningmead*, or such a Charter as *Magna Charta* made by King *H. 3.* than we have that there were such Laws, such Distributions of the Land of *Canaan*, and such things done in *Egypt* and the Wilderness as are recorded by *Moses*. The Moral Evidence that ariseth from this Consideration is this; That since in these things that are capable of an incomparable Evidence of Credibility in respect of the time wherein they were done (though very ancient, and exceeding the Age of any other Author) we find such indisputable Evidence of Truth, we have reason to give credit to the same Author relating the Derivation and Beginning of Nations from the Sons of *Noah*, though in respect of the greater Antiquity thereof we have not any other concurrent Testimony but that of *Moses*: And the rather, though we have not those other Evidences thereof, yet *Moses* might have as unque-

unquestionable Evidences of the things transacted between his time and the Flood, which at the greatest Account was not above 1600 Years, but by the Jewish Account about 800 Years before his time, as we now have of those things which were transacted in the time of *Moses*, which is above twice 1600 Years distant from our time.

3. Besides the Relation of the Traduction of the several Nations of the World from the Sons of *Noah*, delivered by *Moses* in that short Pedigree or Extract, *Gen.* 10. we have very many probable Evidences of the consent of all succeeding Ages to that Genealogy of the World; as, 1. The common Tradition of those Ages that succeeded shortly after *Moses*; which commonly esteemed them so descended: 2. The Analogy of their several Names of the Countries wherein *Moses* supposed the first Fathers fixed, as *Canaan*, *Misraim* or *Egypt*, *Chittim*, *Assur* or *Assyria*, and infinite more of this kind which are not needful here to be remembered, since *Bochart* and those that have transcribed out of him give us abundant Instances. Neither is it reasonable to object against this that which is before observed in relation to other Allusions of this kind, namely, That those Denominations of Places might not be so much from the Roots of those Nations or Families, or from the Captains or Governors that gave Names to those Countries they conquered; because the Historian *Moses* gives us in express terms the reason of the Denomination to be from the very Parental Roots of those People or Families: and 2. Because those Heads of Countries or Nations who were nearer to *Moses* time gave the Denomination to the Countries which in effect they peopled; as *Edomites* to the Posterity of *Edom*, *Moabites* and *Ammonites* to the Posterity of the two Sons of *Lot*, *Madian* to the Posterity of *Abraham* by *Keturah*, and many more: And we have as great reason to suppose that these grew and increased into great Nations in the time of *Moses*, since the People of *Israel* who descended from a later Stock than any of these within the space of little more than 200 Years, increased into so great a People, that in their going out of *Egypt* their Males of above 20 Years old amounted to 600000, whereof use will be made hereafter.

The late Discovery of the vast Continent of *America* and Islands adjacent, which appears to be as populous with Men, and as well stored with Cattel almost as any part of *Europe*, *Asia*, or *Africa*, hath occasioned some difficulty and dispute touching the Traduction of all Mankind from the two common Parents supposed of all Mankind, namely *Adam* and *Eve*; but principally concerning the storing of the World with Men and Cattel from those that the Sacred History tells us were preserved in the Ark. And the Objection runs thus:

It seems apparent by all Geographical Descriptions of this lower World, that the whole Continent of *America* and the adjacent Isles thereof are no way contiguous to any parts of *Asia*, *Europe*, or *Africa*, but disjoyned from the same by huge and vast Oceans; divided from the Western Coasts of *Europe* and *Africa* by the vast *Atlantick* Ocean; from the North parts of *Europe* by the great Frozen Seas lying between it and *Greenland*, which seems to be the Northern Coast of *America*; from the North-east part of *Asia*, *Tartary* and *Cathay* by the *Fretum Anian*; from the East parts of *China* and the *Philippine* Islands by the *Oceanus Pacificus* of above 2000 Leagues breadth, and is divided from the great lately dis-

discovered Island *del Fogo* by the Straits of *Magellan*, and that Island again divided from the uttermost Southern Continent (if any be) by a great Sea, which though not formerly known to the *Europeans* and *Asiatics*, being divided from *Asia* and *Africa* by the great *Indian* Ocean, yet hath been lately discovered by *Le Maire*.

It is also evident that this vast Continent and the greatest part of the Islands near adjacent to it are well stored with Men, and Beasts of all sorts: *Laetius* in his Disquisition touching the Original of the *Americans*, in his 8th Observation gives us an account of above thirty Millions of *Americans* destroyed by the *Spaniards* in those Parts of *America* that they have usurped to their own Dominion, which is not the hundredth part of that great Continent.

The Inhabitants of this Continent as they greatly differ among themselves, so they extremely differ from the *Asiatics*, *Europeans* and *Africans* in their Language and Customs, they recognize no Original from these Parts: it is true, they have some resemblance of the *Scythians* or *Tartars* in some of their barbarous Customs, and some Words they have which seem to carry a congruity with Words of other Nations: But these are but slender Evidences to prove their Traduction from *Asia*, *Africa*, or *Europe*, especially since no Monument is extant that gives an account of their Traduction or Migration thither; and the rather, because it was a World wholly unknown to the *Europeans*, *Africans* and *Asiatics*, till the Discovery thereof made by *Americus Vesputius* and *Christopher Columbus* which is but of late time.

Again, *Acofta* tells us in his 4th Book, Cap. 36. there are divers perfect Animals of divers kinds in *America* which have none of the same kind in *Europe*, *Asia* or *Africa*, as their *Pacos*, *Guanacos*, and *Indian* Sheep; and on the other side, many species of Birds and Beasts in these Countries which are not found in *America*.

And upon these Premises they thus argue:

That since by all Circumstances it is apparent that *America* hath been very long inhabited, and possibly as long as any other Continent in the World, and since it is of all hands agreed that the supposed common Parents of the rest of Mankind, *Adam*, *Noah* and his three Sons, had their Habitations in some Parts of *Asia*, and since we have no probable Evidence that any of their Descendants traduced the first Colonies of the *American* Plantations into *America*, being so divided from the rest of the World, the access thither so difficult, and Navigation the only means of such a Migration being of a far later perfection than what could answer such a Population of so great a Continent; That consequently the *Americans* derive not their Original either from *Adam*, or at least not from *Noah*; but either had an Eternal Succession, or if they had a Beginning, they were *Aborigines*, and multiplied from other common Stocks than what the *Mosaical* History imports.

And although their Traditions in *America* be mingled with some things fabulous, yet they seem to favour this Conclusion. Some of them acknowledge the Creation of all things by God, and that He fixed certain Arrows in the ground, and from thence the Original of Mankind came. *de Laet*, *de origine gent. Americanorum*, *Observat.* 6. Many of them have a Tradition of a Flood, at least in the Continent of *America*, which dis-

dispeopled all the Countrey, and that out of the Lake *Tilocaca* the great God created at several places the common Parents of Mankind: *ut videre est apud eundem, pag. 115, & 105.* or that certain Men leapt out of a Cave called *Picare Campo*, or *Tampo*, and were the first Parents of Mankind; and therefore they hold the *Tambi* the most ancient of Mankind.

Besides, if we could suppose that either *ex industria*, or by accident some might pass the Seas from *Africa*, *Asia* or *Europe* into *America*, yet it is not easily conceivable how Beasts, especially of prey, should be transported into *America* through those large Seas after the Deluge; neither is it possible to suppose that all the Beasts of *America*, which are many of them wholly different in kind from those of *Europe*, *Asia* or *Africa*, should be conducted over the Seas to be preserved in the Ark, and after be transported again thither: and the improbability thereof is so much the greater, because many of the perfect Animals found in *America* have none of the same kind in *Europe*, *Asia* or *Africa*, and *è converso*, but are as it were appropriate to their proper Regions, though some there are that are common to *America* and the other Countries on this side. And therefore either the Flood was not universal, or new Creations of Animals proper to *America* hapned there after the Flood.

I answer to these difficulties: The Author of the Book called *Præadamita* hath set down certain Suppositions, which though they save the difficulties, yet they cross the tenor of the *Mosaical* History, *viz.*

1. That *Moses* in the History of the Creation of Man doth not set down the Original of Mankind, but only the Original or common Parent of the *Jewish* Nation: that *Adam* was not the first Man that was created, but there were very many Ages of Men before him that peopled the greater part of the World long before the Creation of *Adam*: And consequently, though *Adam* was the common Parent of the Inhabitants of *Palestine* and many of the Countries adjacent, yet those that peopled the far greater part of the World, especially the Parts of *America*, were not descended from him.

2. That the Flood in *Noah's* time, though it drowned the Descendants from *Adam* and the Countries inhabited by them, namely, *Palestine* and some of the adjacent Countries, yet it was no Universal Deluge, but the far greater part of the World and the Inhabitants thereof were free from that Deluge, and consequently that *Noah* and his three Sons were not the *Capita familiarum* of the whole Earth, but only of those Families and Nations that were Inhabitants in *Palestine* and some of the adjacent Countries, and consequently that many of the Countries of *Europe*, *Asia* and *Africa*, and the entire Continent and Islands of *America* were not overwhelmed with this Deluge, though possibly they might have their particular Deluges, as hapned in *Greece* and *Thessaly* under *Deucalion* and *Ogyges*: and in favour of his Opinion alledgeth the long Computations of the *Egyptians*, *Babylonians* and *Chineses*; the vast Armies of *Ninus*, *Semiramis*, *Zoroaster* and others, and the great extent of their Monarchies suddenly after the Flood; which could not, as he supposeth, be so suddenly propagated from *Noah* and his three Sons: But especially insists upon the greatness of the Continent of *America* and the Islands thereof, the populousness and great store of Men and Animals, which could not be

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in any tolerable probability transported from Countries divided by such great Seas from it.

And likewise he insists upon the Antiquity of the *Egyptian* Computations, and upon that fond Reason of the *Egyptian* Priest in *Plato's Timæus*, That *Egypt* is the most ancient of the habitable World, because neither subject to Total Inundations by reason it hath no Shoars, nor to Conflagration because of the Inundation of *Nilus*: That consequently *Palestine* and the Countries adjacent were only drowned, but the upper *Asia* from whence the Dove fetched his Olive-branch was never thereby totally overwhelmed. This is the principal Subject of his 4th Book of what he calls his *Systema Theologicum*.

If there were no other fault in this Author, there is this one that renders him inexcusable; In that he in all places of his Book pretends to own and maintain the Truth and Sacred Authority of the *Mosaical* History, and seems to maintain some of his Tenets by Scriptural Suffrage, and yet substitutes such Assertions as any Man, and much more the Ingenious Author himself could not, cannot choose but see, that if they were true would necessarily not only weaken but overthrow the Authority and Infallibility of the Sacred Scriptures, at least where it seems to cross the Fabulous Traditions of the *Egyptian* and *Babylonian* Antiquity, to which Fables he gives more credit than to the Holy Scriptures, and submits the Authority of these to the Authority of those: and while *Judas* like he seems to kiss these Sacred Oracles, he perfidiously betrays their Authority, and draws their Truth as much as he can into suspicion. Such a Discourse had better become a plain professed Infidel, and is so much the worse, in that it is done slyly, and by invidious Insinuations, *sub Amici nomine*: If he durst have spoken out, he would have told us roundly and plainly that the Eleven first Chapters of *Genesis* were but Fables; That *Genesis* 3. 20. where *Eve* is said to be the Mother of all living; That *Gen.* 7. 19, 20. where it is said, that all the high Hills that were under the whole Heavens were covered; That *Gen.* 7. 23. where it is said, that every living substance was destroyed which was upon the face of the Ground, both Man and Cattel and Creeping things and the Fowls of the Heaven, and *Noah* only remained alive and those that were with him in the Ark; That *Gen.* 10. 32. where it is said, that these were the Families of the Sons of *Noah* after their Generations in their Nations, and by these were the Nations divided on the Earth after the Flood, are not to be believed, and are but meer Fictions: This had become a Man of his Principles, but he durst not speak out.

I shall not in this place undertake a particular Answer of all that this Man hath said; it is besides my intention in this place to make so large an excursion, and many others have done it to my hand: only I may say thus much, That a Man that gives so much credit to the *Egyptian*, *Caldean*, and *Grecian* prodigious Traditions, in derogation of that very Scripture which this Man in Complement at least seems to venerate, might have remembered, That the Tradition of the Universal Flood hath obtained in all places, even among the *Americans* themselves, and that the Race of Mankind was thereby destroyed, except some few that were preserved: That the most severe and observing Sect of the Philosophers, namely the *Stoicks*, have constantly held vicissitudes of Destructions of Mankind

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by successive Deluges and Conflagrations, and a new Peopling of the World successively by the Power of God: That *Aristotle* himself insinuates those great Vicissitudes, especially of Deluges in those Periodical great Winters which he supposeth to have hapned, and for the future to happen in this lower World. But of this hereafter.

And although this Author in his 8th Chapter of his 4th Book gives us a computation of a declivity of 600 Perches from the Fountain of *Danubius* until its fall into the *Pontus Euxinus*, and supposeth the highest Mountains of *Armenia*, whereof *Ararat* where the Ark rested was the highest, doth not exceed the perpendicular height of one Mile above the plain of the Earth, and therefore that an excess of 15 Cubits above *Ararat* would not reach the Head of *Danubius*, or at least the upper Plains of the Upper *Asia*; yet he might have remembered, That though it were admitted; that usually the heights of most Mountains do not exceed a Mile in perpendicular height above their *Basis*, yet many Mountains are situate in the more elevated parts of the Earth, and have the advantage thereby of the height of their *Basis*: and possibly it will be found that the *Basis* of the Mountains of *Armenia* is situate in higher ground than the Fountain of *Danubius* or *Euphrates*. So that an excess of 15 Cubits above their height must in all probability cover the Plain of the Upper *Asia*.

Again, he might have remembered that *Egypt*, that from the Authority of the Fable of the *Egyptian* Priest is favoured by him with an immunity from Inundation, lyes much lower than the Plains of *Palestine*, yea than the Superficies of the *Red Sea* it self; And therefore the Water (that naturally keeps its level, neither without a Miracle can lose it) which overflowed the whole Continent of *Palestine*, even to 15 Cubits above its highest Mountains, must of necessity overflow *Egypt*, which *Aristotle* by impregnable Evidences concludes to be one of the lowest Countries in the World, and the very Production and Accretion of the Slime of *Nilus*; so that if the Flood covered *Palestine*, nothing but a Miracle could protect *Egypt* from it.

The Author of the Dissertation *De Etate Mundi*, cap. 12. though he reprehend the *Præadamite*, and confutes the extravagancy of their Opinion, yet he seems to mince the Universality of the Flood: *Nullum itaque relinquitur dubium, quin unum tantum fuerit diluuium, idque universale, cujus apud omnes penè gentes extat memoria: Verum hic minime probo eorum sententiam qui totum terra globum ita aquis tectum fuisse existimant, ut nulla prorsus extaret ejus portio; ad hoc efficiendum multa debuissent concurrere miracula. Cum enim universa orbis aqua non sufficiant ad obruendam tam altè terram, etiamsi omnia maria siccentur; debuissent vel plures aqua creari, vel dicendum cum aliquibus, istam aquarum molem ex aliis celi orbibus decidisse, & demum finito diluuiò ad sedes suas revolasse: Verum hoc est piè nugari, Deum non facit miracula sine causa: Quid opus erat mergere terras ubi nec olim fuere homines, ac ne nunc quidem sunt? Stultum est putare ante diluuium adeò multiplicatum fuisse genus hominum, ut omnes terra angulos pervaserit, &c. Ut verò diluuii inundationem ultra orbis habitati terminos producamus, nulla jubet ratio, imò prorsus absurdum est dicere, ubi nulla hominum sedes, illic etiam vixisse effectus pænæ solis hominibus inflatè.*

This indeed salves the necessity of drowning *America* and the greatest part

part of the New habitable World, when it extends the Flood no farther than there were Mankind inhabiting; and confines those Habitations possibly within the Circle of *Syria* and *Mesopotamia*. And so all the Brutes that possibly in their first Creation were produced *sparsim* through all the parts of the habitable World, as well in *America* as *Asia* or *Europe*, were safe and untouched; and all those Birds and Fowl that were within 40 or 50 Miles of the *Circulus diluuii* might easily preserve themselves by flight out of the extent of it, yea and the Brutes and Birds which were out of that supposed narrow extent of *Syria* and *Mesopotamia* where the Flood prevailed, might easily furnish the same Continent after the subsiding of the Flood, without the wonderful and difficult including of their kinds within the Ark for their preservation, which if this Supposition hold, seems a needless Institution and Miracle by the wise God. *Gen. 7. 1.* Therefore, I confess, I am no way satisfied with this Gratification of that Author to the *Præadamite*.

For first, although I take this Flood to be somewhat more than Natural, and a thing instituted by the Will of God, yet do I not esteem it a thing purely Supernatural or Miraculous, neither do I suppose those Waters created *de novo*, nor sent out of the Orbs of Heaven to drown the Earth: I do not think the Face of the Earth and Waters were altogether the same before the Universal Deluge, and after; but possibly the Face of the Earth was more even than now it is, the Seas possibly more dilate and extended, and not so deep as now; the Waters possibly more than now, and in those respects more capable of diffusion over the dry Land. For though there be many great variations in process of time in the Sea and Land, yet it seems that *ad plurimum* the Seas grow deeper, and eat lower into the Earth, and consequently more dry Land is daily acquired, and the Seas grow narrower and deeper.

Now to deliver this Supposition of an Universal Deluge from those difficulties, and that necessity of multiplication of Miracles, which that Author hath substituted, we are to consider:

1. That we are not to make our estimate of the quantity of Waters merely by the Superficies of the Sea, but by its vast depth, which in some places is unfathomable, and by those vast subterraneous Receptacles of Water which pour themselves out in several great Ebullitions and Marine Springs: Neither is it altogether improbable that the Waters of the Sea, naturally tending downward, and being of a fluid searching consistency, might in process of time have worked themselves even almost to the Center of the Earth, and there residing in great and vast quantities, and possibly have in a manner undermined much of the appearing Continent of the Earth: so that that which the Prophet speaketh may be true literally, *Psal. 24. 2. He hath founded it upon the Seas, and established it upon the Floods*: So that there are greater Store-houses of Water than appear visible to the World. If we could suppose that the incumbent Superficies of the Earth should subside and press upon those Store-houses of Water within its bowels, it might afford a competent store to drown the Earth without a new Creation.

2. Again, we may easily compute that the quantity or extension of the Body of the Air, even that which is commonly called the Atmosphere, which at the lowest account extends seven Miles in height, might by

condensation into Water afford a competent store for the drowning of the World, and yet be again rarified into the same dimension and consistence which before it obtained: for there is that vicinity of Nature between those two Elements, that we daily see considerable proportions of the one by condensation changed into the other.

3. When we consider those immense Inundations that are Annually, and with some constant equality occasioned by great Rains, as for Instance, in the River *Nilus*, which by the Annual Rains in *Ethiopia* is raised almost every Year twenty Cubits, and overflows a considerable part of *Egypt* yearly between the Months of *June* and *October*; and the like Inundations yearly hapning by Periodical Showers in the great River of *America* called *Orenoque*, between *May* and *September*, whereby it riseth upright above 30 Foot; so that many of the Islands and Plains at other times inhabited, are 20 Foot yearly at that time under Water. And when we see that even the Ocean it self in its daily Tides, especially those that happen about the *Equinoxes*, caused, as the *Copernicans* say, by the Intersections of the Annual and Diurnal Motions of the Earth; we need not have recourse to a new Creation of Waters to perform this Office of the Divine Providence and Justice; He might by a stronger elevation of Vapours, or by an extraordinary motion of the Seas perform his purpose; which though probably it might not at the same time drown *Asia* and *America*, yet by the successive peragrations of these Waters they might drown the whole Earth, as the Inundation of *Nilus* by the Showers of *Ethiopia* make the Flood there a Month sooner than it happens in *Egypt*.

2. As to the Second Objection; I do confess it to be most true, that the Universal Deluge was a Judgment upon the Old World for their intolerable degeneration from their Duty to God: But I do not think that was the only Reason thereof; for the Infinite Power of God might have destroyed those Evil Men by a Pestilence as well as by a Flood, without detriment to the harmless Brutes or Birds: But as God Almighty is of Infinite Wisdom, so it is the high Prerogative of that Wisdom to have variety of Excellent Ends in the same Action. I do really think that this Universal Deluge was not only an act of his Vengeance upon Evil Men, but possibly an act of Goodness and Bounty to the very Constitution of this Inferior World, though the particulars thereof be hid from us. And if as some would have it, it should be coextended only to the places that were then inhabited, and so the Flood particular, yet most certain it would be, even in such a particular Flood, many great Spots of Ground would be necessarily drowned where never any Men were, or inhabited.

3. And it seems it is too hastily concluded, That in the Period of 1656, or as the *Septuagint*, whom he follows, 2256 Years between the Creation and the Flood, that only *Palestine*, *Syria* or *Mesopotamia* were inhabited: For considering the longevity of Mens Lives in that Period, a small skill in Arithmetical Calculation will render the Number of coexisting Inhabitants of the Earth more than six times as many as would have hapned in 5000 Years, when Mens Ages were abridged to that ordinary dimension which now they have: and the strait bounds of *Syria* and *Mesopotamia* would not have held one fortieth part of the Inhabitants: all

all *Europe*, *Asia* and *Africa* were not more than sufficient for them: So that as the World grew full of Sin, so it grew full of Men and Beasts, and stood in need of a Deluge to make room for its future Inhabitants.

And this is as much as I shall say in this place, for the Vindication of the Possibility and Reasonableness of the Universality of that Deluge recorded by *Moses*.

And if any shall doubt of the Capacity of the Ark of *Noah* for the Reception of Brutes, Birds, and the Family of *Noah*, with the necessary Provisions of Livelihood for them; let him but consult *Mr. Poole's Synopsis*, and he will find that which may reasonably satisfy him touching it.

And now I shall briefly consider the Method and Means and Manner of the Peopling of *America*, and storing that vast Country with Men and Beasts and Birds, so far forth as we may reasonably conjecture.

And herein I must confess that I only make an Abstract or brief Collection of what hath been done to my hands by those that had better Opportunities and Abilities to do it; as namely, *Grotius*, *Laetius*, *Breerwood*, *Hornius*, *Josephus Acosta*, *Mr. John Webb*, *Martinus* and others, who have professedly written, *De origine gentium Americanarum*.

First therefore, I shall consider the Manner of Traduction of Men into *America*.

Secondly, The Manner of Traduction of Brutes into *America*.

Touching the Traduction of Mankind into *America*, I do suppose these things following:

1. That the Origination of the common Parents of the Humane Nature hapned in some part of *Asia*.

2. That though the Origination of the common Parents of Mankind were in *Asia*, yet some of their Descendents did come into *America*.

3. That such Migration into *America* by the Descendents from *Adam*, was not only possibly, but fairly probable, notwithstanding all the objected Difficulties.

4. That the Migrations of the Descendents of *Adam* and *Noah* into *America*, was successive, and interpolated.

5. That although we cannot certainly define the Time or Manner of all these Migrations, yet many of them were long since, or, as we may reasonably conjecture, some Thousands of Years since; but yet after the Universal Deluge.

The Means of Transmigration of the Children or Descendents of *Adam* and *Noah* from *Asia* into *America* must be either by Land or by Sea, or by both; and if by Sea, then it must be designed, and *ex proposito*, or casually.

I think it probable it may be all of these ways, but especially by Sea.

Touching the Transmigration by Land, it seems very difficult, because though it may be possible that there may be some junctures between the North Continent of *America* and some part of *Tartary*, *Russia*, or *Muscovy*, yet none are known, unless the Frozen Seas in those Parts might be a means to transport Men thither; which is difficult to suppose, those Parts being unpassable by reason of the great Snows that happen so far Northward: though some have thought that *Greenland* is one Continent with

with *America*, and that in its farthest North-east extent it is joyned to the Continent of *Asia* about *Japan* or *Cathay*; so that a Land-passage might be out of *Asia* into *Greenland*, and thence into *America*. But this is only conjectured, and not fully discovered to be so.

But however the Case now stands with the three known Parts of the World, in relation to its contiguity with the Continent of *America*; it is not impossible, but in that long tract of 4000 Years at least, which hath hapned since the Universal Deluge, there hath been great alterations in the situations of the Sea and Earth: possibly there might be anciently Necks of Land that maintained passage and communication by Land between the two Continents. Many Instances of this kind are remembered by *Pliny*, not only of the great *Atlantick* Island mentioned by the *Egyptian* Priest in *Plato's Timæus*, of a great bigness, almost contiguous to the Western parts of *Spain* and *Africa*, yet wholly swallowed up by that Ocean to which it hath given its Name of the *Atlantick* Ocean; which if true, might for ought we know afford a Passage from *Africa* to *America* by Land before that Submerſion; but also many more Instances of the like Variations: thus he reports that *Sicily* was anciently divided from *Italy*, *Cyprus* from *Syria*, *Emba* from *Bœotia*. Vide *Plin. l. 2. cap. 88, 89, 90, 91.*

Strabo also in his first Book seems to refer the Straits or Apertures of the *Euxin* and *Mediterranean* Seas to the like separations made by the force of the Sea, and attributes those great Floods and Inundations to the elevation and subsiding of the *Moles terrestres*, in these words; *Restat ut causam adscribamus solo, sive quod mari subest, sive quod inundatur; potius tamen ei quod mari subest: hoc enim multo est mobilius, & quod ob humiditatem celerius mutari possit. Spiritus enim, hujusmodi omnium rerum causa, ibi est copiosior. Sed, sicuti dixi, causa horum efficiens accidentium est, quod eadem sola alias attolluntur, alias subsidunt:* and he resembles the ordinary Elevations and Depressions whereby the ordinary Fluxes and Refluxes are made, to the Expiration and Respiration of Animals; but those greater and extraordinary Elevations and Depressions of the Earth to the greater Accidents; *Nam diluvia, terræmotus, eruptiones flatuum, & tumores subiti terræ in mari latentis, mare quoque extollunt; subsidentesque in se eadem terræ, faciunt ut mare dimittatur.* And it is no new or feigned Observation, That as the *Volcans* in the Land, as *Aetna* and *Vesuvius*, raise up those great Protuberances which seem Natural Mountains; so the like *Volcans* or Fiery Eruptions happen sometimes in the Land subjected to the Sea, whereby great quantities of Earth together with Fire are thrown up, and grow into Islands. *De quibus videtur Strabonem & Plinium in locis citatis.* And if we may give credit to the Conjectures of *Verstegan*, the Countries of *England* and *France* were formerly conjoyned, and after separated by the Irruption of the Sea between *Dover* and *Calais*. And therefore, although it may be that at this day there is no Land-passage from this Elder World unto that of *America*, yet within the tract of 4000 Years such there might have been, whereby both Men and Beasts, especially from about *Tartary* or *China* might pass; or between *Norway* or *Finland* and the Northern part of the *American* Continent.

But we need not go so far from home, nor resort to the Ages of ancient times for the evincing the great Changes that have been between the Sea

Sea

Sea and Lands, sometimes by tempestuous Winds, sometimes by Earthquakes, sometimes, and that most commonly, by the working of the Sea, by casting up Silt and Sand, and by exaggerations thereby wrought; elegantly described by *Ovid*, 15. *Metamorph.*

*Vidi ego quod fuerat quondam solidissima tellus
Esse fretum, vidi factas ex aquore terras;
Et procul à pelago cœcha jacuere marina,
Et vetus inventa est in montibus anchora summis,
Quodque fuit campus, vallem decursus aquarum
Fecit, & elvæ mons est deductus in aquor,
Æque paludosa siccis humus aret arenis.*

The Instances of latter Discoveries which make evident this various state of the Globe of Earth and Water, thus described by the Poet, are among others those that follow.

1. Some Towns that were anciently Havens and Ports where Ships did ride, are now by exaggeration of Sand between those Towns and the Sea, converted into firm Land 2, 3, 4 Miles distant from the Sea; such was *St Omer* in *Flanders*, *Old Rummy* in *Kent*, *Rye* in *Suffolk*: vide *Mr. Dugdale* his History of Draining, pag. 173. and the Authors there cited by him,

2. Some whole Countries, as well as the *Egyptian Delta*, recovered to be dry Land, partly by the exaggeration of Sand by the Sea or the outfalls of great Rivers; thus the whole Country of *Holland* seems to be an Accretion partly by the Sea, partly by the River *Rhine*. *Dugdale* *ibid.* p. 12.

3. Some great Continents and Tracts of Ground were anciently firm Land, and full of great Woods that could not have less time than 500 Years continuance, and yet were afterwards reduced again into the Dominion of the Ocean, and after all that re-reduced into firm Land, leaving the infallible Signatures of these several Changes, though the precise times thereof exceed the Memory of any Men alive: Instances whereof are as follow.

In the great Level near *Thorney*, several Trees of Oak and Firr, some severed from their Roots, others joyned to their Roots which stand in firm Earth below the Moor, and in all probability have lain there hundreds of Years, till covered by the inundation of the fresh and salt Waters, and the Silt and Moorish Earth exaggerated upon them: and the like monuments of great Trees buried in great quantities in the Isle of *Axholm* about 3 Foot, and some 5 Foot under ground, whereof there are multitudes; some Oaks of 5 Yards in compass, Firr-Trees of 30 Foot long. *Vide Dugd. ubi supra, pag. 141, 171.*

Mr. Ray in his Ingenious Observations upon his Travels in the *Netherlands*, &c. pag. 6. gives us the like account of great quantities of subterraneous Woods, lying 10 and 20 Ells below the Superficies of the Ground, prostrate towards the East, which are supposed to be anciently thrown down by the irruption of the Sea and strong Western Winds, which yet now, and for all the time of the Memory of Man or History extant, are firm Land, namely, *Bruges* in *Flanders*.

But

But that one Instance is *instar omnium*, remembred by Mr. Dugdale, *ubi supra*, pag. 172; but of known and notorious truth, the Sceleton of a great Sea-fish above 20 Foot long found in the Downs or Uplands of Cammington in Huntingdonshire, very far distant from the Sea, which is an unquestionable Evidence that the Sea was sometime Master of that Tract of Ground.

4. Touching the *Conche marina* of several sorts, it is most unquestionable; I refer my self herein to the Relation of Mr. Ray, *ubi supra*, pag. 114, & *seqq.* wherein he gives us an account of these Petrified Shells found in great quantities within Continents at a vast distance from the Sea; and some Shells that are found in the Continent, which are strangers in the Ports of the Sea conterminous to those Continents.

There are two Opinions concerning the Origination of these Petrified Shells; 1. Of those that have thought (and with great probability) that these were left in those places by the Sea, either by the Universal Deluge, or that really the Sea did possess those places where it left these Relicks and Memorials of it self upon its recede to a more settled Channel. And certainly if this be so, we must needs suppose anciently another Face of the Sea and Earth than what now is; possibly many of these Vallies and lower grounds might be entirely Sea, and the Hills and Mountains, and other Prominences of the Earth where these Petrified Shells are often found, being the Shoars of that great Ocean in those elder times; those Shells were there cast up, as they are at this day upon the Shoars.

The second Opinion is of those that think that these *Conche* or Petrified Shells were no other than the *Lusus natura*, the Effects of the Plastick power of the Earth; 1. Because they are found at such great distances from the Sea: 2. Because they are many times of such a kind of Fabrick as are not to be found in those parts of the Sea that is conterminous to those Continents where they are found; some are found in the middle of *Germany*, 200 Miles distant from the Sea at the nearest; Scallop-shells are found in the Ditches of *Antwerp*, and yet they are rarely to be gotten on the Sea or Sea-shoar nearer than *Gallicia* in *Spain*: 3. Because these Shells are ordinarily filled with Stone suitable to the Stone of those places where they are found. These and the like Reasons, though not evidently concludent against the former Supposition, yet have induced many Learned Men to attribute these *Phanomena* to the Plastick power of the Earth.

For my own part, I have seen such apparent Evidences in and near the place where I live of things of this nature, that I am satisfied that many of them are but the Relicks of Fish-shells left by the Sea, and there in length of time actually Petrified; and the Instance of the great Fish-sceleton found at *Cammington* seems an undeniable Evidence thereof. And I remember in my youth, in the Lisne of a Rock at *Kingstote* in *Gloucestershire*, I found at least a Bushel of Petrified Cockles actually distinct one from another, each near as big as my Fist: and at *Adderly*, mentioned by Mr. *Cambden*, about 40 or 50 Years since those Configurations of great Shells in Stones were frequently found, and for their curiosity, as many as could be found were taken up by several persons and carried away; since which time, for above 20 Years last past, there are none, or very few

few found; which nevertheless if they had been the Product of the Plastick power of the Earth, would have been Annually re-produced.

And yet I do think that all these Petrifications are not always necessarily the Monuments of the Sea possessing those places as its constant or usual Seat, but that many of those Shells arise *de novo*, not barely from the Plastick power of the Earth (as some Insects and Vegetables arise spontaneously) but from certain Seminal Ferments brought thither, which are as it were the *Seminium* of their production. And these Seminal Ferments were first in the Sea and Sea-Waters, and might by many means be brought into those new parts of firm Land, 1. By the Universal Deluge; 2. By the various mutable stations of the Land, and fluxes of the Sea; 3. By elevation of those Seminal Ferments from the Sea or some desiccated places thereof, by the heat of the Sun, and discharging them by Rain upon several parts of the dry Land, and where possibly those Seminal Ferments might be digested and ripened gradually into these Configurations. But touching these kinds of Seminal Ferments, and their Energy, more will be said hereafter.

By this digression I mean but thus much, namely, That we can by no means reasonably suppose the Face, Figure, Position and Disposition of the Sea and dry Land to be the same anciently as now, but there might then be Sea where there is now dry Land, and dry Land where there is now Sea; and that there might have been in former times Necks of Land, whereby communication between the parts of the Earth, and mutual passage and re-passage for Men and Animals might have been, which in long process of time within a Period of 4000 Years may have been since altered: That those parts of *Asia* and *America* which are now dis-joynd by the interlucency of the Sea, might have been formerly in some Age of the World contiguous to each other; and those Spots of Ground, namely, the *Philippine* Islands, and others that are now crumbled into small Islands, might anciently have been one entire Continent. And if in places that have been long inhabited, and observed by Men, these mutations have happened as are apparent to our very Senses, yet the precise Times, Manner and Circumstances thereof are wholly lost to us, as in divers parts of *Europe* is apparent: much more the like Changes may happen in those remote and vast Marine Tracts which have been long unknown and unobserved, and scarce possible to be observed by Mankind, as in the *Scythian*, *Atlantick*, *Pacifick*, and other Northern and Southern parts of the Seas.

Touching the Second Means, namely, the Passage by Sea; It seems very probable that the greatest and readiest means of the migration of Colonies or Plantations into the Western World from the Eastern, was by Sea, and the help of Navigation; whereof much might be casual, by Tempests or contrary Winds, but some and the more principal might be, *ex instituto & industria*.

Navigation, and the use of Ships is of that great Antiquity, that it is difficult to assign when it began to be in use.

It seems probable that it was not unknown to the Old World before the Flood, and yet not in that perfection that it was after, their Vessels being not reduced to that perfection as to endure a wide Sea, such as the Universal Deluge was, neither were they probably fitted with such Stores

as might be requisite for so long and unexpected a Navigation as the Flood lasted.

But the Ark of *Noah* was certainly a most exact piece of Architecture, and might give a Pattern or Instruction for Vessels of great burthen, and very probably since that time the skill of Making and Navigating of Ships was much ripened and improved.

If we consult the Heathenish Histories, we shall find Navigation very ancient among the *Grecians*, but especially among the *Phenicians*, *Tyrians*, and *Carthaginians*.

Polydore Virgil, de *Inventione Rerum*, l. 3. cap. 15. and before him, *Pliny* in his *Natural History*, lib. 5. cap. 57. gives us an Account of the several Inventors of the various forms and appendants of Shipping and Navigation, but yet the thing it self they carry up to higher Memorials; the Navigation of the *Argonauts* to *Colchis* for the Golden Fleece, being one of the famous *Epocha* of the *Grecian* Computation, happened in about the 1100 Year after the Flood according to the *Jewish* Account; and above 200 Years before them *Danaus* sailed out of *Egypt* into *Greece*, Shipping being there in use long before.

That although we find not express mention of the *Pyxis Nautica* or Magnet for many Years after mention of the Use of Navigation, yet the same Author tells us that the *Phenicians* steered their Course by the Observation of the Stars.

But we have a better and antienter Account of the use and frequency and antiquity of Navigation in the Sacred Scriptures: *Jacob* died about 600 Years after the Flood, mentions Ships and Havens for Shipping as things well known, and particularly *Zidon*, as a great Port of Shipping, where *Zebulon's* Lot was to be cast, *Gen.* 49. 13. *Balaam* also in the time of *Moses* mentions the Ships of *Chettim* or *Greece* as a known thing, *Numb.* 24. 24. again, in the Reign of *Solomon*, the *Tyrians* are taken notice of to be expert Sea-men; that *Solomon* had a Navy upon the Coast of the *Red Sea*; that from thence he with the *Tyrians* made long and great Voyages to *Ophir* and *Tarshish* (places, as it seems most probably, in the East *India*, not in *Africa* or *America*, as some have thought) and thence brought Gold and other Commodities once in three Years. *2 Chron.* 8. 18. 9. 21.

And how sedulous and industrious all Maritim Coasts were in advancing of Navigation, in multiplying of Shipping, in Merchandizing and Trading, in searching out and subduing Foreign Countries, when either they were afflicted at home by War, or grew over-populous, the Histories of all succeeding Ages of the *Grecians* and *Persians*, of the *Tyrians*, *Phenicians* and *Carthaginians*, of the *Romans* and *Egyptians*, of the *Seres* or *Chineses*; and in later times, of the *Venetians*, *Sicilians*, *Rhodians*, *Spanish*, *Dutch*, *French* and *English* give us a large Account.

And therefore as later Years, have given us of this Age witness, of the Transplantations to *America* from *Spain*, *France*, *Portugal*, *England*, *Scotland*, *Holland*, and some Ages before that have given Instances of Transplantations from *Norway* into *Groenland* and *Iceland*; so it seems not only possible, but very probable, that either by Casualty and Tempest, or by Intention and Design; either out of lucre of Gold, or for disburthening of the Countries surcharged with multitude of Inhabitants, or by greatness of Mind, affecting Noble Undertakings, or by reason of

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Hardship, Oppression and Wars at home, or by some or all of these ways, several parts of this great Continent at several times have been planted with Inhabitants, which in process of time have multiplied into those many Nations, and have forgotten their Original, and the Manners, Religion or Customs of those People from whom they were derived in *Europe*, *Asia*, or *Africa*. And surely we have reason to believe that we of this Island are not *Aborigines*, but came hither by Migrations, Colonies, or Plantations from other parts of the World; yet were it not for the help of Historical Monuments, we should have forgotten who inhabited this Island six or seven hundred Years ago: yea, and notwithstanding all these Historical helps, we have no Authentick Tradition that can give us any tolerable Account before the time of *Julius Caesar*, much less of the first Plantation of this Island: for as to the Story of *Brute* and his Company, we have but little evidence of the truth of it, and if it were never so true, yet it doth not prove it uninhabited before.

Now those Countries in *Asia* or *Europe* that with greatest probability first peopled *America*; seem to be 1. The *British*; 2. The *Norwegians*; 3. The *Tartars* or *Scythians*; 4. The *Phenicians* and *Carthaginians*; 5. The *Chineses* or *Seri*. I do not at all mention the late Migrations of the *Spanish*, *French*, *Portugals*, *Dutch*, *English*, or *Scottish*, but those of a more ancient Edition.

1. Touching the *British* Migration, recorded by *D^r Powel*, sub anno 1170; who tells us, That *Maadoc* one of the Sons of *Owen Gwennith* went over twice into the Northern Coasts of *America*, and made there a *British* Plantation, who though in process of time much degenerated from their Nature, Language, Customs and Religion, yet retained some Monuments of all. This is at large prosecuted by *Laetius* in his second Observation, who gives us many Resemblances in some principal Words between the Language of them and the *Cambro-Britains*.

2. Touching the Migration of the *Norwegians*, *Hugo Grotius* hath made some considerable Observations, which though not altogether approved by *Laetius*, yet he willingly grants that *Iceland*, and some part of *Groenland* were visited and planted by *Ericus Ruffus*, sub anno Christi 982, and the Christian Religion there planted, and probably from thence Colonies were traduced into the Northern parts of *America*.

3. Touching the Migration of a considerable number of *Tartars* and *Scythians* into the North-east part of the Continent of *America*, over the *Fretum Anian*, *Laetius* seems to lay much stress upon it; partly in respect of the easiness and shortness of that Passage from *Nova Zembla* and the farthest North-east part of *Tartary* over that narrow Sea; and partly by reason of the congruity of the Barbarous Customs of the *Americans* and *Scythians*, and some other Indications of that kind.

4. Touching the Migration of the *Phenicians* and *Carthaginians*, especially into the South-east part of the Continent of *America*, as *Mexico* and *Brazil*, *Hornius* thinks it probable upon many accounts: 1. Upon the great skill and long practice of Navigation, and the multitude of Shipping of the *Phenicians* and *Carthaginians*. 2. Upon the Accommodation of the part of *Carthage* and other *African* Ports bordering upon the *Mediterranean* Sea, to make their Voyages Westward, and the great advantage of the constant Easterly Wind, that makes the Voyage to *Mexico*

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and *Brazil* more easie. 3. Upon some ancient Histories intimating the progress of the *Phœnician* and *Carthaginian* Fleets into some Islands and Continents in or near the *Atlantick* Ocean. 4. From the Analogy of many Words, and Names of Places with the *Carthaginian* Language; all which, and much more to this purpose may be seen in the Book of *George Horne, de Originibus Americanis*. 5. And lastly, much of the Origination of the *Americans* seems to be attributable to the Migrations of the *Seri* or *Sinenses* from the Eastern parts of *China* and the *Philippine* Islands, from the Islands of *Borneo*, and the *Molucca's*, and *Japan*, through the *Mare Pacificum* into the Western part of the Continent of *America*; which though it be a large Ocean of above 2000 Leagues, between the *Philippine* Islands and the West of the *American* Continent, and the passage thither difficult in respect of constant Easterly Winds between the Tropicks; yet many Reasons seem to induce a likelihood of Plantations from thence, 1. In respect of the Antiquity of the Peopling of *China*, which if we believe *Mr Webb* was the first peopled after the Universal Deluge; that the Ark there first rested upon that tract of Mountains that environ a great part of *China*; that *Sem* the Son of *Noah* first settled there, that it is the most Ancient and Primitive Language; that by means of the Antiquity and Settledness of this Monarchy, having continued in its entireness ever since the Universal Deluge, it is most probable that the Western Continent was peopled from thence. 2. Because they were the greatest Masters of Shipping, and best skilled in Navigation of any part of the World, that the *Pixis Nautica* was there known and used long before the knowledge thereof in *Europe*. 3. The many Islands on the South-east and South part of *China*, as *Borneo*, *Java*, *Gilolo*, *Celebes* and others near the Equator are dis-joyned but by very narrow Seas, not much broader than those between *England* and *France*, from the Neck of Land called *Terra des Papos* or *Nova Guinea*; and *Nova Hollandia*, which is now discovered to be at least in some parts dis-joyned from the more Southern Continent by a great Sea, but thought to have been anciently part of the Southern Continent, and possibly so it may continue in some parts thereof.

Upon these and the like probabilities it may seem reasonable to conclude, 1. That the *Americans* had their Original from the Inhabitants of *Europe*, *Asia* and *Africa*, that transmigrated into that Continent either intentionally, or casually, or both. 2. That those Migrations were not of any one single Nation or People, but from many or divers Nations. 3. That these Migrations were not altogether, or at one time, but successively in several Ages, some earlier, some later. 4. That therefore it is impossible to determin the Time or first *Epocha* of such Migrations, but only that they were all since the Universal Deluge, which is now above 4000 Years since: Some Migrations might be within two, three, or four hundred Years after the Flood, some later, according to various Accidents; but it is no way probable that the earliest Migration thither was less distant than 1000 Years from this time. 5. That if we should admit that the first Migration thither were above 2000 Years since, of an hundred Pairs they might easily propagate a number competent enough to people all that vast Continent. 6. That it seems that since the last of these ancient Migrations, suppose that of *Madoc* and his

Britons,

Britons, until our late Migrations by the *Spaniards*, *French*, *English*, *Dutch* and *Scotch*, there probably interceded an interval of at least four or five hundred Years, in all which interval the Commerce and Communication between *Europe* or *Asia*, and *America*, hath as it were slept, and been forgotten both by them and us. 7. That in that interval of 500 Years or thereabouts in all Parts, but in some Parts far greater, there must in all probability happen a great forgetfulness of their Original, a great degeneration from the Primitive Civility, Religion and Customs of those places from whence they were first derived; a serene and necessitous kind of Life, a conversation with those that having been long there were fallen into a more barbarous habit of Life and Manners, would easily assimilate at least the next Generation to Barbarism and Ferineness. It is true; where a Colony comes and keeps it self in a Body, as the *Roman* Colonies anciently, and our Plantations in *Virginia* and *New England* do, and the new Accessions incorporate and joyn themselves unto that Body, Customs both Religious and Civil, and the Original Language are long kept entire: But where the Accessions are but thin and sparing, and scattered among the Natives of the Country where they come, and are driven to conform themselves unto their Customs for their very subsistence, safety and entertainment, it falls out that the very first Planters do soon degenerate in their Habits, Customs and Religion; as a little Wine poured into a great vessel of Water loseth it self: But if they escape a total Assimilation to the Country where they thus are mingled, yet the next Generation in such a mixture is quickly assimilated to the corrupt Manners and Customs of the People among whom they are thus planted: So that it is no wonder, if in such kind of small Accessions successively from one and the same or several Countries, the third Generation forget their Ancestors, and the Customs, Religion and Languages of those People from whom they were first derived, and assume various temperaments in their Language and Customs, according as the places of their Habitation and the Company among whom they live, obtain. And if any man consider but the strange contemperation and production of our *English* Language out of the combinations and mixtures of the *Danish*, *Saxon*, *British*, *French*, *Dutch*, and other Countries, he may easily persuade himself, that out of the Mixtures of People there may arise as great diversities of Language, Rites and Customs, as there may Temperaments of Qualities by the various combinations and mixtures of the prime Qualities, or varieties of Words by the various appositions of the 24 Letters in the Alphabet; and even these Customs and Languages subject to infinite successive alterations and variations, according to the variety of Foreign Mixtures, Commerce, Victories, Wars, Credit and Opinion of Factions or Parties.

And thus far touching the Peopling of *America* with Mankind, I shall subjoyn something touching the storing of it with Brutes and Birds.

It seems in the original Creation of things that Vegetables and Insects, especially those that by their nature may *sponte oriri*, or by equivocal Generation, had as large and universal production as the habitable parts of the Earth or dry Land; as Fishes, for the most part, had their first

first created production as universal and *sparsim*, in the whole extent of the Seas or Waters:

But whether the primitive production of the more perfect Animals both Brutes and Birds, that have ever since had their production by univocal Generation, were diffusively created over the habitable or dry Ground as Vegetables were; or whether there were only certain *Capita specierum perfectarum utriusque sexus*, created in a certain determinate *distans* near to the place of the first Origination of Mankind, viz. in or near the Garden of *Eden*; and that the whole Progeny of such Brutes and Birds were propagated after successively through the whole World from these *Capita specierum*, seems an Inquiry of more difficulty to determine.

Some Observations seem to favour the former Conjecture, especially considering that many *Species* of Brutes and Birds are as it were appropriate to their several Countries, as Elephants, Camels, Lions, and divers other Brutes, Parrots, Ostriches, and other Fowls which are not found in other Countries.

But especially the same Opinion is inferred from the Beasts and Birds which are found in *America*, which have not the like in the other parts of the World: *Acosta* in his 36th Chap. of his 4th Book saith, that besides the Beasts called *Guanaco's* and *Paco's*, there be a thousand different kinds of Birds and Beasts of Forest in *America* which have never been known neither in shape nor name in other parts of the World, whereof no mention is made, nor names given in *Greek* or *Latin*, or other Eastern Language of the World.

And in his 34th Chapter of that Book he tells us, That though the *Spaniards* in their first Plantation found certain Beasts, Birds, and other things in *America* common to those of *Europe*, *Asia* and *Africa*; yet some Beasts and other things they brought thither which were unknown there, and for which they had no Names but what the *Spaniards* brought along with them. So that one of the best Indications which they had to know those Beasts which were originally brought with the *Spaniards* out of *Europe* in their first Plantation, was, in that the *Indians* had no other Names for such but *Spanish* Names.

And again, since *America*, as is generally supposed, is divided on every side from *Asia*, *Africa* and *Europe* by considerable Seas, and no known passage by Land, so that all the possibility there could be for traduction of the Brutes into *America* from the known World, could only be by Shipping: Though this might be, and certainly was a method used for the traduction of useful Cattel from hence thither, yet it is not credible that Bears, Lions, Tigers, Wolves, and Foxes should have so much care used for their transportation.

And upon the same account they seem to infer, That the Beasts and Birds preserved by *Noah* in the Ark could only be such as were appropriated to *Asia*, but not those that were of the *American* kinds, for how should they come from thence to the Ark? Or if it be supposable that they could be brought thither, why did none of the kinds which are found commonly in *America* leave some of their Kind or Race here?

On the other side, it hath been the more received Opinion, That the *Capita specierum perfectarum* of perfect Terrestrial Animals and Birds were

were created near unto the place of *Adam's* Creation, and that from these, and these only the Race of perfect Animals, Birds, and Brutes were propagated and traduced over the face of the whole Earth; and that the *American* Brood was traduced from these, and from those Couples of these that were preserved by *Noah* in the Ark: And that upon these Instances, whereof some are of Divine authority, others are Physical.

1. All the Beasts and Fowls were brought to *Adam* to give them their Names, *Gen. 2. 19, 20.* which could not have been, if the several kinds of them in their first Creation had not been within some reasonable and approachable distance.

2. All the Beasts and Birds had their kinds preserved in the Ark, and the rest were drowned by the Universal Deluge. *Gen. 7. 23.*

3. Although the Continent of *America* was in the first *Spanish* Plantations thereof stored with wild Beasts, as Lions, Tigers, Bears, &c. yet those Islands that were remote from the Land, though large and fruitful, had not any of these Beasts then in them, as *Cuba*, *Hispaniola*, *Jamaica*, *Margarita*: this is verified by *Acosta*, upon a strict examination, *Lib. 1. Cap. 21. & alibi*, and the same hath been found true in other new discovered Islands by other Navigations: Whereby it appears that the Brutes were not *Aborigines*, for then they should have been found in those Islands as well as in the Continent, as well as Insects and Vegetables; and that therefore in the Continent it self, the first storing thereof was not from it self, but by some means of accession from other Parts, for otherwise they might have been found as well there as in the Continent.

The two great Obstacles are, 1. The difference of the Brutes and Birds of that Continent from those of *Asia*, *Europe* and *Africa*: 2. The difficulty of finding a commodious passage from *Asia*, *Africa*, or *Europe* for such Beasts and Birds from hence thither, admit they were all of the same kind. And touching both these I shall say something.

1. Touching the diversity of Brutes and Birds of this and the Western World, the difficulty from thence is but small, for there are divers Accidents even in the Eastern World, *Europe*, *Asia*, and *Africa*; that afford us Instances of that kind, though, excepting some Islands, it be one common Continent: I shall instance only in some Accidents of this kind: 1. This Variation may happen by Mixtures of several *Species* in Generation, which gives an anomalous Production, as we see ordinarily by the mixture of Pheasants and Hens, Chickens are produced partaking of both in colour and figure, which yet renders them different from both: And it is observed by many that the Cause of that great variety of Brutes in *Africa* is by reason of the meeting together of Brutes of several *Species* at Waters (which in those dry Countries are scarce) and the promiscuous couplings of Males and Females of several *Species*, whereby there arise a sort of Brutes that were not in the first Creation. This was long since observed by *Aristotle*, so that it grew a Proverb also, *Semper aliquid novi Africa affert. De generat. Animal. lib. 2. cap. 5.* and so continues to this day. 2. The Percolation, as I may call it, of Vegetables by Profemination will alter their Nature, Colour and Shape, as Tulips, or Carnations rising from Seed will differ in Colour from what those were that yielded those Seeds. 3. Culture will improve Wild Flowers in bigness and beauty; and want of Culture will sometimes

make

make Vegetables degenerate. See for these Transmutations Sir Francis Bacon, in the 6th Century of his Natural History. I have often observed, that River-Fish, as Trouts and Flounders, and others, will alter their figure, some for the better and some for the worse, being put into Ponds. Again in Animals; the Learned Doctor Harvey in the end of his last Book *de Generatione Animalium*, delivers an Opinion which at the first view seems wonderful strange, viz. That the Conformation of the Proles, both in Men and Brutes, to their several specifical Shapes and Configurations, is by a certain specifical operative Idea in the Phantasia or Imagination of Animals, fixed and radicated in them, and conformable to their several Species; and that monstrous or anomalous Productions are by some disturbance or discomposure of that specifical Idea, by some other inordinate Idea. And conformable hereunto seems the Opinion of Marcus Marci, in his learned Book *de Ideis formatricibus*. Whatever the truth of this Opinion be, it is not here properly examinable; yet it seems beyond question, that as to some external Signatures, as Colour, Shape, Figure, &c. the Phantasia or Imagination of the Females as well Animals as of Mankind, especially in *momento conceptus* and for some time after, hath a great Influence: Some there are that think that Jacob's change of the colour of Sheep and Goats by peeled Rods, Gen. 30. 37. was partly at least upon a Physical account; and he that reads *Fiens de Viribus Imaginationis*, and Sir Francis Bacon in the latter end of his Natural History, will find such Changes by the strength of Imagination as are very remarkable. It is probable, that in the great plenty of Birds and Fowls in uninhabited Woods of the Western World, even the several aspects of their Figure and Colour in their seasons of Copulation may make various Configurations and Colours in their Broods. 5. But that which is more to my purpose, and of greater evidence, is this, Variety of Soils and Climates makes admirable and almost specifical Variations even of the same Species of Vegetables, Animals and Men: In Vegetables, a fruitful Soil or Climate improves in Beauty, Bigness and Virtue; a barren Soil or Climate impairs them: among Animals, the Indian Elephants are larger than the African; the English Mastiff degenerates in his courage and fierceness, at least in the first succession by generation, when brought into France; the Barbary Horse is of a finer Spirit and Make than the Flanders Horse, yet degenerates in a great measure in the first or second generation, when removed from Barbary. Nay let us look upon Men in several Climates, though in the same Continent, we shall see a strange variety among them in Colour, Figure, Stature, Complexion, Humor; and all arising from the difference of the Climate, though the Continent be but one, as to point of Access and mutual Intercourse and possibility of Intermigrations: The Ethiopian black, flat-nosed and crisp-haired; the Moors tawny; the Spaniards swarthy, little, haughty, deliberate; the French spritely, sudden; the Northern people large, fair-complexioned, strong, sinewy, courageous: nay we may see in more conterminous Climates, even in those of ours, great variety in the People thereof; the Up-lands in England yield strong, sinewy, hardy Men; the Marsh-lands, especially about *Somersetshire*, Men of large and high stature; the Welsh that inhabit the Mountains, commonly sharp-visaged. And there is no less difference in the Humors and Dispositions of People inhabiting several Climates

Climates, than there is in their Statures and Complexions. And it is an evidence that this ariseth from the Climate, because long continuance in these various Climates assimilate those that are of a Foreign extraction to the Complexions and Constitutions of the Natives after the succession of a few Generations:

And upon this account there may be great variety in the Colour, Figure and Make of divers Birds and Animals in America from those in the Eastern World, and yet both have the same original extraction; for there is no less variety in the Brutes and Birds of Africa from those of Europe or Asia, and yet nothing impedes their mutual commigrations, being the same Continent, though differing Climates.

And therefore although Acofta and others tell us of Brutes and Birds in America that are not found in Europe or Asia, it doth not at all enervate the Sacred History; it is possible there may be the like in Africa, or some Parts of Asia which yet Acofta never travelled. 2. But if not, they might arise by an anomalous Mixture of Species. 3. Possibly they may be of the same Species with the Primitives, but received some accidental Variations in process of time; as the various kinds of Dogs here in England, Mastiffs, Spaniels, Hounds, Greyhounds, &c. might in their Primitives be of one Species; the like may be said of various kinds of Apes, Baboons, Monkeys, of Elks, Buffalo's, and Cows; the like of several sorts of Parrots, which primitively might be but one Species, and receive accidental Variations in process of generations, by some of the means above mentioned: and thus Crows, Daws, Rooks might be but a bastard kind of Raven; the *Royston Crow* and the *Cornish Daw*, though they have accidental differences from those among us, seem yet to be of the same kind with ours, and so possibly might the Sheep of Peru, called by Acofta *Pacos* and *Guanacos*, be primitively Sheep, but differenced by their long abode in successive generations in Peru; the *Auxa's* and *Poulaffes* mentioned by Acofta, lib. 4. cap. 37. may be but a Species of Ravens, though by the Climate accidentally altered in bigness and shape.

These things I mention, that it may appear, That even in the same Continent, wherein a mutual transition may be without difficulty, yet the very Climate may as it were appropriate some Brutes to certain Countries, which yet might without any great difficulty be at first Creation of them contained within nearer bounds, and might upon the occasion of the Common Deluge be drawn together into the Ark, and afterwards by their wandering farther, and inuring themselves to a certain Continent or part thereof, be accidentally changed, and as it were appropriate to it: And also to shew, That Animals even of the same Original, Extraction and Species, be diversified by accustomable residence in one Climate; from what they are in another. Therefore possibly as little Consequence may be drawn against the common Original of the *Capita Specierum Animalium* in Asia and America, as may be drawn from the diversity of some kind of Animals inhabiting in divers parts of Europe, Asia or Africa, which notwithstanding is one common Continent. I do therefore conclude, That the variety of the Brutes and Birds in America from those in Asia, where the Ark was made, is no Argument against their Original from those that were preserved in the Ark: Because that it doth not yet appear,

that those that are now known in this World do differ any more than accidentally from those in the Western World, *viz.* either by the Couplings and Mixtures of Animals of several Species; or by reason of the Variety of the Climate, or Temperament thereof, which Variations might be acquired by a dispersion of them as well into *America*, as other parts of *Europe*, *Africa* or *Asia*, after the Universal Deluge.

As to the Second, namely, The difficulty of the first Migration of Brutes and Birds from *Asia* where the *Capita specierum* were first created, and after in the Ark preserved, I shall first deliver my self from the lesser difficulties of the Objection, and afterwards consider the greater.

1. It seems but little difficulty touching the translation of Birds from hence thither: for although without the supposition of *Plato's Atlantis*, or some number of smaller Islands in a convenient distance in the *Atlantick Ocean*, it is hardly possible to suppose that any Fowls could maintain a flight from *Spain* or *Africa*, cross the *Atlantick Ocean* into *America*; yet there are other Seas between some parts of *Europe* and *Asia*, and the Northern parts of *America*, where Fowls by flight might pass from hence thither, as the *Fretum Anian*, and the Sea bordering upon *Norway* and *Finland*.

2. As to the Water-Fowls, the difficulty is less, for they can and do supply the weariness of a long flight by taking Water, and infinite numbers of them are found in Islands far remote from any Continent, and even in the main Ocean.

3. As to Domestick-Fowl, as Hens, Geese, Turkeys, &c. and tame Animals for use, delight, or food, as Horses, Dogs, Hogs, Sheep, Goats, Deer, Apes, Monkeys, Peacocks, Parrots, &c. of which *America* is furnished, there is as little difficulty but they might be transported by shipping either for use or commerce, especially by the *Africans*, who had store of them, and even Peacocks and Apes were an ancient part of commerce, *2 Chron. 9. 21.* and *Acofta, lib. 4. cap. 33.* tells us that the Dogs and Cattel transported not much above 20 Years before his coming thither from *Spain*, were in that space so exceedingly multiplied in *S. Domingo* and other Islands possessed by the *Spaniards* where there were none formerly, that they became wild, and filled all the Country, that they were forced to use what means they could for the destruction of the Dogs, and killed infinite numbers of Cows, merely for their Skins.

4. The only difficulty that seems to remain, is touching those ferine, noxious, and untamable Beasts, as Lions, Tigers, Wolves, Bears, and Foxes with which that Continent abounds: for it is not probable that these should be transported by shipping, no Men would probably be at that charge and hazard with such Beasts that would do more harm than good: And although possibly the frozen Northern Seas might be a Bridge for their passage, yet that seems unlikely in respect of the great Snows that accompany such Frosts, and the impossibility of a supply of food in so great and troublesome a Journey: And as to Swimming, though it hath been observed that Bears have swimm'd into Islands many Leagues from the Continent to prey upon Fowls, and to return again, and though the Seas between *Tartary* and *Cathay* and some parts of *America* be not so wide as the *Atlantick* or *Pacifick Ocean*, yet they are too large to afford a passage by Sea, especially for Tigers and Lions, which are not so apt to take

take the Water. And it is not yet certainly discovered, though conjectured, that there is any Neck of Ground, or passage by Land from any part of *Europe* or *Asia* into any part of the Continent of *America*.

There remains therefore nothing that I can reasonably conjecture to accommodate the difficulty, but to suppose what I have formerly intimated; That although it should be granted that there is now no such Land-passage extant, yet within the compass of 4000 Years elapsed since the Flood there have been some such Junctures or Land-passages between the Northern parts of *Asia* or *Europe*, and some Northern parts of the Continent of *America*, or between the South-east parts of *China* or the *Philippine Islands*, and the Southern Continent (though lately there be discovered an interposition of Sea between the Island *del Fuogo* and that Southern Continent) whereby either from *Asia* to *Groenland* in the North, or from *China* to *Terra australis incognita* on the South a Land-passage might be from *Asia* to *America* for Men and Brutes, though for some Ages past either by the violence of the Water, or by Floods or Earthquakes, which hath made great alterations in the Globe of the Earth and Seas, that Bridge or Line of Communication be now broken and obliterated. And truly he that observes the infinite company of Islands lying between the Continent of *China* and *Nova Guinea*, almost contiguous to each other, hath probable reason to believe that these were all formerly one Continent joyning *China* and *Nova Guinea* together, though now by the irruption of the Sea crumbled into many small Islands.

C A P. VIII.

The Seventh Evidence of Fact proving the Origination of Man, namely, The Gradual Increase of Mankind.

I Come to the Seventh Evidence of Fact, which seems with much strength and clearness to evince the Origination of Mankind, and that within such a Period of Time as the Sacred Scriptures propound, namely, The Gradual Increase of Mankind upon the Earth.

And because I mean thoroughly to examin this Consideration, I shall propound to my Enquiry these ensuing Particulars.

1. Whether according to the ordinary course and procedure of Nature in the Generations of Mankind, there be not a gradual and considerable Increase of Mankind upon the face of the Earth, unless some collateral Emergency or Occurrence interrupt or correct that Increase.

2. What Correctives there may be supposed that may check and restrain that Increase of Mankind, that otherwise according to the ordinary course of Nature would have obtained in the World.

3. Whether those Correctives or collateral Occurrences which have been, or may be supposed to have been in the World, have so far prevailed, as totally to stop that Increase of Mankind, which upon a Natural account, without the intervention of such Correctives would have obtained.

D d 2

4. Whether

4. Whether notwithstanding all these Correctives of the Increase or Excesses of Generations, yet if still the numbers of Mankind have increased, it be not a sufficient Argument to satisfy a reasonable Man that Mankind had an Inception, and that within such a period or compass of Duration as is not of a vast or prodigious Excess.

I shall begin with the first of these, and I shall suppose, and I think clearly evidence, That without the intervention of some accidental or collateral Corrective, Mankind must needs increase upon the Earth, and that the Generations and Productions of Men and Woman in an ordinary, regular and constant course of Nature, do very much exceed the Decays of Mankind by Natural course of Mortality, allowing into the Account those common Decays of Mankind by ordinary, usual and common Diseases incident to Individuals.

The Laws, especially of the *Romans* and others, have determined the Legal Ages of Matrimonial Conjunction of a Man to be 14, of a Woman to be 12; Prudential Considerations have protracted it longer. *Plato* in his Third *De Legibus* allows and determines the Age of the Woman should be between 16 and 20, of the Man to be between 30 and 35: we will suppose the *medium* to be for the Man 26, for the Woman 20. *Aristotle* determines the extreme time for Generation in the Man to be 70, for the Woman 50; the *medium* to be 65 for the former, 45 for the latter: we will take a shorter *medium* for both, and suppose the extreme term for Procreation for Man to be 55, for the Woman to be 40 Years; upon this account the *terminus* or *periodus procreativa* to be 20 Years: And although within that Period there is a possibility of procreation of 20 Children, yet considering that all Pairs are not of that fertility, we will take the *medium* to be less than a third part, *viz.* 6.

And because upon a due Observation of the Sexes of Mankind, especially by such as have curiously observed the Registers and Calculations of Births and Burials, there is some, though not very considerable excess of Males above Females, *viz.* as 14 to 13, or in some places, as 16 to 15 (an evidence of the wise Providence of God, to bring the number of each Sex to so near a parity) yet allowing a redundancy to the Males, to supply those many Casualties whereunto Males are subject by Wars, Navigations, and other Occurrences that more exhaust the numbers of Men than Woman. Therefore we will allow to Productions of five Couples, about 16 Males and 14 Females; which though not exactly answering either of those proportions, yet comes near to them, namely, 16 Males to 14 Females.

And because partly through the weakness of Infancy, and those Diseases that happen to Youth either by reason of intemperance, indigestion, want of care, and the ebullition and fermentation of Blood, more dye before 20 Years than between that age and 50, we will suppose, of those six Procreations only two attain to the state of future Nuptials and procreation of succeeding Generations; therefore we will allot only two of these six to attain to the state of Men and Women, and consequently in an ordinary course of Nature live to the common age of Mankind.

And although the common age of Mankind, when they are passed the danger of Childhood and Youth, is 70 Years, yet because I would have my

my Supposition as easie and general as may be; I shall allow 60 to be that ordinary Age, abating great Casualties and Epidemical Diseases.

And upon this account we may justly suppose these things; 1. That these two Children may be coexisting with their Parents for near 30 Years; for if the eldest be born at 27 Years of the age of the Father, and the other at 30 Years of his age, and live till the Father be 60 Years old, the youngest is 30 Years old at the extremity of his Father's age, which we suppose 60 Years: and 2. These two Children by Inter-marriage may have likewise two, three, or more Children by that time the Father attains 60 Years: So that in the compass of about 34 Years the number of two, namely the Father and Mother, is increased to the number of eight, namely, the Father and Mother, their two Children, and four Grand-children; so that in 34 Years they become increased in a quadruple proportion, and all coexisting: and although by that time we suppose the Father and Mother dye, yet in the like Period of thirty four by a Geometrical Proportion their Increase is multiplied proportionable to the Excess of their number above Two.

But if we shall suppose that the *Technogonia* began sooner, as at 17 or 18 Years, and continued longer, *viz.* until 65, and that the Ages of Mens Lives were protracted generally to 70 Years, the Increase would be very much greater.

And upon this account it is, that considering the long Lives of the Ancients shortly after the Flood, and the long continuance of their strength of Procreation, *Petavius* in his 9th Book *De doctrina Temporum*, cap. 14. and before him, *Temporarius* in his Chronology gives us a plain Demonstration, That within the compass of 215 Years after the Flood the Sons of *Noah* and their Descendants might without a Miracle increase to prodigious and incredible multitudes. The number of coexisting Individuals is by one of these Authors with very clear evidence computed to 1219133512, descended from one of the Sons of *Noah*. And therefore, that allowing the beginning of the *Syrian* Monarchy to have been about 153 Years after the Flood, it might shortly after the beginning of *Ninus* his Empire, which is supposed to have been about 215 Years after the Flood, have grown to that greatness; that might easily render credible the mighty Cities that were built by him, and the great Armies that he raised, and the Battles that he fought, and vast Slaughters that he made and suffered: But if we should follow the Account of the *Septuagint*, which gives us a far greater Period of Time from the Flood to *Abraham*, the advantage of the Increase would be signally greater; although the common Account of the *Jews* render the Increase easily credible, without the help of a Miracle.

And because that there can be no greater evidence of this Truth of the Increase of Mankind than Experience and Observation, neither can there be any Observation or Experience of greater certainty, than the strict and vigilant Observance of the Calculations and Registers of the Bills of Births and Deaths; and because I do not know any one thing rendered clearer to the view, than this Gradual Increase of Mankind, by the curious and strict Observations of a little Pamphlet, entitled *Observations upon the Bills of Mortality*, lately printed, I shall not decline that light or evidence that this little Book affords in this matter; wherein he plainly evinceth,

i. That

1. That the number of Males to Females is regularly as 14 to 13, or as 16 to 15. *Cap. 8.*

2. That supposing the number of breeding Couples to be 48000, in about the space of 7 Years, in a healthy time, or in 8 Years, if there be Plagues, the great City of *London*, which is not so healthy as the Countrey, will double, without the help of the access of Foreigners: and therefore *Adam* and *Eve* doubling themselves every 64 Years, would in the Period of 5610 Years, the supposed distance from the Creation of Man, produce a far greater number of Mankind than are now in the World. *Cap. 11.*

3. That in the Countrey, which is generally more healthy than *London*, upon a *medium* of Observation of 90 Years, there are five Births for four Burials, sometimes three to two, and seldom in any Year these Burials equalled or exceeded the Births, or if they did, yet the succeeding Years ballanced it to that proportion of 5 to 4; for in the space of 90 Years 1059 were Born in one Parish more than were Buried. *Cap. 12.*

4. That this Redundance did not much increase the place or Parish it self, because by transmigrations to *London*, to Foreign Plantations, and other places of Trade, they disburthened the proportion of their increase, and added to the greatness and amplitude of other places, especially *London*.

5. That considering the small excess of the number of Males above the number of Females, and considering the redundancy of the number of Males is only sufficient to make good that decay of Males above Females, by Wars and Navigation, and other Accidents more incident to Males than Females; there is very near a parity of Males and Females in the World, to keep it in a consonancy and congruity to the first institution of Matrimonial society between one Man and one Woman.

6. That consequently Polygamy doth not in the general conduce to the Increase of Mankind, because the natural or ordinary proportion between the number of each is equal. But in as much as by reason of the great Consumption of Males among the *Turks*, by divers Accidents, especially that of their great Wars between them and the *Persians*, *Tartars*, *Christians* and *Moors*; whereby there is, or at least in some Ages was, a great redundancy of the number of Woman above the number of Men: The use of Polygamy allowed among them, gives a greater increase of People than otherwise would be; because of the excess of the number of Women above the number of Men, by such Accidents.

These are some of those plain and evident Observations of the seemingly inconsiderable Pamphlets, which give a greater Demonstration of the Gradual Increase of Mankind upon the face of the Earth, than a hundred notional Arguments can either evince or confute, and therefore I think them worthy of being mentioned to this purpose.

Upon all which, and much more that might be said, it is evident, That according to the ordinary course of Nature, though those common and usual Accidents of common Sickneses, ordinary Casualties, and common Events are incident to Humane Nature, the number of Mankind doth and must necessarily increase in the World, and the Natural Supplies of Mankind are greater, and more numerous than the Decays thereof.

thereof. I now therefore come to the Second Consideration, namely, The Examination of the extraordinary or more universal Correctives of the Multiplication of Mankind, which because it will be large, I shall allow unto it a distinct Chapter.

C A P. IX.

Concerning those Correctives of the Excess of Mankind which may be thought to be sufficient to reduce it to a greater Equability.

I Come now to the Second premised Consideration and Inquiry, *viz.* Whether there may not be found some extraordinary Occurrences and Correctives, that may reduce that otherwise Natural and ordinary Increase of Mankind to an Equability: And I call them Extraordinary, not simply in respect of themselves, but in opposition to those daily and ordinary Casualties which happen to Humane Nature, and in respect of those great Distances and Periods, whether certain or casual; wherein they may be supposed to happen: And I shall improve this Objection against the Increase *de facto* of Mankind, with the greatest impartiality and advantage that may be.

It is certain that the Increase of Brutes, and other Animals (which are perfect and univocally generated, is very great in the World: *Aristotle*, that inquisitive Searcher into Nature, in his 4th Book of the History of Animals hath given us an Account touching most Animals, of the length of their Lives, times of their Breeding, intervals of their Birth; wherein though possibly there may be variation in several Climates, yet his Account may give a near estimate, proportionable also to other places.

For Instance, the Cow breeds in the second Year, brings forth the tenth Month, lives 15 or 20 Years: the Mare breeds the third Year, brings forth in the twelfth Month, lives 25, 30; and sometimes 40 Years: the Sheep and Goat bear in the second Year, bring forth in the beginning of the sixth Month, sometimes two, ordinarily but one; lives 10, 12, or 13 Years: Sows breed in the second Year, bring forth after four Months, their Young numerous: Bitches breed in the latter end of the first or beginning of the second Year, bring forth after threescore Days, or in the ninth Week, their Young many, 5, 6, or sometimes 12; they live 10 or 12, sometimes 15 or 20 Years: Wolves breed and bring forth as Dogs, only their number fewer, sometimes 2, sometimes 3, sometimes 4: the Doe brings forth after eight Months complete, but one, and sometimes two; and live long: the Fox breeds 4, the Cat 5 or 6; and lives 6 Years, many times more: the speedy and numerous increase of Mice is prodigious; *Aristotle* mentions 120 produced of one Female in a very little time; *Pliny* in his 11th Book, *Cap. 63.* hath in effect transcribed *Aristotle* herein.

By this it appears, That the Natural Increase of these Animals is much greater than of Men, yet their numbers have not arrived to that great excess,

excess, because those that are for food have their reduction by their application for that purpose; those that are domestical, and not for food, as Cats and Dogs, are kept within compass by drowning or destroying their Young; and those that are noxious, as Wolves and Foxes, are reduced by that common destruction that Men pursue them with.

Touching Birds, their Increase seems to be much greater than of Men or Brutes, but they have those reductions that bring them to a fair equability, unless it be in those Islands and Rocks in the Sea unaccessible by Men, where Sea-Fowls breed. First, their number is reduced by Man for food: 2. For destruction, as in Birds that are noxious: 3. By the natural shortness of the Lives of many that are yet numerous breeders: 4. By the mutual destruction of the weaker by Birds of prey, whereof more particularly hereafter: 5. By the Winter cold, which starves very many; either for want of heat or food; and of this more hereafter.

Fishes are infinitely more numerous or increasing than Beasts or Birds, as appears by the numerous Spawn of any one Fish, though ordinarily they breed but once a Year, and if all these should come to maturity, even the Ocean it self would have been long since over-stored with Fish. Now the Correctives and Reductions of these are very many. 1. *Aristotle* observes in his 6th de *Historia Animalium*, cap. 13. Those Eggs that are not sprinkled, *aspergine feminis genitalis maris*, prove unfruitful; a great part are devoured by the Male, and much more by other Fish: some of their Eggs are buried in the slime, and corrupted. 2. Many are taken by Men, and employed for food. 3. As among Birds and Beasts they are Beasts and Birds of prey, which are less numerous than others, so especially among Fish: And though the Wisdom of Providence hath given certain Expedients to Animals, especially Fishes of the weaker nature, to escape the voracious; as swiftness to some, smallness to others, whereby they escape to Shallows and Shoars unaccessible to the greater: and to those that are not able to move, or at least not to move swiftly, the protection of Shells; as Oysters, Escalops, Crabs, Lobsters and other Shell-fish; yet a very great number are devoured by the voracious kind. I do remember, that a Friend of mine having stored a very great Pond of 3 or 4 Acres of ground with Carps, Tench, and divers other Pond-fish, of a very great number, and only put in two very little small Pikes; at 7 Years end, upon the draught of his Pond, not one Fish was left, but the two Pikes grown to an excessive bigness, and all the rest, together with their millions of Fry devoured by those pair of Tyrants. 4. Birds also of prey, as Storks, Herons, Cormorants, and other Fowl of that kind destroy many both in the Sea, Rivers, Ponds and Lakes. 5. Extreme Frost, especially in Ponds and Lakes, make a great destruction of Fish, partly by freezing them, partly by the exclusion of the ambient Air, which insinuates it self into the Water, and is necessary for the preservation of the Lives of those watry Inhabitants. 6. By great Heats and Droughts, not only drying up Lakes, Ponds, and Rivers, but also tainting the Water with excessive heat; and though these two do not so much concern Sea-fish, who have more scope and room, yet they have a great influx upon Rivers, Ponds, and Lakes.

Again, to say something of Insects, whether airy, terrestrial, or watry; they

they seem to be more numerous than the common sorts of univocal Animals, who have an univocal production. For first, their first production is strangely numerous, out of Putrefaction and much Moisture, influenced by Heat. Hence *Diodorus Siculus* in his first Book tells us of the numerous productions of Mice after every Inundation of *Nilus*, sensibly and visibly growing out of the slime; *Juxta Thebaidem, cum Nili cessavit inundatio, calefaciente Sole limum ab aqua relictum, multis in locis ex terra hinc multitudo Murium oritur*: which *Aristotle* also observes, as frequent in other places, *lib. 5. de Histor. Animal. cap. 37. Locis enim compluribus tam inaudito modo oriri solent, ut parum ex universo frumento relinquatur*. And in my remembrance, after the draying of the great Level in *Northamptonshire*, and other Shires, such an innumerable company of Mice did upon a sudden in the Summer time arise, as it were immediately out of the slimy Earth warmed by the Sun, that they were constrained to cut their Banks to drown the Lands, and so cure one Inundation with another.

The like numerous production of Frogs happens in some Years, which *Aristotle* in the first Section of his Problems, and *Sir Francis Bacon* out of him makes a Prognostick of a sickly Year; because such Productions are the effect of a great degree of Putrefaction in the Elementary Bodies. And we read; that in *Norway* there was not long since such innumerable company of Field-Rats of a new Make produced, somewhat larger than Rats, that they threatned a general Consumption of all their Fruits; but by some extreme hard weather they were destroyed; yet so as the multitude of their Carcases produced a noysom Contagion in the Country. And the like numerous production every Year gives us; though some Years more than others, of divers other kind of Insects; as Flies; Locusts, Worms; Caterpillars, and divers others, which in some Countries so abound, that they cover the face of the ground, especially in the parts of *Africa*: *quod vide*; in the 9th Book of *Leo* his History of *Africa*; and those additions out of *Paulus Orosius* and *Alvarez* in confirmation thereof. 2. As this original spontaneous production is very numerous, so the multiplication of these Insects by their Eggs or Seeds is infinitely more; their Lives are short; some dye within the compass of one Summer, as the Silk-worm: yet a curious Observer of that Insect, namely *Malpighius*, hath given us an account of the number of Eggs of one Silk-worm in one Year to be above 500; though all possibly prove not fruitful; yet preserved carefully from the injury of the Winter, many of them come to perfection the next Spring: And it is apparent that the *Erucæ*, Caterpillars and Worms we see upon Hedges and Leaves, multiply their Seeds to a very great excess; and this is much more visible in the Spawn and production of Frogs; and also in the multiplication of Mice, the blowings of Flies, and almost all kind of Insects; though their Lives are shorter, yet their productions are more numerous and frequent in the short Period of their Lives, than the perfect Animals. So that if there should not be some Corrective of the excesses of their Productions, the whole Atmosphere, Earth and Waters would be crouded with their numbers: The contrary whereof is nevertheless apparent, for the multitudes of one Summer are for the most part exhausted, and invisible by the next Spring.

The Correctives therefore of the numerous Excess of Insects seem to

be principally these: 1. The Industry of Mankind, in destruction of noxious Insects. 2. The Wise Providence hath placed a certain Antipathy between some Animals, and many Insects, whereby they delight in their destruction, though they use them not as food: As, the Peacock destroys Snakes and Adders; the Weasel, Mice and Rats; Spiders, Flies; and some sorts of Flies destroy Spiders. 3. The common sort of Insects are the ordinary food of divers Animals, as well Insects as others: The Spider and all sorts of small Birds, especially the Swallow, feed upon Flies; the Mole feeds upon Worms; Ducks and divers Water-fowl upon Frogs; the Cat and Owl upon Mice: and thus Insects become the prey of other Animals, which correct their excess. 4. As the hot and moist temperament of the Air and Earth produce and increase Insects, so that temperament of the Air, Earth, and Waters that seems most opposite to Putrefaction, either destroys many of the Individuals, or at least renders their numerous Eggs and Seeds unfruitful, and resists as well the original Production of them from Putrefaction, or abates the Prolifick power of their Eggs or Seeds. 5. Great Rains, and Showers, and Inundation of Waters drowns oftentimes many sorts of Insects, and renders their Seeds and Eggs unprolifick, or destroys them. 6. But especially the Winter Cold, Frost and Snow do kill many Insects; and their Eggs and Seeds, and renders them unfruitful. The Cold and Winter season is a great Enemy not only to Insects, but to many sorts of Birds, Beasts and Fishes: and therefore Aristotle most truly observes in his 8th *Hist. Animalium*, cap. 13, 14, 15, 16, &c. that to avoid the severity of the approaching Cold, many of them retire into the closest and warmest Caverns they can get; wherein some lye for many Months without the benefit of Food, and if they escape the severity of the Cold, they as it were revive the next Spring. For instance, Serpents hide themselves 4 Months; Swallows betake themselves all the Winter to low Vallies and Caverns; Tortoises close up themselves in Holes and Earth all the Winter, as is obvious to daily Experiences; *Et Insecta penè omnia conduntur, præter ea quæ vitam in domiciliis cum hominibus agunt, quæque prius intereunt quam omnine tempus excedunt.* And therefore Bees keep themselves close in their Hives, *ab ortu Vergiliarum*, till the next Spring. And yet, though Nature hath given Insects this Sagacity to avoid the Winter Cold, yet they are not always successful in it, but the severity of the Winter finds them out, and destroys them: But as for their Seeds or Eggs, which in the preceding Summer are laid up and down upon Leaves; and in other places, they are for the most part destroyed by the Winter; except such as casually by the Wind or otherwise are dispersed, and lodged in safer Receptacles, and thereby survive the inclemency of the Winter, and yield a new Production or Increase the next Spring.

And thus we have seen the Methods and Correctives, that by the Divine disposition of these small and inconsiderable pieces of Nature are used, whereby at once there is a preservation of the Kind of those little Animals, and yet a prevention of that Excess and Redundance which would happen by their numerous Increase, to the detriment and surcharge of the inferior World.

In all this Consideration of the Reduction of Excesses and Increase of Animals and Insects, two things are observable in a special manner; namely;

1. That

1. That in the state of Animals and Insects, we may see something that is analogal to the state of the Elementary and mixed Inanimate Bodies; that there are some more active and vigorous Qualities, that seem continually to exercise a Sovereignty and Tyranny over the more passive and weak Natures, and prey upon them: Thus Heat, and also in some degree Cold, are always persecuting and foyning at the weaker and more unactive parts of Nature: So among Brutes, Birds, Fishes, Insects there is a continual invading and prevalence of the more powerful, active and lively, over the more weak, flegmatick, and unactive Creatures; the Bear, Lion, Wolf, Dog, Fox, &c. pursue the Sheep, Oxen, Hare, Coney, &c. and prey upon them: the like is evident among Birds and Fishes, and generally Insects, being the weaker and more inconsiderable parts of Nature.

2. That the vicissitudes of Generation and Corruption are by a kind of standing Law in Nature fixed in things, and the Notions and Qualities of Natural things are so ordered, to keep always that great Wheel in circulation; and therein the Accesses and Recesses of the Sun, the Influxes of the Heat thereof and of the other Heavenly Bodies, and the mutual and restless Agitation of those two great Engins in Nature, Heat and Cold, are the great Instruments of keeping on foot the Rotation and Circle of Generations and Corruptions, especially of Animals and Vegetables of all sorts.

3. That yet these Motions of Generations and Corruptions, and of the conducibles thereunto, are so wisely and admirably ordered and con-temperated, and so continually managed and ordered by the wise Providence of the Rector of all things, that things are kept in a certain due stay and equability: and though the Motions of Generations and Corruptions, and the Instruments and Engins thereof are in a continual course, neither the excess of Generations doth oppress and over-charge the World, nor the defect thereof, or prevalence of Corruptions doth put a Period to the Species of things, nor work a total Dissolution in Nature.

And upon this seemingly impertinent Diversion touching the Reductions and Correctives of these inferior Animals, there may seem to be collected reasonably an analogical Inference of the like means of the Correctives of the Generations of Mankind; and that although in an ordinary course of Humane Productions the Increase surmounts the Decay, yet there may be reasonably supposed such Periodical Corrections as might fairly keep the state of Mankind in a mediocrity and equability, although it should be supposed the Generations of Mankind had been Eternal.

And although these Correctives may not happen every Day, or every Year in the ordinary course of things, and therefore may be called extraordinary, because they are less ordinary than the common Casualties of Mankind, as Sickness or Accident that happens to this or that individual Person promiscuously; yet they are in truth no more extraordinary, than a cold Winter is extraordinary, which although it is not every Day, nor doth it happen every Year possibly in an equal Degree, yet it is no extraordinary thing in Nature, if it happens once in 5, or 10, or 20 Years.

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Having therefore considered these Correctives in the inferior Animal Nature, I shall now search out what may be those Correctives, that may be applicable to the Reductions of the Generations of Mankind to an Equability, or at least to keep it within such bounds as may keep it from surcharging the World; whereby if in the Period of 2, or 3, or 4000 Years it may grow too luxuriant, yet it may in probability be so far abated, as may allow it an Increase of the like number of Years to attain its former proportion. So that by these Prunings there may be a consistency of the Numbers of Mankind, with an eternal succession of Individuals.

Those Reductions that may be supposed effectual for these Ends, and such as the course of Mankind seem to have had great Experiences of, are, 1. Plagues and Epidemical Diseases: 2. Famines: 3. Wars and Inter-necions: 4. Floods and Inundations: 5. Conflagrations.

1. Concerning Plagues and Epidemical Diseases, the Histories of all times give us Accounts of the great Devastations that they have made in many places: and sometimes it hath been, it is true, only in some particular Regions or Cities, but at other times it hath been more universal; and although at the same time, in some Seasons, it hath not universally prevailed, yet it hath gradually and successively moved from place to place.

The ancient Plagues of former Ages in Foreign Parts have been very terrible, and cut off multitudes of People: See a Collection of some of them by Dr Hakenill, lib. 2. sect. 3. as, namely, That Plague in Ethiopia, and also in most parts of the Roman Empire, in the Year of Christ 250; which continued 15 Years, and left not so many People in Alexandria as there were formerly aged Men: that under Justinian, in Constantinople, and the parts adjacent; wherein there dyed 10000 in a Day: that in Africa, whereby according to Procopius, in the Country of Numidia there dyed 800000 Persons: that in Greece, under Michael Duca; which so prevailed, that the living were not sufficient to bury the dead: and that in Italy, in the Year 1359, whereby there were not left ten of a thousand; this possibly may be the same mentioned by Walsingham, but referred to the Year of Christ 1349; that prevailed over the World, beginning in the Northern and Southern parts, that the living were not able to bury the dead: *Existimabatur à pluribus, quod vix decima pars hominum fuisset relicta ad vitam*: and presently after followed a great Murrain of Cattel; so that he concludes, *Tanta ex his malis miseria secuta est, quod mundus ad pristinum statum redeundi nunquam postea habuit facultatem. Vide Lipsium de Constantia, lib. 2. cap. 23.*

And if we look upon our own Country, besides those great Plagues that have been in a manner universal, there have been very many such in England; sometimes more general, sometimes more circumscribed to particular Cities or places: As that Plague in the North parts of England, mentioned by Walsingham in the beginning of R. 2. that in a manner depopulated those Parts: that mentioned by the same Author, Anno 7 H. 4. whereby there dyed in one Year 30000 in London (which was considerable then, considering the narrowness of the City in those days, comparatively to what it now is) besides the great desolation it made in the Country.

If

If we come to latter Years, both in England and in Foreign Parts, the Observator of the Bills of Mortality before mentioned hath given us the best Account of the Number that late Plagues have swept away; for Instance,

In London, Anno Dom. 1592, of the Plague—	11503
Anno Dom. 1593 —————	10662
Anno Dom. 1603 —————	30562
Anno Dom. 1625 —————	35400
Anno Dom. 1636 —————	10409
Anno Dom. 1665 —————	68596

We have also Accounts of the great Devastations made by the Plague in late Years in Foreign Parts:

In Amsterdam, between 1622 and 1664 —————	84564
And in the Year 1664 —————	24148
Anno 1637 at Prague —————	30000
Anno 1652 at Cracovia —————	37000
Anno 1656 at Naples —————	30000
Anno 1657 at Genoa —————	70000
Anno 1619 at Grand Cairo in 10 Weeks —————	73500

And Leo in his History of Africa, tells us, that the Pestilence is so hot sometimes in that City, that there dye 12000 almost every Day; and Pliny in 7. Nat. Hist. cap. 50. saith that the Southern Plagues happen most in the Winter, and move Westward, according to the course of the Sun; which some have observed also in the Northern, that it sometimes held a gradual Motion, and for the most part Westward, as in 1652 at Cracovia; 1653 at Dantzick; 1654 at Copenhagen; 1655 at Amsterdam, and other Towns in the Netherlands; 1656 at Naples and Rome; 1657 at Genoa. And I have somewhere read, that in Alexandria in Egypt the Plague is Anniversary, beginning with the Rising of Nilus, which is about the 17th of June, and continueth rising 40 Days, sometimes 12, sometimes 15 Cubits, and in its greatest excess to 18 Cubits, and as many Days decreaseth; so that the Plague lasteth 80 Days, and then perfectly ceaseth with the full Ebb of Nilus.

So that upon the account of Plagues, and extraordinary Epidemical Diseases, there seems to be a great Corrective of the Redundance and Increase of Mankind.

2. Let us a little take notice of Famines, which though they have not been of late times much observed, partly because of the great Industry of Mankind, improving and increasing the Fruits of the Earth; partly by those Supplies that have come by Sea to those Countries that are in want; but principally by the goodness of God, in leading the Children of Men seasonable Weather, and fruitful Seasons, and prosperous Influences: yet in former times they have been very grievous, and destroyed multitudes of People.

Walsingham in the Life of E. 2. tells us of so severe a Famine in England, that they were enforced to eat Dogs and Horses, yea and stole Children and eat them; viz. 9 E. 2. And divers other Instances our own Histories give us of other great Famines in this and other Countries.

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Ordinarily a Famine and a Plague anciently went together, or the former followed upon the heels of the Plague, by reason of some of these means: 1. Commonly the same distemperature of the Air that occasioned the Plague, occasioned also the infertility or noxiousness of the Soil, whereby the Fruits of the Earth became either very small, or very unwholsom: As it happened in that Famine under E. 2. above mentioned, in so much that the Historian tells us, that *Medicinales herbae, quae levamen languidis conferre solebant, per Veris intemperiem & Elementorum inaequalitatem, contra naturam effecta degeneres, virus pro virtute reddebant.* 2. Commonly the Plague among Men was accompanied or followed with a Rot or Murrain among Cattel, whereby the flesh of Beasts was wanting, or noxious to those that used it. 3. Commonly by a great and general Mortality or Plague the Husbandmen and Labourers were so diminished, that there wanted People to gather in the Harvest, or Till the Ground, whereby there necessarily ensued a Famine: And oftentimes by a kind of necessity Famines were durable, the Stock being exhausted one Year, left little for the supply of Tillage, Husbandry, or Increase for the next.

And as Famine was anciently the Concomitant or Consequent of Plague, so both Plague and Famine, especially the latter, were the usual Consequents of War, which bring with it Devastation and Destruction, and a general intermission of that Husbandry and Care that should supply it.

The terrible Effects of Famine, and the great Consumption of Mankind that is occasioned, was principally 1. Of the Poor, who upon the bare increase of the Price of Victuals, and wanting wherewith to buy, must needs occasion their starving, or a tumultuous gaining it by force, where they could not get it; which was but a short and temporary Relief, and made more want after, by the spoil and disorder occasioned thereby. 2. Of numerous Armies, who being brought into places of want or scarcity without due Conduct or Provision, are oftentimes destroyed in a Week, especially in close and long Sieges, as it happened in *Samaria* when besieged by the *Assyrians*, and *Jerusalem* when besieged by the *Romans*, wherein more dyed by the Famine than by the Sword.

So that Famines as well as Plagues seem to give a great Reduction to the Numbers of Mankind.

3. A few words may serve concerning Wars, which are so frequent, and bring so great a Desolation upon Mankind, that it seems to equal that allay of the Excesses of Brutes, Fishes, Birds, and Insects, by the other Beasts, Birds, or Fishes of prey; and the rather, because many if not all the considerable Parts of the World are some Years at it, though it may be some Ages free from Pestilences and Famines (other than such as are consequences of War) but in no Age nor Year of the World hath it been quiet from Wars, and those calamitous consequences thereof, at least in some considerable parts of the World.

It would be endless, and indeed Morally impossible, to give an Account of the Numbers of People and Armies that have been cut off by Wars, especially on the side of the Conquered. Some few Instances may give some kind of Estimate herein.

Diodorus Siculus in his third Book tells us, that *Ninus* in his Preparation against

against the *Bactrians* gathered an Army of 1700000 Foot-men, 200000 Horse-men, 10600 Chariots: that *Zoroastres* his Army consisted of 400000, who in the first Conflict prevailed, and killed 40000, but were afterwards wholly destroyed; so that probably in that War there fell no less than 400000 Men: *Darius Hystaspis* in the Battel of *Marathon*, whither he came with an Army of 600000, lost in one Battel 200000: his Successor *Xerxes* went into *Greece* with an Army, according to some, consisting in the whole number of it and its Appendices, of five Millions, those that spake most sparingly, of above one Million, all which within the space of five Years were in effect wholly lost. *Vide Lipsi. de Constant. lib. 2. cap. 21, 22, 24.* *Alexander* destroyed the Army of *Darius*, consisting of a Million of Men, the greatest part whereof fell by the Sword: and *Pliny* in his 7th Book of his Natural History, Cap. 15. tells us, that *Julius Caesar*, and his Armies in the time of his Command, killed 1192000 persons, besides those that he slew in the Civil Wars: And if by the Estimate of that one Man, we might make a Calculation of those that were slain by the *Assyrian*, *Babylonian*, *Persian*, and *Grecian* Monarchies; by *Cyrus*, *Darius*, *Astyages*, *Alexander* and his succeeding Captains; by *Marius*, *Sylla*, *Pompey*, *Vespasian*, and the succeeding *Roman* Emperors; by *Tamberlane* and the *Seythians*; by the *Goths*, *Vandals*, *Turks*, *Tartars*, *Muscovites*, *Persians*, *Moors*, and *Christians*; by the Wars in this little Spot of *England*; by the late Wars in *France*, *Spain*, *Germany*; by the *Spaniards* in the *West Indies*, the numbers of Internecions and Slaughters would exceed all Arithmetical Calculation.

So that it should seem, there needed no other Reductive of the Numbers of Men to an Equability, than the Wars that have happened in the World.

And although Wars are in a great measure accidental, or at least proceed in a great measure from the Wills of Men, their Pride, Ambition, impatience of Injuries, affectation of Dominion; mutual Jealousies and Fears of the Potency of each other, and oftentimes accidental Emergencies and Occurrences; yet it seems, that abstracting from all these Occasions, Wars seem to be in a manner a Natural Consequence of the over-plenitude and redundancy of the Number of Men in the World: And so by a kind of congruity and consequence, morally necessary when the World grows too full of Inhabitants, that there is not room one by another; or that the common Supplies which the World should afford to Mankind begin to be too few, too strait, or too narrow for the Numbers of Men; that natural propensity of Self-love, and natural principle of Self-preservation will necessarily break out into Wars and Internecions, to make room for those that find themselves strained or inconvenienced.

So that as when the Channel of a River is over-charged with Water more than it can deliver, it necessarily breaks over the Banks to make it self room; or when the very Brutes or Animals find themselves oppressed and straitned in their provisions and supplies, by the redundancy of their numbers, one necessarily preys upon another, or destroys another to preserve it self: So Wars among Mankind are a kind of necessary Consequence of Redundance of Mankind, and will by a kind of Natural necessity make it self room, and give it self ease by the destruction of others,

others, if it can get power and opportunity to do it: And consequently there seems to be no fear of the surcharge of the World with Mankind; because there is this natural and necessary Remedy at hand; the very Redundance it self of Mankind seeming by a natural consecution to yield and subminister this Remedy, for its Reduction and Equation. As in a redundance of Humors in the Body, the most lively and active do naturally thrust out those that are weaker or noxious, to make room for themselves: or as Bees swarm to get new habitations, when they are so increased that their Hives will not hold them.

4. Concerning the Fourth, and also, inclusively the Fifth Corrective of the Excess of Mankind, namely, Inundations and Conflagrations.

Those that have been Observers of things in Nature and Histories of former times, have given us Instances of two kinds of Mutations in this Terrestrial Globe of Earth and Waters: some that are more ordinary; and of less moment; and of such various have been in the World; such are those mentioned especially by *Pliny* in his Natural History, *lib. 2. cap. 85. & seqq.* some places severed from the Continent by the interruption of the Sea; thus he tells us that *Sicily* was divided from *Italy*, *Cyprus* from *Syria*, *Eubœa* from *Bœotia*, *Atlantis* and *Macris* from *Eubœa*; *Bœsticum* from *Bythinia*; and some have thought, though perhaps upon very small evidence, that *England* and *France* were sometimes one Continent; and divided by the interruption of the Sea; and *Spain* from *Africa*. Again; some Cities and Countries swallowed up by the Sea; as *Pirra* and *Antissa*; *Elis* and *Buta*, half the City of *Tyndaris* in *Sicily*, and 30 Miles of the Island *Cea*, with a great destruction of Men and Cattel: some Countries wholly swallowed up and drowned in the Sea; as *Scarnania*, *Achaia*, part of *Europe* and *Asia* in *Propontis*: but above all, that great Island of *Atlantis*, supposed by *Plato* in his *Timæus* to be greater than *Lybia* and *Asia*, swallowed up in the *Atlantick* Ocean, to which it gives its denomination: but *Plato* is oftentimes so Poetical, that we can hardly tell where he means in earnest.

But on the other side, many times the Sea by a certain recompence makes new room for the Inhabitants of the World; sometimes by producing notable Islands; thus the same *Pliny* tells us that *Delos*, *Rhodes*, *Anaphe*, *Nea*, *Thera*, and *Teresia*, *Hiera*, *Automate*, *Thia* were produced.

Again, the Sea hath deserted vast Tracts of Ground in divers places, and left them dry Land, as is related by *Aristotle* in the second of his *Meteors*, *Cap. 14.* and by *Pliny* in a great measure, out of him and *Herodotus*. Thus considerable quantities of Land were left by the Sea at *Ephesus*; at *Ambracia* and other Parts; and that a very great part of *Egypt*, namely, that called *Delta* is but the accretion of *Nilus*, and was sometime covered with Water: and according to the conjecture of *Herodotus*, the Sea possessed *Memphis* and a great part of *Egypt*, to the Mountains of *Ethiopia*. But these are but Conjectures of the Historian, of what might be in some thousand Years before he was born. *Aristotle* indeed supposeth, that the City *Thebes* and the adjacent Parts, were all that were habitable in *Egypt* in the time of *Homer*, because he makes no mention of *Memphis*.

But these smaller Vicissitudes, and mutual borrowings and payments between the Earth and Sea, are not those Mutations which so much contri-

contribute to the Reduction of Mankind; partly, because they are gradual and give Men opportunity to escape; and partly because they are not such Devastations as may be *pares huic negotio* (unless we believe that wonderful swallowing up of the vast Island, or rather Continent of *Atlantis*;) and partly because the Sea, which commonly gives in one place what it takes in another, and so makes room for the Inhabitants of the World in compensation of what it takes.

2. Therefore I come to those greater supposed Correctives, namely, 1. Floods and Inundations: 2. *Incendia*, Burnings; and again, both, or either of those are also varied, according to the Opinions of some of the Ancients.

1. They are either such as were all at one time, and did wholly overwhelm and confound this lower World: or 2. They are such as did not wholly dissolve the lower World, or put a period to all things living therein.

Again, the former Opinion that held these Cataclysms and Empyroses universal, was such, as either held that it put a total Consummation unto things in this lower World, especially that of Conflagration: Or else such, as though it quite for the present confounded the Face of things, especially in this inferior World; yet it was but preparative to a new Formation of things, wherein all things would be put into better Order, till in process of time they again degenerate, and so were to receive another Purgation by Fire or Water, according to the fatal Vicissitudes to which the World is subject: And they suppose, that these successive unmaking and making again of the World (not unlike the Suppositions of *Anaxagoras* or *Empedocles*) were Eternal, and should eternally continue in this Vicissitude; that the last Destruction of the World was by Water, and that which is to succeed is by Fire: And this was for the most part the Opinion of the *Stoicks*, whereof *Lipsius* in his second Book of *Physiologia Stoicorum*, *cap. 21, 22, &c.* hath given us a large Account; out of *Seneca* especially, and others which are not necessary to be repeated; and the rather, because they do suppose that Mankind is neither Eternal nor Perpetual, according to the course of Natural Generation: For these mighty Concussions of Nature, especially that of the Universal Conflagration, puts an end to all the Race of Mankind and all living Bodies; though in the Redintegration of the World after these Destructions there is also a Re-production of Mankind, but not by the ordinary method of Propagation as now.

Again, as to those others that held also certain Periodical Cataclysms and Conflagrations, yet they held them not to be Universal, nor any Universal Dissolution or Destruction of the inferior World thereby; but they were such as were great and notable Devastations, sometimes in one part of the Earth, sometimes in another; either by certain Rotations, or at least in some places more than in other, according to the accommodation or disaccommodation of them to such Calamities: As the Vallies and lower grounds were more subject to devastation by Floods, so the more Mountainous parts were more subject to the desolations by Fire and Conflagrations.

Plato, who seems very uncertain and unsettled in his Philosophy; seems yet to agree with this partial kind of exhausting the num-

bers of Men and Brutes, by such partial Floods and Conflagrations. In his third Book of Dialogues, *de Legibus*, he gives us an Account of various Methods of the Declinations of Civil Societies, and of those Laws and Customs, Arts and Sciences in several parts of the World: and again, how and by what degrees they have been repaired and recovered; the means whereof he assigns not only to be Wars and Epidemical Diseases, but great Floods and Conflagrations, which, together with those of *Aristotle* relating thereunto, I shall transcribe out of the Latin Translation, because perchance more significant than the English, though not so significant as the Language wherein they wrote. And this I do intend to transcribe more largely, because they seem to contain the full declaration of the Instances of this nature.

He tells us therefore in the beginning of his third Book *de Legibus*; *Multos hominum interitus ex diluviis, morbis, aliisque pernitiis, olim accidisse, ex quibus pauci homines superstites fuerunt.* Again: *Eos qui cladem tum evaserunt (scilicet ex diluviis) montanos quosdam pastores fuisse, in montium cacuminibus pauca semina ad propagandum genus humanum conservata: atqui necesse est eos aliarum artium fuisse expertes, campestris autem & maritime urbes funditus illo tempore perierunt. Instrumenta igitur omnia, & quacunq; artium sive ad disciplinam civilem sive ad facultatem aliam pertinentium, extabant inventa, concidisse illis temporibus.* And afterwards: *Ex ea itaque devastatione magnam terribilemque humanis in rebus desolationem tunc accidisse arbitratur; fertilium agrorum magnitudinem desertam, ceterisque animalibus corruptis, vix bovm caprarumque genus, & illud quidem rarum relictum fuisse, quibus pascendis tunc homines vitam agebant; civitatis verd & disciplina civilis & legum memoriam quidem nullam fuisse putamus. Tempore igitur progrediente, &c. genere hominum multiplicato, ad eum quem nunc videmus habitum proventa omnia sunt.*

Again, the same *Plato* though in his *Timæus* he gives us an Account of the Origination of Mankind, yet he supposeth that a vast Period interceded between that Origination and the Age wherein he lived; and within the compass of that Period, that there happened very great and very many vicissitudes of Floods and Conflagrations in this inferior World, whereby the state of things here was variously altered, and the Numbers of Mankind and Animals corrected and reduced at several times to small proportions, only sufficient to replenish the World, until such time as its Excess and Increase received again a like Correction or Reduction, by the like Revolutions of Floods and Conflagrations, though still without a total destruction of the *Species*.

In this Book he gives us a personated Discourse between *Solon* and an Egyptian Priest, who after some discourse of the Antiquity of *Athens*, the Priest tells him; *Vos Græci semper pueri estis, nec quisquam è Græcia senex, quia juvenis semper vobis est animus, in quo nulla est ex vetustatis commemoratione pristina opinio, nulla cana scientia: Nam quod apud vos fertur Phaetontem quondam Solis filium currus ascendisse paternus, nec patris aurigatione servata, excussisse terrena, ipsumque flammis caelestibus conflagrasse; quamvis fabulosum videatur, verum quodammodo esse putandum est: Fit enim longo temporis intervallo caelestis circuitus permutatio quedam, quam inflammationis vastitas necessario sequitur: tunc hi qui edita incolunt loca magis pereunt quam mari fluvitque vicini. Nobis prorsus Nilus cum in plerisque rebus nobis salutaris est,*

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tum hujusmodi à nobis arceat exitium. Quando verd Dii aquarum colluvione sordes terrarum diluunt, pastores ovium atque bubulci qui juga montium habitant, periculum illud evadunt; vestra autem civitates in planitie sitæ, impetu fluminum ad mare rapiuntur: Sed in nostra regione neque tunc, neque alias unquam aqua in agros supernè descendit; contra verd sursum è visceribus terra scaturit: quamobrem antiquissimarum rerum apud nos monumenta servantur. Proinde, ubicunq; nec imbrium tempestas nimia, nec incendium ingens contingit, licet alias plures, alias pauciores, semper tamen homines sunt. Quæcunq; verd sive à nostris, sive à vestris, sive aliis nationibus gesta sunt memoratu digna, modo ad aures nostrorum pervenerunt, nostris in templis descripta servantur. Apud vos quidem & alias gentes res gesta nuper literis monumentisque traduntur, sed certis temporum curriculis illuvies immensa caelitus omnia populatur; ideo qui succedunt, & literis & Musis orbatî sunt: quo fit, ut quasi juvenes iterum sitis, & rudes, præteritarum rerum omnium prorsus ignari. Nam & ea ipsa quæ modo ex vestris historiis recensentur, à fabulis puerilibus parum distant; primò, quod unius tantum inundationis meminertis, cum multa præcesserint; deinde, quod genus majorum vestrorum in regione vestra clarissimum ignoretis: ex quo, tu, & Athenienses ceteri nati estis, exiguo semine quondam publica cladi superstitis: quod propterea vos latuit, quia superstites illi eorumque posterî, literarum usu multis sæculis caruerunt. Then he tells him of the Building of *Athens* by the Goddess *Athens*, 9000 Years since, ex terra & *Vulcano* accipiens semina: the great Wars between them and the Inhabitants of the vast Island *Atlantis*, greater than *Lybia* and *Asia*: the swallowing up of that Island by an Earthquake, *Jugique unius diei & noctis illuvione*. Afterwards *Timæus* begins; and proceeds with his Narrative touching the Production of the Universe, and therein particularly of Mankind, which I shall have occasion hereafter to mention.

Thus this great Master seems to countenance the Supposition of the vicissitudes of Conflagrations and Floods, especially of the latter, certis temporum curriculis; and thereby the excessive multiplication of Mankind corrected, and the vicissitudes of Arts and Laws interrupted, lost, restored, and repaired: Only he supposeth *Egypt* free from those Floods and Conflagrations; though it seems necessary, that if Inundations prevailed in *Greece* and those upper Countries, *Egypt*, that seems to lye much lower, could not easily escape them, though they have no Rain that might occasion them. But the Priest mingles some strange and improbable Stories with his Supposition of those Vicissitudes.

Aristotle the Scholar of *Plato* differed much from his Master: 1. In his manner of writing, which was much more steady and severe than the Writings of *Plato*, who mingled Poetical Fancies with the things he delivered; and seems very uncertain and unresolved in most things of great importance. 2. In his Position; for *Plato* seems not to hold at least the Elementary World Eternal, though very Ancient: But *Aristotle*, following rather the Opinion of *Ocellus Lucanus*, and not being able to digest those many difficulties he found in the Hypotheses of the Inception of the World, supposeth it Eternal, and an eternal consistency in the state it now stands; but not without some partial, successive and periodical Changes in the Elementary World.

And therefore in this Supposition of the successive partial Floods or Inundations, and Conflagrations, whereby great Changes happen,

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and a fair Corrective and Reduction of the Excess of Mankind, he much agrees with *Plato*. And he gives us a large and learned Account of his Judgment herein, *Lib. I. Meteor. cap. 14.* in these Words; *Eadem terre loca neque semper fluida, neque semper arida sunt, sed pro fluminum ortu aut defectu, faciem mutant suam: Quamobrem diversitas inter Mare & Continentem existit, nec perpetuo alia pro Continenti, alia pro Mari habentur; sed ubi terra aliquando patuit, mare superfunditur; & ubi nunc mare, terra exaggerabatur. Suspiciarique debemus, hac omnia ita fieri ordine quodam & ambitu; horum autem principium causaque existit, quod interiores quoque telluris partes, perinde atque animantium plantarumque corpora, juventutem atque senectutem habeant. Verum istis hac per partem subire nequaquam contingit, sed simul totum juvenescat aut senescat necesse est: Terra particulatim hoc idem ob frigus & calorem accidit; hac igitur accrescere simul ac decretere propter Solis calorem conversionemque assolent.* Then he proceeds to shew, how that successively some parts of the Earth grow moorish or watrish, others dry, where it becomes barren; Fountains and Rivers decay, and sometimes break out in other places; that this makes Changes in the Sea and Land. *At quia omnis qua circa terram fit generatio non nisi successione & tempore, respectu vite nostrae quam longo, fieri solet, ista nobis haudquaquam advertentibus sunt. Atque prius universae gentes intereunt pereuntque, quam horum mutatio ab initio ad finem usque memoriâ teneri queat: Maximas itaque celerrimisque clades praelia advehunt, alias morbi, nonnullas sterilitates; & haec quaedam statim magnas, quasdam lentas aded, ut talium quoque gentium transmigrationes nos lateant, propterea quod alii regionem deserant, alii eo usque sustinent, quoad nullam amplius multitudinem alere regio queat. Inter primam igitur novissimamque loci derelictionem, tempora interveniant aded longa par est, ut nemo meminisse possit; imò incolumibus etiamnum hisce qui remanserint, longi temporis injuriâ oblivio irrepserit. Eodem autem modo latere existimandum est quando primum singuli populi, quae permutata essent & arida à palustribus aquosive facta, inhabitare coeperint.* Then he gives Instance in *Egypt*; *Etenim locus ille totaque regio, quae fluminis tantum invehu nata est, semper aridior fieri videtur: That all the Ostia Nili, except one, were made by Art, and not by the River: That anciently Egypt was no more but the City of Thebes; which he proves out of Homer; shews, that in the time of Troy that part of Greece inhabited by the Argivi was Marish, and had but few Inhabitants, but now become fruitful and populous: That part of Greece inhabited by the Miceni was fruitful and populous, now become barren. Quod igitur in isto loco, qui parvus, accidit, hoc idem etiam circa loca magna accidere censamus oportet.* That there is no cause to conceive the Sea less than formerly; for though some places sometimes covered with Water, are added to the Continent, yet in other places the Sea hath gained upon the Land. *Attamen hujusce rei causa ad mundi generationem haudquaquam referenda; ridiculum enim foret ob parvas brevesque mutationes Universum moveri asserere. Porro, Terrae moles atque magnitudo ad totum Caelum nihil profectò est. Verum horum omnium causam existimemus oportet; quod ut elapsis certis temporum spatiis, inter anni tempora hyems; ita magno quodam circuitu hyems magna, & imbrium excessu fieri solet: at hic non semper eisdem in locis efficitur, sed perinde ut vocatum diluvium quod tempore Deucalionis accidit; etenim hoc circa Graciam maximè, & eam potissimum partem quam antiquam Hellada vocitant, factum est, &c. Cum autem*
necesse

necesse sit quandam mutationem esse Universi, non tamen ortum & interitum; siquidem ipsum maneat necesse est non semper eadem loca mari, aut amnibus humectari atque siccescere, quod reipsa quae fieri solet liquido conitat. And concludes, That *Egypt*, *Cujus homines antiquissimos esse diximus*, is nothing but a Production of the River *Nilus*, that is lower than the *Red Sea*; and therefore that *Sesostris* and *Darius* gave over that Attempt of cutting the Neck of Land between the *Red Sea* and *Egypt*, for fear of drowning that Country: That the Lake *Maotis* is shallower, and not able to bear Ships of that burthen as it did 60 Years before, by reason of the Slime carried thither, which will in time dry it up: That Lakes grow by the exaggeration of Sand by the Sea, which Lakes in time grow dry: That *Tanais* or *Nilus* and all other Rivers were sometime dry Land, and did not run where now they do. *At verò si amnes habent ortum & occasum, nec semper eadem terrae loca scatent aquis, ipsum quoque mare simili modo mutari oportet, quod cum assidue alia deserat, alia invadat, patet universe terrae tractus eosdem hos Mare, illos Continentem non esse, sed tempore cuncta permutari.*

I have mentioned these places of these Masters of Learning and Reason the more at large, not only because they herein give the sharpest Objections against the necessity of a Temporary Beginning of Mankind, by applying these Suppositions as Correctives or Reductions of the excess of the Generation of Men and Animals; but also they do discover herein some things that are useful in this Inquiry: For Instance, 1. It appears hereby that the Inventions of Arts, Sciences, and Laws might be far more ancient than those times that Historians gave for their Invention: for they might be in other Places or Ages, and either by a successive rotation brought from one place to another; or if they were lost, yet succession of Ages might retrieve new Discoveries of them again. 2. We have a plain detection of the means whereby possibly the *American* People might have their deduction from the *Europeans* or *Asiatics*; because it is not impossible but the Continents might be in some Ages or other contiguous, though now disjoyned by the mutations of the situations of Seas; though the certain times of those Changes are not transmitted by History to our Age. 3. That the ancient Historics of things, by Depopulations, Wars, Famines, Inundations, Transmigrations of People, and other Accidents may be lost in after Ages, which possibly in former Ages might be known, and some Monuments thereof then extant, which are now obliterated and forgotten.

Thus far concerning these Reductives by Inundations and Conflagrations, out of the Princes of the Academical and Peripatetical Philosophers: We shall find the like Suppositions frequently among the Stoicks, *Seneca* may be an Instance for all that Sect, only these vary from the former: for although they do with the former admit and instance in temporary and partial Inundations by Earthquakes and other Accidents, *de quibus vide Senecam, l. 3. Nat. Quest. de Terra motu*: yet these go farther, and suppose Universal Deluges and Conflagrations, which will quite alter the whole Frame of this lower World, and the whole Face thereof. See the Rhetorical Description thereof, *Senec. in fine lib. 3. Nat. Quest. Qua ratione inquis? Eadem qua conflagratio futura est; utrumque sit cum Deo visum ordiri meliora, vetera finire. Aqua & ignis terrenis dominantur; ex*
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his ortus, ex his interitus. And out of *Berosus* assigns the Times and Periods of these Universal Deluges and Conflagrations: *Arfura enim terrena, quando omnia sidera qua nunc diversos agunt cursus in Cancrum convenerint, sic sub eodem posita vestigio ut recta linea exire per omnes omnium possit: Inundationem futuram cum eadem siderum turba in Capricornum convenerit; illic solstitium, hic bruma confinitur.* But yet he suppoeth a Restitution of the World after these Destructions: *Nec ea semper licentia undis erit, sed peracto exitio humani generis, extinctisque pariter feris in quarum homines ingenia transferant, iterum aquas terra sorbebit; natura pelagus stare, aut intra terminos furere coget, rejectus è nostris sedibus in sua secreta pelletur Oceanus, antiquus ordo revocabitur: omne ex integro animal generabitur, dabiturque terris homo inscius scelerum, & melioribus auspiciis natus: sed illis quoque innocentia non durabit nisi dum novi sunt, citò nequitia subrepat; virtus difficilis inventu est, rectorem ducemque desiderat; etiam sine magistro vitia discuntur.*

I shall spare mentioning any more to this purpose, though many more Instances may be given out of the Philosophers of all Sects, and Poets, as *Ovid* and others.

Only I shall subjoyn these two Inquiries, and so conclude this Objection.

1. Whence it is that these Ancients had these Conjectures touching these Floods and Conflagrations, so as to frame them into an Hypothesis either for the Castigation of the Excesses of Generation, as *Aristotle* and *Plato*; or to the total Dissolution thereof, as the *Stoicks*; and the means that wrought this Perswasion seem to be these:

1. The things that seem to prevail with the *Academicks* and *Peripateticks* for these Partial Floods and Conflagrations, seem to be those dark and obscure Histories of the things of that nature which had twice before happened in *Greece*: Namely, for Floods, the Tradition of the *Diluvium Ogygium*, or *Diluvium antiquius*, which is suppoed by Chronology to be under *Ogyges* King of *Attica*, about 1000 Years before the first *Olympiad*; about 248 Years before the Flood of *Deucalion* in *Thessaly*; about 532 after the General Flood in the time of *Noah*; and about the 2951 Year of the *Julian* Period, and of the World 2187, though there is some variation among the Computations of Chronologers. This was a Partial Flood, as it seems, in *Attica*, part of *Greece*. 2. *Diluvium Deucalionis*, which was also Partial, and about 248 Years after the former, in the time of *Cecrops* first King of *Athens*, or as others, in the time of *Cranæus* his Son: This is that mentioned by *Plato* and *Aristotle*, that drowned a great part of *Greece*, only some saved by *Deucalion* by bringing them to the top of *Parnassus*: And out of the History of *Moses* touching the Universal Flood, and the History of *Deucalion*, *Ovid* made up his first Book, attracting in a great measure to the latter what was written of the former by *Moses*.

And for Conflagrations, they had two traditional Conflagrations in and near *Greece*, which might give some countenance to this Perswasion: namely, 1. That of *Phaeton*, *Incendium Phaetontis*, which seems not to be long after the Flood of *Deucalion*, though much of the Relation thereof, as the *Grecians*, and *Ovid* after them made, was a Poetical Fiction; yet it seems it had something of reality in it, as is observed by *Plato*, ubi supra.

2. *Ida*

2. *Ida Incendium*, which was no great business, but an Eruption of Fire out of the Hill *Ida*, as now in *Etna*: this was about 73 Years after the Flood of *Deucalion*.

2. As to the *Stoicks*, who held Universal Inundations and Conflagrations, possibly they might have the former of these from the Traditional Relation of the Universal Flood of *Noah*, which Relation they believed, and upon that founded their Supposition of the like Inundations; being acquainted with the History of the Flood, but not with the Covenant that God made never to bring a Flood again. 2. As to that of the Universal Conflagration of the World, it seems it was a known, ancient and received Tradition among the *Jews* before our Saviour's time, reinforced by him and his Disciples: This seems to be implied in that Prophecy of *Enoch*, *Jude* 14. and by ancient Tradition, either from *Noah* or the ancient *Jews* this Perswasion might be Traditionally derived to the *Gentiles*, and believed by the *Stoicks*.

2. It appears by what hath been before transcribed, That these Philosophers suppoed those Inundations and Conflagrations to be at great distances of times, and yet to be in some sort Periodical, and with a kind of stated Revolutions. *Plato* suppoeth his Floods to be *certis temporum curriculis*: *Aristotle* suppoeth his Floods to be also Periodical, *Hæc omnia fieri ordine quodam & ambitu*; and again, *Magna quodam circumbiens magna & imbrium excessus fiunt*, bearing some proportion to our Season of the Solar Year. Therefore it may be fit to consider what kind of Year this must be wherein this *Hyems magna* is suppoed to happen.

Seneca as before hath given us out of *Berosus* some description of the Periods, namely, when all the Planets shall meet in one streight Line drawn from the Center of the Earth to the Tropick of *Cancer*, then the great Conflagration shall happen; and again, when they meet in the like position under the Tropick of *Capricorn*, then the Universal Deluge shall happen. So that these two Conjunctions divide that *Annus magnus* into two parts, and the Summer-Solstice thereof shall be for Conflagration, the Winter-Solstice for the Inundation, or that *Magna hyems* which *Aristotle* hath assigned for his Periodical Inundations. But what is that *Magnus annus* wherein these Revolutions must happen, or what number of Solar Years it contains is uncertain, some assigning a Period that seems too short, some a Period of a wonderful length.

Censorinus, *de Die Natali*, cap. 10. speaking of this *Magnus annus* whereof *Aristotle's* Winter seems to make the Conclusion, gives us several Estimates of the same, some making them 2484 Years, others 5552 Years, others 10224 Years, others 100020, others 360000 Years, and others supposing it Infinite, and that such a Conjunction will never happen.

Macrobius in *Somn. Scipionis*, lib. 2. cap. 11. both describes and determines this *Magnus annus* to be when all the Heavenly Bodies shall return to the same position as they were in any time given, which he resolves to be 15000 Years, in which all the Heavenly Bodies shall be in the same position as they were 15000 Years before. So that if we should assign the *Caput anni* to be this Day and Year wherein I write, at the end of 15000 Years all the Heavenly Bodies will be in the same position that now they are; this he calls *Annus mundanus*.

Josephus, lib. 1. *Antiquitat.* cap. 4. in fine, determines that the *Magnus annus* is

is 600 Years; and yet the Flood happened not till 1656 Years from the Creation; which according to the Supposition therefore of *Aristotle* should be the *Magnus annus*, and that Year the Winter-Solstice thereof.

Plato supposeth that the *Magnus annus animarum* is 12000 Years, for in that Period the Soul hath run through all the Spheres and Dances of the Gods and Demons, and returns to its first Station; and the *Annus magnus mundanus* consists of three of those Periods, namely, 36000 Years, wherein the Soul of the World hath performed its great Circuit, or one Revolution of the eighth Sphere: vide *Marsil. Ficin. prolog. in lib. 10. Platonis de Republica*: and then not only all the Heavenly Bodies will be just in the same position in which they were 36000 Years before, but all Humane things will be in the same state as they were.

*Alter erit tum Typhis, & altera que vehet Argo
Dilectos heroes; & erunt itidem altera bella,
Ad Trojamque iterum magnus mittetur Achilles.*

The *Egyptians* had their great *Apocatastases*; viz. 1. *Apocatastasis diurnum*, which was 1461 Days: 2. *Apocatastasis annorum equilibrium*, which was 1461 Years: 3. Their *Apocatastasis magna*, consisting of 25 *Apocatastases annorum*, which amounted to 36525 equable Years; which was their *Magnus annus canicularis*, whereunto *Manetho* accommodates his fabulous *Egyptian Dynasties*.

There seems to be another *Annus magnus*, viz. the Motion of the ninth Sphere or Chrystallin Heaven, from West to East; which though some to make it agree with the *Magnus annus Platonius* suppose to be 1 Degree every 100 Years, in all performing its Revolution in 36000 Years, according to the great *Platonick Year*; yet *Alphonsus* allows a greater number of Years to that Revolution, viz. 49000 Years: and others I think more. But I think that we shall not be able to fit the Seasons of this Year to the *Magna hycus Aristotelica*, or his Winter-quarter; because 1. We know not whether any of these, or any other that can be found, will suit with these Instances upon which it may be thought he grounds his Supposition; for the *Incendium Phaëtonis* and the Flood of *Deucalion* happened very near one the other, as also the *Incendium Idæ*: and besides, if that Flood of *Deucalion* had fallen within the Winter-quarter of any of these *Anni magni*, it would have had a longer Influence upon the World, and extended at least successively to all the several Parts thereof. For the Winter-quarter of the *Magnus annus Platonius*, if it had any thing of proportion to our Seasons, must have been a fourth part of that *Magnus annus*; and then it had lasted above 8000 Years: But howsoever it must upon the lowest Account have lasted a thirty sixth part, viz. 1000 Years; and then the Effects thereof would certainly have been more permanent and extensive than to one or two Floods in *Greece*. 2. Again, could we know the extent of this *Magnus annus*, yet we can never find the *Caput anni*, when it begins, and consequently cannot possibly assign any probable Period for the Seasons of it; unless we shall fondly with *Virgil* suppose it began with the Birth of his Patron *Pollis's* Son,

Jam redit & virgo, redeunt Saturnia regna.

Again,

Again, these must needs be merely Conjectures, and can have no possible Evidence because merely depending upon Fact and Experience: it is not possible that any Man, or any Age of Men can give us any Account of any one Revolution of this *Magnus annus*, which amounts to 36000 Years.

Therefore it seems difficult, and utterly uncertain to suppose those Inundations and Conflagrations to be Periodical in any proportion to any supposed time or duration.

And thus far touching the urging of this Expedient for the Reduction or Correction of the Excesses of the Generations of Men or Animals, by Periodical Floods or Conflagrations; which though the Generations of Men were supposed Eternal, might Regulate and Reduce their Numbers when beginning to be immoderate, as our annual Winters correct the excrecence of Insects, whose multiplication is far more excessive than that of Men, and would appear so, if we had a perpetual Summer; yet are reduced to a mediocrity and due equability by the vicissitudes of Winter Cold and Rain.

C A P. X.

The farther Examination of the precedent Objection.

I Have been the longer in the Explication and Inforcement of the former Objection, because as the necessary and sensible Multiplication of Mankind upon the face of the Earth by the ordinary course of Natural Generation, seems to be the most sensible Evidence of Fact against the Eternal Succession of Mankind; so the Reductives mentioned in the foregoing Chapter seemed with most Evidence of Sense to weaken the Inference upon that Observation, and by the Supposition of those continual or interpolated Correctives to render the possibility of an eternal consistence of Propagations of Men, yet without an over-charging of the World with a multitude inconsistent with its reception.

I shall now descend to the Examination of these supposed Correctives of the excess of the number of Mankind, and how far the same may be true; or if true, how far the same may be, or hath been effectual to that end.

Wherein, first I shall set down what is to be agreed touching the same, and wherein we differ from that Supposition of the efficacy, or availability, or accommodation, or suitability of these Reductives to the end proposed, namely, to the containing of the Generations of Mankind in such an equability and proportion as may be consistent with an Eternal Succession of them.

Touching the first of these things it must be agreed, 1. That there have been great Devastations and Decrements of Mankind by all or many of the Means mentioned in the former Chapter, namely, Plagues and Epidemical Diseases, Famines, and Sterilities of great parts of the World, Wars and Internecions, not only in Battels and Fights, but even in Per-

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secutions and Massacres, witness the great cruelty of the persecuting Emperours against the Christians, the cruelty of the Spaniards among the Indians, the violent bloodsheds of the Papists upon the Protestants, as the late and former Instances abundantly testify: And also by Floods and Inundations, especially that Universal Deluge in the time of Noah, which probably did sweep away as great multitudes of Mankind as are now existing upon the Earth, considering what a Product might arise in the compass of 1656 Years, the interval between the Creation and the Flood upon the shortest Account, though the *Septuagint* render it much longer: and it is not easie to judge to what a Sum Mankind might arise to in such a Period, considering the great longevity of Man's Life in those times; only it is plain that it must needs arise to a greater proportion than thrice so long a Period would yield, when Mens Ages were reduced to less than a tenth part of the same longevity.

2. It is certain, that were it not for such Reductives as these above mentioned, though we should suppose that the *Capita humani generis* were only Noah and his three Sons, and that the Generations of Mankind began since the Universal Flood, yet the multitudes of Mankind would in this Period since the Flood have risen to such an excrecence; that according to the ordinary method of Propagation (though the Lives of Men were no longer than now they are) that the Earth would not have been able to have received its Inhabitants.

3. It is also therefore evident, that the most wise and glorious God hath used these Means above mentioned for most wise and excellent Ends. For it is the high Prerogative and Advantage of his infinite Wisdom, to bring about complicated and various excellent Ends in one and the same act of the dispensation of his Providence, by Plagues, Wars, Earthquakes and Floods (all which are at least permitted if not inflicted, but howsoever most wisely and infallibly governed by him) he punisheth the Sins and Enormities of Mankind, and reduceth the World to such a due proportion as may be consistent with their convenience and reception in this Earth: And for this cause, while the World was but thin and empty of Inhabitants, the Ages of Mankind were longer, and more accommodated to the peopling of the World; and as the World grew by that means fuller, so their Lives were successively reduced to a shorter scantlet, till they came to that ordinary Age and time of Life which now they have, and for near 4000 Years have held.

4. Therefore also it must be granted, that the apparent Multiplication of Mankind upon the face of the Earth singly considered, is not any Demonstration or Apodictical Argument against the Eternity of Mankind: Since, as it is most evident, that there is a most wise and powerful God, who hath a care of the Inferior World as well as the Superior, and whose Providence (notwithstanding the contrary Sentiments of *Aristotle*) reacheth below the Moon, and governs the World with much more Accuracy and Wisdom than a Gardiner orders his Garden: I say, since the Regiment of the World, and especially of Mankind, is so actually under the Care, Wisdom, and Power of Almighty God, he that for near 6000 Years by those Methods of his Providence above mentioned hath kept the World of Mankind in a due proportion and equability, which otherwise would have grown too great for its reception; could have inter-

interposed with the like Correctives for twenty thousand Years as well as six, and for a million or other interminate duration for the time past or to come; and so have prevented that enormous excrecence of Mankind, that in an infinite time or duration would have long since surcharged the World; and upon a Supposition of a future Sempiternity would produce the same difficulty, without such interposition of the Divine Wisdom and Providence.

But all this while it must still be remembered, that this Supposition still takes in the Wisdom, Providence and Regiment of the glorious God; for without an intelligent Rector of the World, that *ex intentione* thus orders the Affairs of Mankind, these Reductives either barely, as accidental, or contingent, or periodical and necessary, were not equal nor competent Reductives of the Generations of Men, but would be too much or too little, or unseasonable in time; place, measure, or other Circumstances for such a Business, as shall be shown.

We therefore are not enquiring what the wise and glorious God might or could do in order to the equable Reduction of the World, upon a Supposition of an Eternal Duration; but we are upon a Question of Fact indeed, namely, What he hath done, and whether upon the Supposition of all those Reductives instanced in the former Chapter, at least without the wise and intelligent Regiment of God, they have been, or well could be: considering the nature and course of things of that efficacy to correct the increas and excess of Mankind, that may render it competent with an Eternal Duration.

I therefore shall now come to the things I oppose, and they are these two; *viz.* 1. That these Means considered simply in themselves (without the Conduct and Guidance and Interposition of the mighty God) are in themselves incompetent and unsuitable to the Ends proposed: and 2. That *de facto* they have appeared to be so; and notwithstanding their admission, yet *de facto* the World hath in all Ages increased.

Touching the former of these, the Incompetency of these Expedients to the End proposed (considered singly in themselves) this will best appear by induction of particulars.

For Famines, they are *de facto* incompetent to these Ends: for 1. There was never yet known a Universal Famine, but the defects of one Country supplied by another, as *Canaan* was by *Egypt*. 2. It is ordinarily not sudden but gradual, and foreseen before felt in the extremity, which gives People opportunity of transmigrations: 3. Though the ordinary supplies fail, yet necessity makes Men ingenious and hardy, and if they have but Land-room or Sea-room, they find some supplies for their hunger which they did not before think of or use; though it be otherwise in a close Siege, but that is but a narrow compass, and not of moment to be compared to the multitudes abroad.

2. Plagues are indeed a sharp and speedy Visitation, yet it hath these Allays: 1. Many there are that are able to escape it by Flights, some by Physick, and some by their Age and Complexion. 2. It is not ordinarily of long continuance, the strength of the Disease seldom continuing longer than a Year. 3. Though the Desolation be terrible while it lasts, yet it rarely consumes one half of the Inhabitants. The late Computation of the Number of the Inhabitants, Men, Women and Children in

the City of *London* and the 16 and 10 Out-Parishes are estimated at 384,000, and about six Millions in the whole Kingdom of *England*. 2. The greatest Plagues in our remembrance have not swept away above 100,000 at most in *London* and the Suburbs: Indeed that before mentioned by *Walsingham*, which was in a manner Universal, and successively in several places of the World lasted about 15 Years, is said to be so great, that scarce a tenth part of People survived it; yet if it left a tenth part, suppose in *England*; it left near a Million of People; which in a little time would and did recover and increase considerably; as shall be shewn.

4. Again, suppose the Devastation by Plagues greater than History gives us an Account, yet it is for the most part a Disease that reigns in some times and some places; it may fall in those places where the numbers are already too small, and need an Increase. And so taken singly by it self, is incompetent and unsuitable to the Excess, unless managed by the wise Conduct of Almighty God.

3. Touching Wars and Internecions. It is true, it hath been a great Consumption of Mankind, but yet it is not an equal Corrective of the Excess of Generations: 1. Though such have happened, and frequently; yet they seem against the nature and disposition of Mankind, ordinarily and in a course of Humane Constitution: Naturally Mankind is a sociable Creature, and more than Bees, as the Philosopher observes; and though sometimes Passions, Jealousies and Politick ends produce Wars; yet naturally Man is not a Creature of prey upon others, as Lions and Tigers are. 2. Ordinarily, though Wars are by one Kingdom or State upon another, yet they preserve their own Societies with increase under Foreign Wars; and therefore Civil Wars as they are more destructive, so they are more rare, because they are more unnatural and destructive to that which Men usually are careful to preserve, namely, their own Societies. 3. It seems an improper and unsuitable Corrective, because Accident and the Wills of Men have so great an Influence in the production of Wars; whereby it may fall out that Wars may happen in those Ages, Times or Places, and consequently, Devastations upon them where or when they need not to correct. And though it be true, that a Plethora or Excess of Numbers of Men, sometimes by a kind of Natural or at least Moral Consequence cause Wars; yet we have hardly known any produced singly upon that Account; though it hath oftentimes occasioned Transmigrations, deductions of Colonies, and new Plantations; and the World hath been never yet so full, but a weaker or oppressed Party have found room to retreat from the violence or insolence of their Oppressors.

4. Touching Floods and Conflagrations. It is true that Almighty God as he manageth the forementioned Reductives by his Wisdom and Providence, so he hath done these especially in that Universal Deluge: But as they are instanced in by the Philosophers as Natural or Periodical Events whereby Mankind is reduced to an equability, we have no reason to believe them. Therefore I say, 1. That there doth not appear, either in History or in the Observation of Nature, any such Periodical Floods or Conflagrations; those that we have Relations of happened indeed near together, and in the same Country, viz. in *Greece*, had they been Periodical or Natural, probably either by a continued Circulation or Rotation, or

else by the interposition of some reasonable intervals, the like would have happened before in *Persia* or some Easterly parts of *Asia*, or since in *Italy* or *Germany*, or some other Western parts of the World, which we have not observed to be. And therefore this Supposition of the *Hycnis magna*, whereby parts of the Earth should be successively drowned, seems to be only an Imagination, or at least it cannot be known with any tolerable certainty; in as much as the Periods are supposed to be vast, and not happening within any competent time to give us an Observation or Proof thereof. And therefore although we yearly see a reduction of the numerous increase of Insects, by the Winter Frost and Storms yearly happening; we have no warrant from thence to imagin that great Winter that must make the like reduction of Men and Brutes; for every Year gives us Experience of the one; but never any Age gave us any reasonable Observation, upon which to build an Hypothesis of the like Periodical Revolution of the other: and the same I say touching Conflagrations. Indeed there have been accidental and particular Instances of both, but not any Periodical Return or Revolutions thereof, *quasi in quodam ambitu & circuitu naturali*. 2. If such were supposed, yet unless they were very sudden, and very general, they would not be sufficient to make the Correction: Men would escape Floods by running up to Mountains and Hills, and though some might perish through improvidence, or though the suddenness of a Deluge, many would escape. 3. Natural and Periodical Floods or Conflagrations would not be suitable nor commensurate to the Increase, which depending either upon Accidents or the Wills of Men, would possibly be more in one place than in another: The Country of *Palestine* would be more peopled than the Sands and Deserts of *Arabia*, *Egypt* than the Mountains of *Ethiopia*; and fruitful Countries, or Countries open to Trade, and safe from Incurfions and Invasions; more populous than barren Countries, or such as are out of the way of Trade, or subject to Inroads: But Natural and Periodical Floods or Conflagrations would probably keep some constant, or ordinary Tract or Course, either from East to West, or from North to South; and possibly keeping in such a Climate or Latitude, possibly in another; whereby possibly these Plagues might be more fierce in those places or Continents where the World wants People, and less vehement in those places where there needs a Corrective for their excess: If these should be Universal, they would destroy the Race of Mankind; if Partial, they would be perchance weak and insignificant Reductives of the excess of Mankind.

When all therefore is done, though it be plain that these and the like Calamities are certain Reductives of the excess of Mankind, yet they are incompetent of themselves, and upon a bare Supposition of Natural or Accidental Effects. But it is true, as they are either brought and inflicted, or managed and governed by a most wise and intelligent Being, they are useful, and wisely applied to this End among others.

But in the whole management and conduct of these Events and Occurrences whereby Mankind hath been reduced and corrected, we shall observe very easily that Mankind hath still increased, and the World grown fuller, even to manifest Sense and Experience, which was the second thing I propose to be considered.

2. Therefore I do affirm, That notwithstanding all these Ordinary and

and Extraordinary Occurrences that have afflicted Mankind, as shortness of Life, divers Casualties and common Diseases, loss of Men by Navigation, the Intemperance and Luxury of Mankind, the Weaknesses and destructive Sicknesses incident especially to Infancy, Childhood, and Youth, Abortions voluntary or accidental, and all those ordinary Casualties incident to our nature. And notwithstanding also those great and vast Consumptions by Famine, by Pestilence, by strange and Epidemical Diseases, by Wars and Battels, Sea-fights, Internecions, Massacres and Persecutions, Earthquakes, Floods, Inundations, Conflagrations, or what other extraordinary or terrible and universal Accidents that have happened to Mankind in any or all the Ages past since the Flood of *Noah*; Mankind hath notwithstanding all these increased and grown fuller, the Generations of Mankind have exceeded their Decays.

And because this is an Assertion of Fact, it is impossible to be made out but by Instances of Fact.

And although it be impossible for any Man to give an Account of all the Nations of the World collectively, and so to make out the Fact; yet if the Instance can be made out in one or two Nations, whereof a true and clear Account may be given, it will be more than a common probability that the same may be concluded concerning the generality of Mankind.

And therefore I shall single out the Instances of two Nations, touching whom the clearest Account of their Original and Increase may be given, and such also as had as great an Experience of the severest of these Correctives, and possibly much greater than any determinate People or Nation in the World besides.

The first Instance I shall give is the Nation of the *Jews*, and I choose this People for my Instance, 1. Because their first Original, and the time wherein it began is most clearly, evidently, and unquestionably known, and the time wherein it was. 2. Because their several Increases and Abatements and Successions, with the several times thereof, even down to the last Dissolution of their City under *Titus*, is most clearly by a continued History plainly and authentically discovered. 3. Because by the strange and admirable Providence of God, even since the Dissolution of their State and Republick they have been to this day continued a separated People from the rest of the World; notwithstanding their remarkable dispersion among all Nations, among whom they have yet remained distinct as a signal Monument of the Divine Truth and Justice, and for what other secret ends and purposes, is best known to the Divine Wisdom. 4. Because this People hath been in all Ages exercised with as many Plagues and Slaughters and Devastations of all sorts, as ever any People under Heaven were. And 5. Because the particulars of these Devastations, and the several Times and Ages wherein they happened, and oftentimes the Numbers cut off thereby are Recorded by the several Authentical Histories of that People, which are extant to this day. And 6. Because their Increase even at this day, as in their several antecedent Periods, is signal and evident to all the World. So that what is verified touching the Increase of that People, may in all congruity of Reason be assumed and determined much more touching any other People, and all the People in the World: since none had ever greater Instances

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of Abatements or Correctives of the Excess of their Number than this People. Lastly, Because there can be no pretence that their decays or diminutions by those Occurrences were supplied by the accession and conjunction of others of other Nations to them: Since it was their Privilege in which they gloried, and which they strictly and religiously observed, To keep themselves separate and distinct from the rest of Mankind.

I shall not be scrupulous or curious in the Chronological niceties touching their several Periods, because in this and other Computations that I have used I do not aim at curious or precise Computations, but only to shew the Order and Series of Things for the discovery of what I intend; and therefore shall take the Account of *Helvicus*, as being plainest and readiest at hand for my purpose.

Isaac and *Rebecca* were the two next immediate Parents of all the Families of *Esau* and the *Edomites*, and *Jacob* and the *Israelites*.

In the Year of the World 2108 were *Jacob* and *Esau* Born: I shall leave the Families of *Esau*, and carry down that of *Jacob*.

In the Year of the World 2238 *Jacob* goes down into *Egypt*, having then 70 Persons descended from him; which Increase was in the compass of about 130 Years after the Birth of *Jacob*, and about 70 Years after his Marriage with *Leah*. *Gen.* 46. 27.

The *Israelites* increase in *Egypt*, yet not without a great destruction of them by their severe Bondage, and by the Slaughter of their Males. *Exod.* 1.

In the Year of the World 2453 the People of *Israel* came out of *Egypt*, which was about 215 Years after the going down of *Jacob* to *Egypt*.

In a short time after the Migration of the *Israelites* out of *Egypt* they were numbred, and the Number of their Males that were above 20 Years old then amounted to Six hundred and three thousand, five hundred and fifty, besides the *Levites*; from a Month old amounting to 22000. *Numb.* 1. 46. and 2. 32. and 3. 39. and if we should take into the number of the Eleven Tribes Women, and Children under 20 Years old, we should reasonably have more than triple the number, *viz.* above two Millions.

From this time to the time of *Phinehas* we have no certain estimate of their Numbers, yet in this Interval they had very great Abatements and Diminutions, as will appear by these Instances.

That all this number of People above 20 Years old, except *Joshua* and *Caleb*, died in the compass of their 40 Years wandering in the Wilderness, *Num.* 26. 65. yet some of them could not exceed 60 Years of age.

Of the Plague 34000 in the Wilderness, besides the Complices of *Corah*: *Numb.* 16. 49. and 25. 49. besides those that died of Fiery Serpents. *Numb.* 21.

After the death of all that were before numbred, they were again numbred all except the *Levites*; and the Number of all the Males from 20 Years old and upwards, were Six hundred and one thousand, seven hundred and thirty: among these was the Land after divided by *Joshua*. *Numb.* 26. 51, 53.

I do not remember any Numeration of the People from this time till the time of King *David*, and in that Interval that People suffered very great detriments.

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1. By the Wars with the *Canaanites* under *Joshua*, wherein though they were victorious, yet it could not be without great loss of Men.

2. After this they endured in the time of the Judges great diminutions under the Kings of *Mesopotamia*, *Canaan*, the *Midianites*, the *Philistines*, the *Ammonites*, besides about 65000 Men slain in the Civil Wars with the *Benjamites*.

3. The Wars in the time of *Saul*, wherein though he was often victorious, yet at last he suffered a great Slaughter by the *Philistines*.

4. The Wars of *David*, both with Foreigners and the Rebellious in his own Kingdom; wherein though he were victorious, yet those Victories could not be obtained without great Losses: In the Business of *Abalom* 40000 of the *Israelites* slain and lost in one Battle, 2 *Sam.* 18. 7. in the latter end of the Reign of *David*, about the Year of the World 2925, which was 435 Years after the Numbring of the People by *Moses* and *Eleazar*, *David* again Numbers the People, and then the Account of the People of *Israel* was 800000 valiant Men that drew the Sword, and of *Judah* 500000 valiant Men, 2 *Sam.* 24. 9. in all 1300000 fighting Men: and if we should take in Women, Children, and Aged, it is probable they were above five Millions.

So that in the space of 435 Years, notwithstanding all these Decrements they were increased about three Millions.

The next Account of the Numbers of the Tribes of *Judah* and *Benjamin* only under *Jehosaphat*, 2 *Chron.* 17. 14. and though in the interval between *David* and *Jehosaphat* these two Tribes received considerable Allays by Wars, Plagues, and Famines, yet the Number of the mighty Men of valour of *Benjamin* was 380000, and of the Tribe of *Judah* 780000 mighty Men of valour. The Increase of *Judah* between that and *David's* Numeration was 280000 fighting Men; and therefore the Increase of Women, Children, and Aged not fit for War, must needs be much greater and more considerable; and yet this was in a Period only of those Years that intervened between *David* and *Jehosaphat*.

After this the ten Tribes were carried away Captives by *Salmanasser*, 2 *Kings* 17. and only *Judah* and *Benjamin* remained: so that now all our Account must run upon these two Tribes, the rest being carried away, and probably confounded and mingled among the Gentiles. And if we consider what Calamities these two Tribes endured by Wars and Captivities from the time of *Hezekiah* until their deportation into *Babylon*, we may reasonably suppose that they had as great a Reduction as ordinarily could befall a People: *Manasseh* carried Captive to *Babylon*, which probably was the issue of some great Siege or Battle; *Josiah* slain in Battle by *Pharaoh* King of *Egypt*; *Jerusalem* taken by *Nebuchadnezzar* in the 8th Year of *Jehojachim*, 2 *Kings* 24. 12. again in the 9th Year of *Zedekiah* the City again besieged, and after two Years Siege and great Famine and Slaughter, taken. *Jer.* 39. 12.

These severe Administrations of War could not be without great Desolations, Slaughters and Mortalities, though their Number is not recorded.

The People were carried away Captive to *Babylon* in the Year of the World 3362 or thereabouts, which was about 437 Years after the Reign of *David*; seventy Years after the Captivity, viz. about the Year of the

the World 3420; there was a Return of the *Jews* under *Cyrus*, which continued in Partial Remigrations for some time after.

The numbers of those that returned first with *Ezra* were 42360, *Ezra* 2. 64. this seems to be the greatest number: there were other Remigrations in the time of *Darius* and *Artaxerxes*, both in the 27th Year, though the certain number be not mentioned. We will therefore take scope enough, and suppose them in all 100000 Persons, which is more than double to those that came up with *Ezra*.

These continued in a troubled condition from the time of the cessation of the *Persian* Monarchy until the time of *Christ*, and rarely without Wars; as the History of the *Maccabees* gives us an account; especially under *Antiochus Epiphanes*, who made great slaughter of them.

After that, *Pompey* by Arms took *Jerusalem* and subdued *Syria* in general, not without great bloodshed; and as they were naturally an unquiet People, so the Histories tell us that the *Romans* and their Governours exercised great severity and bloodshed among them.

And yet for all these Correctives and Decrements of this unquiet People, *Josephus* tells us, that *Nero* willing to take some Account and Estimate of them by their great convention and concourse in their *Paschal* Solemnity, found their number to be Seven and twenty hundred thousand Persons, *Joseph. de Bello Judaico*, l. 7. pag. 968. where Strangers might not be mingled with them in that Solemnity.

The Destruction of *Jerusalem* under *Titus* and *Vespasian* is supposed to be under the 66th Year after the Birth of *Christ*, about the Year of the World 4006 which was about 586 Years after the Return under *Cyrus*: *Josephus* gives us an Account of those that were slain at the Siege of *Jerusalem*, viz. 110000, and Prisoners taken 90000, *Joseph. lib. 7. cap. penult.* besides the multitudes slain in *Cyrene*, *Alexandria*, and other places not easie to be remembered.

By which we may reasonably conclude, That in the Period of about 600 Years this Nation of the *Jews* increased to 27 times more than when they returned under *Cyrus*; for then we allow the number of them that returned to be 100000, but now they were increased to 2700000.

It is true, some of the *Jews* escaped this Slaughter and Captivity, suppose we the number of those that escaped were a Million of *Jews*, such I mean as held rigorously to their *Jewish* Law; for many became Christians, and left much of the *Jewish* strictness, and possibly mingled with other Nations.

But if we should now examin the multitude of the *Jews* in *Europe*, *Asia* and *Africa*, we shall find vast numbers of them in all the Trading Cities and Countries except *England*, *France*, *Spain*, *Portugal*, *Naples* and *Sicily*, from whence they were formerly banished; yet even in those Countries from whence they have been banished, they are in great numbers, but yet under the disguise of other Names and Nations: But if all the *Jews* (I mean those descended from the *Reduces captivitatis Babylonice*) which are in *Germany*, *Bohemia*, *Poland*, *Lituania*, *Russia*, *Venice*, *Rome* and other parts of *Italy*; in the Dominions of the *Turks*, *Persia*, *Arabia*, *India*, *Africa*, at *Alexandria* and other parts of *Egypt*, were collected into one Body, they would exceed in number any one of the greatest Nations of the World, and yield an irresistible Army, if they had Weapons and

Courage in any measure proportionable to their Wealth, Craft, Subility, and Numbers.

So that notwithstanding all the Abatements and Decrements they have had by Wars, Oppressions and Interpecions, Plagues, Famines, and other Calamities, we find the Product of one Nation derived from only two Persons, *Isaac* and *Rebecca*, in the compass of about 5000 Years (wola into incredible numbers of Millions of Persons now existing, and known to be of that Linage and Descent, and still continuing unquestionably in that Distinction, besides those multitudes derived from the Line of *Esau*, and the ten Tribes, which are as it were lost and confounded, without any distinction among other Nations. And thus far of the first Instance, concerning the Multiplication of the Nation of the *Jews*.

The next Instance that I shall give shall be nearer home; the Kingdom of *England*: I shall not give any Instance touching it before the Conquest, because those times are dark, and besides, the Vicissitudes and Successions of various Nations in this Kingdom renders the discovery of the Progress of Generations of Men, or the Increases thereof, difficult; as *Britons*, *Romans*, *Picts*, *Saxons*, and *Danes*.

The ancient Inhabitants were the *Britons*, the Body of which People hath been in a great measure shut up and contained within the Country of *Wales*; but what by the transplanting of many of the *Welsh* into *England*, and by transplanting of the *English* into *Wales*, it is not possible to say that all the *Britons* are confined to the Country of *Wales*, or that none but *Britons* are there: and therefore there can be no particular or evident Conclusion made touching their Increase or Multiplication. But I shall take a shorter Period or Compass of Time, namely, the last 600 Years or thereabouts since the *Norman* Conquest.

And although it may be true, that many Persons of Foreign Countries have come into *England* and planted themselves here, so that the whole Increase of this Kingdom cannot be singly attributed to those that were either Natives, or such as came in with the Conquerour, but many *Scotch*, *Irish*, *Dutch*, but especially *French*, either by Naturalizations or Transmigrations have increased the Inhabitants of this Island; yet considering that probably the Migrations of the *English* into *Scotland*, *Holland*, *France* and other Countries, have made amends for their Migrations hither: We may make a reasonable Conjecture, that the Descendents from those that inhabited this Kingdom in the time of the Conquerour, have increased exceedingly above what they were in that time.

And the Evidence thereof is this: King *William* the First, after his Victory over *Herald*, did in the 16th Year of his Reign over *England* cause a Survey to be made of all the Cities, Towns, Mannors and inhabited Lands in *England*, *Northumberland*, *Cumberland*, *Durham* and *North-wales*.

This Survey was finished in the 20th Year of his Reign, and the Book it self preserved to this Day among the Records of the *Exchequer*, not only a Transcript or Copy, but the very Original Book it self, and is called *Doomsday*: In this Book are entred the Names of the Mannors or inhabited Townships, Boroughs and Cities, and the Owner of them, the Number of Plough-Lands that each contains, and the Number of the Inhabitants upon them, under the several Names appropriate to those

Places:

Places: As for Instance, *Ibi* 12 *Burgenses*, 5 *Villani*, 5 *Bordarii*, 5 *Nativi*, 5 *Radimiches*, 5 *Cotterelli*; and the like, according to the quality or condition of the Inhabitants: So that this Book in effect gives an Account not only of the Manurable Lands in every Mannor, Town, or Vill, but also of the Number and Natures of their several Inhabitants.

To make a Calculation of the Number of Plough-Lands and Inhabitants through all *England*, as they are recorded, and to make therewith a Comparison unto the present State and Number of Inhabitants at this Day throughout *England*, is a laborious piece of work, but it is not difficult to be done in any one County; I have tryed the Comparison in the County of *Gloucester* through some great Boroughs, as *Gloucester* it self, *Thornbury*, *Tetbury* and other places, and in effect through the whole County; and I do find,

1. That there are very many more Villages and Hamlets now than there were then, and very few Villages, Towns or Parishes then, which continue not to this Day; but now there are as many as then, and many more. The 5th of *March*, 9 E. 2. there issued Writs to the Sheriffs of the several Counties, to return the Names of the several Villages and Land-Owners in their several Bayliwicks, which was accordingly done, and remains of Record in the *Exchequer* under the stile of *Nomina Villarum*; and the Sum of the Villages of *Gloucestershire*, together with the five Boroughs of *Gloucester*, *Bristol*, *Berkley*, *Dursly*, and *Newenham* amounted to 234; which I take it are more than are in *Doomsday*, and yet not so many as are at this day; and those that continue to this day, are far more populous than they were at the taking of either of those Surveys.

2. That there is much more Tillage, and more Plough-Lands now than there were then; which happens by the reduction of many great Wafts and Commons into Tillage, or Meadow, or Pasture, which then were only Wafts, and therefore not particularly surveyed because of no considerable Value, and not taken notice of in that Survey.

3. That the number of Inhabitants now are above twenty times more than they were at that time, as well in particular Towns, Boroughs, and Mannors, as in the general extent of the County; and yet that Survey, even as to the number and quality of those that resided in those Towns or Mannors, at least as Householders, is very precise and particular: I have not yet made an exact particular Calculation of the Number recorded in that Book through the whole County, but I will give a few Instances of particular Towns, which may give an estimate touching the whole.

Gloucester is now a very great and populous City, formerly before the time of *H. 8.* a Borough: In the Survey of *Doomsday* it is surveyed distinct from the *Bertun* of *Glouc'*: the gross of the Borough is surveyed together in the beginning of the County, but there are some other particular Burgages thereof mentioned under the Titles of particular Mens Possessions; as, *Terra Rogeri de Lacy*, *Terra Elnuffi de Hesding*, &c. The whole concretion of the City of *Gloucester* consists partly of what was the ancient Borough, partly of accessions from the Mannors or Villages adjacent, as *Barton* and some others: I shall therefore cast up the whole Number of all that were in *Glouc'* or *Barton*.

Hh 2

In

In the Survey of *Gloucester* there are reckoned 23 Burgages and Houses; 16 that were demolished for the building of the Castle, 14 that were waisted, and some that belonged to *Osbertus Episcopus*, not numbered, but yielded the yearly Rent of 10 Shillings; which according to the usual rate of the Houses in *Gloucester* at that time, which was at 5^d or 6^d a House, might produce 20 Houses, *in toto*,

73.

Besides these, there are surveyed under the Titles of several Owners of Lands *sparsim* through the Book, as under the Title *Terra S. Dionysii, Ecclesia S. Martini*, and others; according to my best Computation and Observation,

82.

Besides these under the Title of the Possessions of *S. Peter of Glouc'*, there are reckoned up as many *Burgenses* as yielded the Abbot anciently the Rent of 19^s and 5^d, and 16 Salmons; but at that time 16 Salmons and 50^s Rent, without any certain number of *Burgesses*; but if we allow 6^d for a *Burgess*, we may suppose them to

100.

The Total 255.

The Mannor of *Barton*, or the *Barton of Glouc'*, some part whereof hath been taken into the Suburbs of *Glouc'*, was of two Owners; part was the King's Lands, part belonged to the Abbey of *S. Peters*, but the whole number of the Householders inhabiting the whole *Barton*, with its members, *Tuffly, Barnwood, &c.* were as followeth,

<i>Villani</i> —————	56
<i>Bordarii</i> —————	39
<i>Servi</i> —————	19
<i>Molini</i> —————	04
<i>Liberi homines</i> ———	10
<i>In toto</i> —————	128

And the Total of the whole Account of the City of *Glouc'*, the *Barton* with its members; *Brewere, Upton, Merwin, Barnwood, Tuffly, Norwent*, amounted then only to

383.

And the single City of *Gloucester* within the Walls contains at this day near 1000 Houses and Households.

Again, the Borough and Mannor of *Barclay*, with the members thereof enumerated in *Doomsday*, viz. *Alkington, Hinton, Cam, Gosington, Derflege, Cowly, Ewly, Nimsfield, Wotton, Simondsball, Kingscote, Beverscote, Oselword, Almondsbury*, part of *Cromhall, Harefell, Weston, Elberton, Cromale, Erlingham, Escelword* are surveyed to contain in the whole to 590 Families, whereas at this time there are near 5000 Families in this Precinct; the Parish of *Wotton* yielding upon the point of 2000 Communicants, and that of *Derflege* above 500 at this day.

Again, *Tetbury* and the Hamlet of *Upton* belonging to it, the Survey of *Doomsday* gives us an Account of about 73 Families of all kinds belonging to it: But now I believe there are little less than 1500 Communicants in that Parish.

Sodbury:

Sodbury: the Survey gives us an Account of about 46 Families of all sorts; they are now near twenty times so many.

Thornbury, with the Hamlets thereunto belonging: the Account of *Doomsday* is of 105 Families of all sorts; there is now near six times so many.

Aderly, a little Village at the time of making of that Survey, consisting not of above 17 Families of all sorts; now above twice as many.

The like Instances might be produced, with the like evidence of very great Increases in the Towns of *Cirencester, Minchin, Hampton, Teuxbury, Campden, Winchcomb, Avening, Westbury* near *Bristol*, and generally through the whole County of *Gloucester*; which I do not without just reason suppose hath more than twenty times the Inhabitants which it had at the time of the coming in of *William the First*, which is not now above 604 Years since.

And if we should institute a later Comparison, viz. between the present time and the beginning of Queen *Elizabeth*, which is not above 112 Years since, and compare the numbers of Trained Souldiers then and now, the number of Subsidy-men then and now, they will easily give us an Account of a very great Increase and Multiplication of People within this Kingdom, even to admiration.

And let any man but consider the Increase of *London* within the compass of 40 or 50 Years, we shall according to the Observations framed to my hands find, That the In-Parishes until the late Fire in that time have increased from 9 to 10, or a 10th part; and that the 16 Out-Parishes have in that time increased from 7 to 12, and yet without any decrement or decay of the rest of the Kingdom.

By which, and infinite undeniable Instances that might be given, it is apparent, that within the compass of the last 600 Years this Kingdom hath increased mightily in its number of Native Inhabitants.

And yet it is most apparent, that it hath had as great Allays and Abatements of the Multiplication of Mankind in it, as any Kingdom in the World. For Instance,

1. In respect of the nature of its Situation, which is all Maritim, and consists much in Navigation, which exhausts abundance of People by Diseases and Casualties at Sea.

2. It hath been as often visited with fore Pestilences, Epidemical Diseases, and Mortality by reason thereof, as any Country: the experience of the last 60 Years gives us abundance of Instances thereof, and former Ages were as frequently visited in this kind as later.

3. Foreign Wars, both at Sea and Land, have devoured great multitudes of our Inhabitants; as those formerly with *Scotland, France, Spain*, and lately with the *Netherlands* and *French*.

4. No Kingdom in *Europe* hath had greater Experience of Civil Wars, nor greater Consumption of Men thereby, than *England* hath had since the time of *William the First*: For not to instance in our Wars with the *Welsh* and *Irish*, let any man read but the Histories of the Wars here in *England* between King *Stephen*, and *H. 1.* and his Mother, King *John* and his Nobles, King *H. 3.* and the Nobility; between King *E. 2.* and the Earls of *Lancaster* and *Mortimer*; the Wars between the two Houses of *York* and *Lancaster*, and their Partizans, from the time of *H. 4.* unto the begin-

beginning of *H. 7.* in one Battel between *H. 6.* and *E. 4.* killed of one side 30000; the Rebellions in the times of *H. 7.* and others the Kings and Queens that succeeded him, and the loss of many lives that happened by the suppression thereof; the late cruel Wars within these 30 Years last past in *England*; there cannot be Instances given in any one Kingdom of greater Abatements of the Increase, by Wars and Internecions, than may be given in *England*.

5. Let us also consider the vast Evacuations of Men that *England* hath had by Foreign Assurances lent to Foreign Kingdoms and States, by Volunteers and Auxiliaries; as, to *Scotland* in the late Queens time, to *France*, to the *Netherlands*, to *Germany*.

6. To these also add the vast numbers of Men that have transplanted themselves not only into *France*, *Holland*, and our neighbour Nations, but also to *Virginia*, *Maryland*, *New England*, *Barbadoes*, *Bermudas*, to *Amboyna* and other places in the *East India*, and lastly, into *Jamaica*; we shall find upon these and other Accounts, that *England* hath had as great Correctives of the Excesses of their Generations within these last 600 Years, as any People in the World.

Add to these the great Famines and Pestilences which have happened within the compass of 600 Years, recorded in History, and obvious to our own Experience.

And therefore, if notwithstanding all these Correctives the number of Men have continually increased, and that in so vast and observable a degree above their decrease; we have as much reason to conclude a parity in the rest of Mankind: and possibly were we as well acquainted with the Concerns of other Kingdoms or States, especially of the *Netherlands* and *France*, the Instances of this Increase would be as much, and possibly more conspicuous than among us.

Upon the whole matter therefore I conclude, That as the Correctives instanced in the last Chapter are not in themselves likely to be sufficient and suitable to the Reduction of the Increase of Mankind to an Equability, especially in an infinite succession of Eternal Generations: So by plain Experience it is apparent and sensible, that *de facto* they have not done it in a finite limit of Ages; but Mankind have notwithstanding them increased every Age, and the multitude of them that are born and live, over-balance the number of them that dye, *communibus annis*; or being taken upon a *medium*, though possibly some one Year gave the advantage of Number to the Descendants, yet it is not common nor ordinary, but more than two or three Years for one give the advantage of Number to them that are born and live.

C A P. XI.

The Consequence and Illation upon the Premises, against the Eternity of Mankind.

THe great Assertors of the Eternity of the World and of Mankind, have certainly gathered their Opinion principally from this, That they find that Mankind is propagated by ordinary course of Generation, and

and this they see by Experience: And as they do so now, so they did a hundred or a thousand Years since, and as far as those Histories they credit give them account, it was so in those times, and in the times before them, as far as Tradition could instruct them: And although those various Occurrences of Wars, Pestilences, Migrations, Floods, Changes of Religion and Languages have obscured the Histories, Relations and Traditions of former times before those Histories that are extant; yet they think it becomes them, as reasonable Men, to believe that things have been always so as now they are; and that it were a fondness to suppose or believe things to be otherwise than they have appeared in the tract of all Times or Ages.

And upon the same ground that these Men assert the Eternity of the World, the Instance and Argument now produced of the plain and experienced Increase of the numbers of Men upon the face of the Earth, seems much more forcibly to conclude against that supposed Eternity of Mankind. For it is plain and evident to Sense, that the World grows every day fuller than formerly, notwithstanding all those Correctives and Reductives thereof: And we have reason to think it is so in all places, at least one with another, and in all Ages, and among all People as we find it in *England* for these 600 Years, or among the People of the *Jews* for above 2000 Years: For among these People, and in these Periods of Time there have been as many and as great Diminutions and Abatements as ever were in such Periods of Time: and yet though perchance in one Age they have diminished, yet they have not been so diminished, but that in the compass of four or five hundred Years their Increase above what they were before such Diminution, is upon a *medium* always exceeding their Decay.

And since we have reason to believe what we see, namely, the Excess of Generations above their Decays, we have reason to believe it was so always; and if it were so always, it is not possible the Generations of Mankind could be eternal.

For if we should suppose the Eternity of the World, an Increase of but one Man in the Period of Millions of Years would have filled more space than all the Earth or the Concave of Heaven could receive: For in as much as in a Duration that never had a Beginning there must needs be infinite Millions of Years, the Increase of one Man in every Million above what was before, must needs produce an infinite coexisting number, and an infinite *moles* of Mankind; much more if the Increase were in any measure proportionable to what our daily Experiences give us Instances of. Whereby we find, that although it be possible that several Families may be wholly extinct in a Kingdom in the Period of 5 or 600 Years, and though possibly in some one Age there may be a diminution of the People of a Kingdom from what they were in the Age before; yet in the succession of a very few Ages they again increase beyond the diminution, and neither successively decrease, nor hold an equality; which we may reasonably suppose to be the common condition of the World.

And as to that Supposition, That even upon a Natural account, when the World grows too full of Inhabitants, they must break the Bonds of Society and Peace, and so diminish each other by Internecions and Wars.

Wars. As Air compressed, or expanded beyond the measure of the Vessel containing it, breaks the Vessel wherein it is compressed to give it self room. I shall only say, that although the Pride and Ambition and Insolence of neighbouring Princes or People, or the sense of too much Oppression and Hardship hath many times raised Wars; yet we never knew Wars to grow merely upon the account of the Fulness of any Country: indeed that Plethory hath many times occasioned Emigrations, and Transplantations, and Navigation, and increase of Trade or Manufactures and other industrious Employments; but Wars have always grown upon other Occasions: though, as I before observe, the great, wise, and intellectual Governour of the World hath by his over-ruling Conduct of the Passions of Men, brought about ends for the convenience and benefit of Mankind in this respect also, as well as to punish their Excesses and Enormities.

CAP. XII.

The Eighth Evidence of Fact proving the Origination of Mankind, namely, the Consent of Mankind.

I Come now to the Eighth and last Evidence of Fact, proving the Origination of Mankind, namely, The general Consent of Mankind in that Perswasion, wherein I shall pursue this Order:

First, to consider the more Popular or Vulgar Opinion of Nations in all or most Places and Ages of the World, agreeing in this Sentiment or Perswasion, and what may be reasonably concluded of the truth, or at least great probability of the truth of that Supposition of the Origination of Mankind, upon the Supposition of such a Consent. Secondly, to consider the more restrained Perswasion of the Learned and more considerate sort of Men, that guided themselves in their Sentiments not barely upon Popular or Vulgar Opinions, but searched deeper into the Reasons and Evidences of things; namely, the learned Tribe of Men, Physiologists and Philosophers: And then I shall also consider the several Suppositions of those that agreed in that Perswasion touching the several Manners and Methods of such Originations, and wherein their several Suppositions seem to be deficient, insufficient, or untrue.

First, touching the National or Popular Opinions touching the Origination of Mankind.

There hath prevailed among the generality of Mankind a common Perswasion, that Mankind had an Original *ex non genitis*; and those Nations that pretend to the greatest Antiquity, suppose themselves to be *Terrigenæ*, or at least by some other Method than the ordinary course of Generation.

Kircherus in his *Oedipus Aegyptiacus*, *Syntagm. 3. Cap. 1.* out of *Maimonides* gives us an Account of the *Zabei*, descended from *Cush*, and inhabiting the Coast of the *Red Sea*; that though they held the World eternal, yet supposed the first Man *Adam* to be begotten in the Moon, of a Father and

and Mother, and from thence he came into this lower World, and was called *Apostolus Lune*, and taught Men to worship the Moon: and for this he cites *Maimonides*, *l. 3. cap. 29.* though the late Translation mention nothing of his proceeding from the Moon, but of his coming out of *India* into *Babel*, and teaching Men the Worship of the Moon: this Fable the *Rabbi* confutes. *Diodorus Siculus* gives us an Account of the Opinion of the *Egyptians*, *lib. 1. cap. 2.* who though they pretend a vast number of Years to have passed since the Origination of Mankind, yet they suppose it had an Original; *Et ab orbis initio primos homines apud se creatos*: and they infer it from the Fertility of their Soil by the Inundation of *Nilus*, which at its recess leaves so fruitful a Tincture, that thereby and by the heat of the Sun, Animals have their visible production, part after part: And yet both *Aristotle*, *l. 2. Meteoron.* and *Herodotus* in *Euterpe* do with great probability evince that the fruitfulest part of *Egypt*, namely, the part called *Delta* where the *Nile* overflows, is an Exaggeration, or Ground gained by the Inundation of *Nilus*.

Herodotus, *ubi supra*, tells us, That in the time of *Psammiticus* sometimes King of *Egypt* there was a Competition between the *Egyptians* and *Phrygians*, who were the first People, or the *Terrigenæ*, and that by the Experiment of the Education of two Infants which should not be instructed, by their Natural Speech in the Language of *Phrygia*; the *Phrygians* carried the priority. The thing is fabulous, all the use that is to be made of it is, That there was a common Opinion in the Nations of the World, that there was some Inception of Mankind otherwise than by the way of Natural Procreation.

Laertius, in *Proæmio*, supposeth the *Grecians* to be the first Men, *A quibus nedum Philosophorum, sed hominum genus initium habuit.*

The above named *Diodorus Siculus*, *lib. 4. cap. 1.* tells us that the *Ethiopiæ* claim a greater Antiquity than the *Egyptians*, who borrowed many of their Laws and Customs and Religion from them: that as *Ethiopia* was the fittest and most congruous place for the first Production of Men and Beasts, in respect of the vicinity and constancy of the Sun; so, *de facto* the *Ethiopiæ* were the first Men that were on the Earth, and *Terrigenæ*. *Ferunt, Ethiopes primos hominum omnium creatos esse; cujus rei conjecturam ferunt, quod non aliunde homines in eam accesserunt, sed in ipsa geniti merito Indigetes omnium consensu appellantur. Et quidem verisimile est eos qui sub meridie habitant primos à terra fuisse homines genitos; nam Solis ardore terram qua humida erat arefaciente, atque omnibus vitam dante, decens fuit locum Soli propinquorem primò naturam animantium tulisse.*

De Laet in his History of the Original of the *Americans*, pag. 178. tells us of the Perswasion of divers of the *Americans*, that held there is one God; *Qui omnia creavit, dein plures in terram defixerat sagittas, è quibus hominum genus ortum & propagatum fuit*: though they also held other inferior Deities: And Pag. 106. *Alii narrant, è quadam specu per fenestram exiisse sex aut nescio quot homines, eosque initium dedisse humano generi in loco qui ob eam causam dicitur Pacari tampo, atque ideo opinantur Tambes esse hominum antiquissimos. Vide Acoft. l. 1. cap. 25. ad idem.*

Thus it seems there hath been in all Nations, that have had any manner of Order among them, a common Opinion of the Origination of Mankind; though they have dressed up the Supposition with various Fictions

and Imaginations no less vain than the Poets, who supposed Men to grow of the Serpents Teeth sown by *Cadmus*, or the Stones thrown over their Heads by *Deucalion* and *Pyrrha*.

This persuasion and opinion of Mankind of their Original, might be conveyed to the generality of Nations by some of these ways:

1. By some Tradition, derived down unto them from those that lived before them; but then if we look after the original or first head of this Tradition, it may be hard positively to define from whence it began; but it seems probable, that it was from those first Parents of Mankind, and so the Tradition founded in the Truth of the Fact, and originally delivered by them that perfectly knew it to be so: It is true, there are, and have been very many things entertained as true by Traditional Derivation, which either have not any sufficient evidence of their Truth, or it may be some things that do oppose the credit of it; and it were a piece of vain credulity to believe every thing, that either vulgar Tradition, or the Artifices of Men, have imposed upon over credulous succeeding Ages and Persons: And we see, that as the Origination of Man hath been traditionally received, so those Adjuncts and Fables with which it hath been dressed up, have been also received and believed with it. But to this I say:

1. That the Origination of Man, as a Matter of Fact, could hardly be thought of, but either by very considering and thinking Men, whereof hereafter; or by such, as being the first Parents of Mankind, knew their Original. And if it be said, they could no more know their Original than a Child new born: It is true, if the Production of Mankind were such at first as it is now, or as some of the mistaken Heathen thought it, (*viz. in Infantia*) it may be so: But we shall see, that if Mankind had their Original *ex non genitis*, (as most certainly they had) then the Formation of Mankind was in his full and perfect Constitution, and not by a gradual progress from Infancy as now.

2. That the Tradition of the Origination of Mankind seems to be universal; but the particular Modes or Methods of that Origination, excogitated by the Heathen, were particular, and not common; and therefore, though these be fabulous and deserve not our credit, yet they do not abate the credibility of the universal Tradition. The common Tradition and consent thereunto of the Existence of a Deity, carries in it a great moral Evidence of the Truth thereof, although the particular superadditions and multiplications of Deities, by the Fancies and Traditions of particular Ages or Nations, are fabulous and untrue: *Quod ab omnibus ubique & semper creditum est pro veritate habendum est*, though the various particular Modes, and Methods, and *Hypotheses*, are or may be fabulous.

3. That Mankind had an Original might be known naturally, and without a Revelation to the first Individuals of Humane Nature, and consequently might with evidence and certainty enough, even upon a moral account, be communicated by them to others, and so pass into an universal Tradition: But the Manner of the first Production of Men; what gradations were antecedent to it could not possibly be known to the first Parents of Mankind without Divine Revelation, because it must needs be antecedent to their Being, and therefore the particular Manner thereof

thereof could not, upon a bare natural or moral account, be any true Root or Foundation of such a Tradition, as according to the *Mosaical Hypothesis* of the Origination of Mankind, whereby we understand that *Adam* was created out of the Dust of the Ground, and then had an Intellectual Soul put into him; *Adam* might upon a natural account know that now he was, and that before he was not; and he might upon a rational account know, that such a Production of such a Being as he found himself to be, could never have been effected without the agency of a most powerful and wise Being, which we call Almighty God: And this Tradition, both that he was made when before he was not, and that he was created or made by Almighty God, he might with as great evidence and certainty traditionally communicate to his Descendants, as any other matter of fact, or rational deduction: But he could never know the manner of his own Production, or the particular Preparations antecedent to such his Being, without Revelation from God, or some intelligent Being that saw or knew the antecedents to his Constitution; neither could he without such Revelation or Discovery, deliver the same over traditionally with any certainty of truth to his Descendants. And consequently, the general Tradition of his Origination hath a Root of Credibility in it, to such a Man as will believe that any matter of Fact may be true that he sees not; though the particular manner of his Origination is not with any certainty credible to him, that either believes not there is any Divine Revelation, or that believes not the particular Method propounded is in truth a Divine Revelation.

So that the general Tradition that Man had his Origination *ex non genitis*, is a greater Evidence that it was true, than that he was made out of Arrows stuck in the Ground; or, *ex folliculis terra innascentibus*, as some Philosophers.

2. The Ground of this Persuasion hath sprung from such of the Philosophers, and other considerate Men, who upon a strict Enquiry and Examination have found it impossible that the successive Generations of Mankind could be Eternal, and consequently Infinite; and therefore have concluded with very great evidence of Reason, that it must needs have some other Origination in some one Period of duration; than what is now natural and common. But then being destitute of Divine Revelation, or at least not giving due credit thereunto, and being greatly in the dark, and not knowing well how to determine what that Method of the Origination of Mankind should be, some took up one Fancy, some another, to save the *Phenomenon*, according as their Imaginations led them. And hence it was, that some thought their Origination was not altogether unlike the spontaneous Production of Insects; only these being Annual, required no great contribution of Heavenly Influxes; but that of the Production of Men or more perfect Animals, *Non sine magna celestium corporum conjunctione sive mutatione*: Others again, more soberly attributed it merely to the Power and Wisdom of the glorious God: Others, to the efficiency of Angels; whereof in the next Chapter.

And this Contemplation of such Philosophers and knowing Men coming abroad into the World, the generality of Mankind subscribed to the truth of the grand *Hypothesis* it self; namely, That Mankind had at one time or other, or by some means or other an Origination differing

from the ordinary and natural method of Propagation now observed: And finding that the same held a singular congruity to the nature of things, and the general Conception and Reason of the Humane Understanding; the generality of the World entertained, and by Tradition transmitted this *Hypothesis* to their Posterity.

But finding the Philosophers and Wise Men so uncertain and disagreeing, *de modo*, and unable to give any satisfactory Resolution thereof, every Nation, and almost every Person took up what particular *Hypothesis* pleased them for the Method or Manner of such Origination; and herein the Wantonness of Poets, and the Crafts of their Heathenish Priests and Hierophants abundantly gratified the Fancies of the People with Superstrucions and Inventions of their own.

And indeed it is observable, that all those ancient Traditions of things that were truly done, and so delivered over and received by Mankind, as they have for the substance and main of them been preserved by the strength of this Tradition; so where the Holy Scriptures have not been taught or known, these Traditions have been admirably dressed by Sophistications and Superadditions, introduced by the Phantasies of Poets or the deceits of Heathenish Priests, or by the gradual corruptings of the Traditions themselves. Thus the History of the Creation, of the Flood, of the Tower of *Babel*, of *Noah* and his three Sons, many of which are, for the substance of them, preserved among the Barbarous People of the *East* and *West Indies* at this day, as appears by those that have written the Relation, especially of the *Americans*, as *Acofta* and *De Laet*, have nevertheless been covered over with divers fabulous and devised Additions and Stories: and so it happened also among the ancient Heathenish Writers, as hath been at large demonstrated, especially by *Bochart* in his *Phaleg*.

Now as touching the Opinion of the Learned Tribe, which, as before is shewn, fell into two Parties: The one holding the Eternal Successions of Mankind; whereof in this Second Section: The other holding a First Inception of Mankind, *Ex non genitis*.

The latter Opinion far out-ballanceth the former, both in the reasonableness thereof, and the multitude and great Learning of those that so asserted it; and should, according to the propounded Method, be here declared.

But because I intend in the next Section to examin the various Suppositions of those of the latter sort, touching the Manner of the Origination of Man, I shall reserve that Business to the next Section; wherein I shall at once consider the Learned ancient Authors that hold the Origination of Mankind, and shall also deliver and examin their several Suppositions touching the same.

SECT.

S E C T. III.

C A P. I.

The Opinions of the more Learned part of Mankind, Philosophers and other Writers, touching Man's Origination.

I Have in the former Parts of this Enquiry shewed, that there have been among Philosophers and other Heathen, and some modern Writers, Two great Opinions touching Man's Origination: 1. Those that thought it indeed to be without any Origination, but Eternal; and this Opinion they took up principally upon two Reasons: 1. Because the *Medium* or Clew by which they guided themselves, was the common, constant Method of Productions by successive Generations; and they thought it more suitable to take their Measures, and make their Conclusions consonant to the course of Nature, which they saw and observed, and judged to be always uniform, and like it self; which could not be such, if Mankind had any other Method of Origination than now it hath: And in Natural Appearances, Causes and Effects, they thought it not becoming the *Genius* or Spirit of a Philosopher to call in any other Assistant or Producent than what was and is the ordinary Rule, Course, and Law of Nature as they now find it. And by this means they thought that they proceeded consonantly both to Nature, and to themselves. 2. Because that among those ancient Philosophers that either supposed the Origination of Mankind to be either casual, as *Epicurus*, *Democritus*, &c. or to be natural, from the Earth, and conjunction of the Influences of Heavenly Bodies in some Periodical Aspects, or partly natural, and partly fortuitous, or at least spontaneous, as Insects arise: I say, in and among these various Suppositions of an Origination of Mankind (yea and perfect Animals) *ex non genitis*, they found so much incertainty, improbability, and repugnancy, that they threw them all aside, together also with the Beginning or Origination of Mankind; and took up that more commendous, and more suitable, as they thought, to the Laws which they observed in Nature; and concluded, That the Generations of Mankind and of perfect Animals were without beginning; but always obtained in the same manner as now they are. Of this Opinion was *Ocellus Lucanus*, and likewise *Aristotle*, though in some places he seems to be doubtful, and although *Plato* in his *Timæus* seems to assert an Origination of Mankind, yet in some other places his Expressions are doubtful: and therefore *Censorinus* in his golden Book *de Diè Natali*, reckons as well *Plato* as *Aristotle*, *Ocellus Lucanus*, *Archit. as Tarentinus*, *Xenocrates*, *Dicæarchus*, *Pythagoras*, *Theophrastus*, to be Assertors of the Eternity of Mankind.

And this Opinion I have examined in the Chapters of the Second Section of this Book, and offered Reasons Physical, Metaphysical and Moral against it. The last Moral Reason which I offered was, The received

received Opinion of Mankind asserting the Origination of Man, and that as well of the common sort of People as of the Tribe of the Learned Philosophers.

The former I dispatched in the last Chapter, but the Suffrage of the *Gens literata* I reserved to this Section, because thereby at once I may with the same labour shew the Opinions of Learned Men among the Heathen, asserting the Origination of Mankind, and what their several Sentiments were concerning the manner of it: And therefore I shall be constrained herein to mention the Opinions of some of those Learned Philosophers above-mentioned, and to add some others of the contrary Perswasion, which out-balance the former.

2. The second general Opinion, was of those Learned Philosophers that held an Origination of Mankind *ex non genitū*; and the Reason moving them to this Perswasion was, not only the great Tradition that obtained generally in favour of it, and the great reasonableness of the Supposition it self; but also the many absurd Consequences, and indeed irreconcilable Contradictions that they found in the *Hypothesis* of an Eternal Succession of Humane Generations without beginning: Inasmuch that the Assertors themselves of Eternal Generations were doubtful of the truth of their own Perswasions, as will hereafter appear.

And those of this latter sort were even *Epicurus* himself, *Anaximander*, *Empedocles*, *Parmenides*, and *Zeno Citicus* the great Founder of the Sect of the *Stoicks*, with those that followed or favoured it. But above all, the great Law-giver *Moses*, who was divinely inspired, and yet if he had not that advantage of Divine Infallibility, but stood barely upon the great credibility both of his Person, his Learning, and the *Hypothesis* it self which he delivered, he hath as great a weight, even upon a natural, moral, and rational account as any, or all the rest put together. But because I intend a particular Explication of the *Hypothesis Mosaica*, I shall not mingle this among the other Opinions, but reserve it for the next Section.

The Heathen Philosophers that held the Origination of Mankind *ex non genitū*, have these things in general wherein they agree one with another, and with the Truth it self; and some things wherein they differ among themselves, and in some things from the Truth.

1. They herein agree both among themselves, and with the Truth; and with that excellent and divine Relation of *Moses*, *Gen. 1.* That Mankind is not Eternal, but had a Beginning *ex non genitū*.

2. They herein also agree among themselves, and with the Truth, That it is most absolutely necessary (if Mankind had a Beginning or Origination) it must needs be in a differing kind and manner from that common course whereby Mankind is now propagated. This is asserted by those that hold the Origination of Mankind by the Efficiency of Almighty God (consonant to the *Mosaical Hypothesis*) either immediately, or partly by the Instrumentality of Angels, as *Zeno Citicus*, *Plato* and others: it is also asserted by them that hold the Origination of Mankind to be at first fortuitous, as *Epicurus* and *Democritus*. And therefore as to these Perswasions and Suppositions, it is not only necessary that they should suppose a differing manner of the first Origination of Mankind from what now obtains; but it is consonant also to their Principles, and the grounds of their

their Supposition that it must be so: This is also asserted by those that suppose the Origination of Mankind to be purely natural, and according to the constituted Rule of Nature. But yet this Supposition, though most necessarily true where an Origination *ex non genitū* is once supposed, yet it seems less suitable to the Principles of those Men that assert such a natural Production of Mankind as is by them asserted, because they mancipating all Productions and Effects to the Laws of Nature, and governing their thoughts, and taking their measures barely by it, have no reason to think or believe any other Method of Production of Mankind to have at any time been any otherwise than as they see it now to be; which, as is before shewn, was the reason why *Aristotle* inclined to the Opinion of the Eternity of Humane Generations, because Nature is presumed to be consonant to it self, and always to have been what once it was.

3. But in the Explication of the Cause and Manner of this Origination of Mankind, therein they differed very much among themselves.

This difference consisted principally in two great Considerations; 1. In the true stating of the efficient Cause of this Origination of Mankind: 2. In the Manner, Method, and Order of such Origination.

As to the difference touching the Cause of such Origination, and the nature of that Cause thereof:

1. Some assigned a bare fortuitous Cause of the first Origination of Mankind, as *Epicurus*, and his Explicator *Lucretius*; for although in some places they are driven to assert some determinate *Semina* of Mankind and perfect Animals, to avoid that indefinite and unlimited excursion of Atoms; yet they that suppose these *Semina*, do suppose a fortuitous Coalition of Atoms to the Constitution of these *Semina*, and so upon the whole account it is fortuitous.

2. Some assign a natural determined Cause of the first production of Mankind, namely, the due preparation of the fat and slimy Earth after a long incubation of Waters, and some admirable Conjunction of the Heavenly and Planetary Bodies, in some certain Period of Time at a long distance from us, which as naturally and necessarily produced the first Couples of Mankind, and likewise of other perfect Animals, as necessarily and naturally as the return of the Vernal Sun produceth divers sorts of Insects, which though they are called *sponte orientia*, yet they arise meerly from a Connexion of Natural Causes, and the various Ferments and Dispositions of the Elementary, and Positions and Influxions of the Heavenly Bodies: Thus some of the Ancients, and also *Avicen*, *Cardanus*, *Casalpinus*, *Berogardus*.

3. Some of the Ancients, that most truly assign the Origination of Mankind to the most High, Intelligent, Powerful, Beneficent Being, *viz.* Almighty God, and the *Beneplacitum* and *Fiat* of his Omnipotent Will; as *Zeno Citicus*. And thus their differences arose touching the Cause of this Origination.

As to the second, namely, the different Manner of the Origination of Mankind, *Censorinus ubi supra*, *Euseb. prepar. Evang. lib. 1. cap. 7, 8, 9.* and others give it as followeth.

1. The Opinion of *Anaximander*: *Videri sibi ex aqua terraque calafatos, exortos esse sive pisces, sive piscibus similissima animalia, in his homines crevisse,*

crevisse, fetusque ad pubertatem intus retentos; tum demum ruptis illis, viros mulieresque qui jam se alere possent, processisse.

2. The Opinion of Empedocles and Parmenides: *Primo, membra singula ex terra quasi pregnante edita, & deinde coisse, & effecisse solidi hominis materiam, igni simul & humori permixtam.*

3. The Opinion of Democritus and Epicurus: *Ex aqua limoque primum homines procreatos; viz. uteros limo calefacto radicibus terræ coherentes primum increvisse, & infantibus ex se editis ingenitum lactis humorem, natura ministrante, præbuisse, quos ita educatos & adultos genus hominum propagasse.*

4. The Opinion of Zeno Citicus, the Founder of the Stoical Sect: *Principium humano generi ex novo mundo constitutum putavit, primumque homines ex solo admniculo divini ignis, id est, Dei providentia, genitos.*

Ovid, though he were a wanton Poet, and his *Metamorphosis* full of Fictions, yet in the Description of the Creation he hath out-done many of the more serious Philosophers; and I believe was not only acquainted with the *Mosaical* History, but with most of those Writings that were extant in that time, containing the Origination of the World and Mankind; though he mingle his own Fancies with what he so learned: He gives us an account of the Origination of Man, *Lib. 2. Fab. 2.* and of other Animals, *Ibid. Fab. 8.* Of the former,

*Natus homo est, sive hunc divino semine fecit
Ille Opifex rerum mundi melioris origo,
Sive recens tellus, seductaque nuper ab alto
Æthere, cognati retinebat semina cæli;
Quam natus Iapeto mistam fluvialibus undis
Finxit in effigiem, moderantum cuncta decorum.*

Touching the latter, the Origination of other Animals after the Deluge, he gives an elegant Description, and from the Instance of the Productions after the Inundation of *Nilus*;

*Ex eodem corpore sepe
Altera pars vivit, rudis est pars altera tellus.*

So, after the Flood, by the moisture of the Ground and heat of the Sun,

*Tellus intulenta recenti
Solibus æthereis, altoque recanduit æstu,
Reddidit innumeras species.*

As to the Origination of brute Animals, he seems to ascribe the same in effect as happens in the equivocal production of Insects.

But as to the Origination of Man, he seems to agree with the *Stoicks*, but gives thereof a fuller Explication; namely, 1. That it was a Seminal Production, and not so fortuitous as that of Animals. 2. That these *Semina humane nature* were either the immediate Productions of the great *Opifex rerum*, or at least were left in the Earth by the Celestial Nature, while it stood mingled therewith in *massa Chaotica*: By which means, it seems, he thought not that the production of Mankind was by

by a gradual process and maturation in the Earth, and from it, like the ordinary course of the Formative process in *utero matris*, in the ordinary course of Generation; but by a shorter and more compendious Method: For, according to the ancient Mythology; *Japetus* signified the Heaven, and *Japeti satus*; or *Prometheus* the Son of the Heaven, the Divine Providence which Almighty God exercised by the instrumentality of the Heavenly Motions: And the Ancients attributed the Formation or Configuration of the humane Body in its first original to this Divine Providence, whereby those Seminal Particles before described being taken and included in convenient Elementary Matter, the whole Composition was by the Divine Providence moulded up into the humane Shape and Consistency in its first Origination. This was that Notion that divers of the Ancients, and Ovid out of them had concerning the first Origination of Mankind; vide *Calium Rhodogin. l. 7. cap. 19, & 20.* and seems to have some analogy with that Hypothesis of *Plato* in his *Timæus*, hereafter mentioned.

Thus we have an account of the Opinions, 1. Of the *Pythagorean* Philosophers: 2. Of the old *Academicks*: 3. Of the *Peripateticks*, all seeming to agree in the Supposition of the Eternity of the World: 4. Of the *Epicureans*, under which I include that of *Anaximander* and *Empedocles*, differing only in the *modus*: 5. Of the *Stoicks*, which give a true Account both of the Origination of Mankind, and of the Manner of it: where I have been the longer, because it is a Key to all that follows, and gives us a Scheme of it.

These several Opinions, and the Authors and Assertors thereof, I shall here farther illustrate and examin.

1. Touching the Opinion of the *Pythagoreans*, because we have nothing extant of his writing, I can say little more touching his Opinion; though some suppose, he was not of Opinion that the World or Mankind was Eternal.

2. Touching *Plato*, it is true; he seems very various and Poetical in his writing; and by reason of the Method of his Discourses, by way of Dialogues, it is hard to determin what his Opinion was concerning the Eternity of the World, or of the Generations of Mankind.

In the beginning of his third Book *de Legibus*, but especially in the middle of his sixth, under the Persons of *Atheniensis hospes*, and *Clinias*, he intimates his Opinion of the Eternity of the World and Mankind: *Athen. Scire omnes oportet, hominum generationem vel nullam prorsus unquam initium habuisse, neque terminum habiturum, sed fuisse omnino semper & fore; aut si capit, inestimabili ante nos temporis magnitudine incepisse. Clin. Planè.* And again, in his *Menæxemus*, under the Person of *Socrates* commending the Country of *Attica*; *Altera ejus laus erit, quod eo tempore quo tellus omnia animalia omnigena producebat, feras & armenta omnia; tellus dumtaxat nostra ad hoc sterilis erat, agrestibusque animalibus vacua, propriè verò ex omnibus animalibus hominem genuit, qui ceteris intelligentia præstat, solusque jus ac deos colit.* And again, in his *Timæus*, in the Person of *Timæus* he gives us an Account of the Original of Mankind, and the manner of it, to this effect; That when Almighty God had made and set in order the great World, and endowed it with a living Soul, and thereby it became a great Animal, and had also made a sort of inferior Deities (*dii ex Deo*) and endowed

endowed them also with Immortality, he brings in the great God bespeaking these inferior Deities; *Accedite vos secundum naturam ad animalium generationem; ita ut vim imitemini meam, qua in orsu vestro sum usus. Atque ejus quidem animalis quod in ipsis tale futurum est ut cum immortalibus appellatione conveniat, divinumque vocetur, principatumque teneat, & justitiam simul ac vos ultro colat: Ego vobis semen & initium tradam, vos cetera exequi par est, ut immortalis natura mortalem attextentes, faciatis generetisque animalia; subministrandisque alimenta augeatis, & consumpta rursus recipiatis. Hac factus, in eodem cratere in quo mundi totius animam permiscens temperavit, superioris temperationis reliquias miscendo perfudit, &c. Satis autem & quasi sparsis animis, per singula singulis convenientia temporum instrumenta, fore ut animal nasceretur; quod omnium animalium maxime esset divino cultui debitum.*

Thus he now gives us an account of the Creation of Man, namely; of his Soul by the great God. Therefore *Plato* seems not to be reckoned among the firm Assertors of the Eternity of Mankind, nor of the World; and accordingly his follower *Proclus* herein agrees with his Master.

3. Touching *Aristotle*, and the *Peripateticks* that were his followers, as *Simplicius*, *Averroes*, and others (except *Philoponus*) their Opinion seems to be for the Eternity not only of the World, but of Mankind, and of the perfect Animals: so that in *l. 3. de Generatione Animalium, cap. 1.* he determines, *Quod non fuit primus leo, &c.* and in his way of reasoning follows *Ocellus Lucanus*; who was a more ancient Philosopher, and tenaciously asserted the Eternity of the World.

Yet *Aristotle* himself seems not to be over-confident of this Opinion, but holds it as a Problem, and in some places seems to give Intimations to the contrary. 2. *Politie, cap. 6.* *Putandum est primos homines sive ex terra geniti fuerunt, sive ex corruptione aliqua servati, ignaros fuisse, &c.* and in his 3^d *de Generatione*, upon the various Productions of the Earth and Water, *Ut anima quodammodo plena sunt omnia:* and in his 10th *Problem, sect. 15.* *Qui de natura differunt, animantia in principio orta esse dicunt ingenti aliqua mundi universique mutatione:* and in his 64th *Problem* of his 10th *Section,* *Quam ob causam animantium alia non solum coitu sed etiam sponte natura precreantur, alia ex coitu duntaxat proveniunt, ut Homo & Equus, etsi non ob aliam causam, tamen quod aliis gignendi tempus breve statutum est. Itaque fieri non potest ut tempus quod vim obtinet generandi amplifietur prorogeturque, sed temporum vicissitudine prorogationeque, ut prorogetur contingit; aliis multo generatio ampliari solet: etenim vel anno vel decem mensium spatio confici assolet, quo pacto vel nullo pacto, vel ex coitu procreari illa necesse est.* So that he attributes the reason of the new production of Men and great Animals only to the time that they are to be perfected in *utero.* And *l. 1. Topicor. cap. 11.* he states the Question, *whether the World had a Beginning, or not?* to be a Problem; wherein probabilities are on either side.

By these passages of *Aristotle* himself, he seems not to be so positive in his Opinion touching the Eternity of Mankind at least; but rather inclines to that for the Eternity of Generations, upon these Reasons: 1. Because he was not willing to suppose any other state of things in the World than what he found; and since he never found any production of Mankind, or the perfect Animals, *ex non genitis*, he therefore concluded them to have been ever produced in that method that he found them in the ordinary

ordinary and settled course of Nature. 2. Because, as he was not satisfied with the strange and improbable Hypotheses of *Empedocles*, *Anaximander*, and *Democritus* touching the Production of Mankind; so he could not excogitate any of his own which had any clearness or certainty to him, being utterly unacquainted (for ought we know) with the *Mosaical Hypothesis.* 3. Because he being a great admirer of Nature, and the ordinary proceeding thereof, he was not willing to entertain any such Supposition as was not evident, according to the ordinary method of Nature, which he so much venerated; especially such as might seem dissonant to his great Hypothesis of the Eternity of the general Frame of the rest of the Universe.

And therefore, *lib. 3. de Generatione Animalium, cap. 11.* upon a Supposition of a first Production of Men or Animals, he conforms his Thesis concerning them to his general Doctrine: *Quamobrem de prima hominum atque quadrupedum generatione (si quando primum terrigena oriebantur, ut aliqui dicunt) non temere existimaveris altero, de duobus his, modo oriri; aut enim ex verme constituto primum, aut ex ovo: quippe cum aut intra se habeant cibum ad incrementum necesse sit, qui quidem conceptus vermis est; aut alinnde accipere, idque aut ex parente, aut ex parte conceptus. Itaque si alterum fieri non potest ut effluat ex terra, quomodo ceteris animalibus ex parente, relinquatur necessario, ut ex parte conceptus accipiatur. Talem autem generationem esse ex ovo aut verme fatemur. Ergo si initium ullum generationis omnium animalium fuit, alterutrum de his fuisse probabile esse apertum est. Sed minus rationis est, ut ex ovo prodierint; nullius enim generationem animaleam talem videmus; sed alterum tum sanguineorum que diximus, tum exanguium, qualia sunt insectorum nonnulla, & ea que testa operiuntur, de quibus agitur. Non enim ex parte aliqua oriuntur, ut ea que ovo nascuntur.* Thus he conforms his Position to his general Doctrine, upon a Supposition of the spontaneous Origination of Animals.

4. I come to the general Doctrine of the *Epicureans* under which I include that of *Anaximander* and *Empedocles*, who though they differ something in the manner of their Hypothesis, yet they agree in the main for a kind of spontaneous production out of the Earth. 1. *Empedocles* seems to think that the Limbs or Members of Men grew here and there scattered and distinct, and that they were after concrete together by Heat and Moisture, into the stature, as it seems, of a full grown Man. 2. *Anaximander* thinks that they grew into the full stature of Men and Women in the involucre of something like Fishes, and then brake out into the World, as it seems, in their perfect stature. And that near unto this was the Opinion of *Anaximander*, appears by *Plutarch, in Placitis Philosophorum, l. 5, cap. 19.* *Prima animalia in humore nata corticibus contenta spinosis, adultiora autem facta ad siccitatem descivisse, ruptoque cortice non multum temporis supervivisse.* Only in the recital of his Opinion by *Censorinus* and *Plutarch*, they both seem to agree in this, that they were of full growth when they thus broke their Prisons. 3. *Democritus* and *Epicurus* seem to think that they were hatched in these *Folliculi* or Terrestrial Excrescences, and then nourished by a Juyoe of the Earth, until they were able to shift for themselves. *Lucretius* hath given us the Doctrine of *Epicurus* in Verse, in his fifth Book, *Pag. 665.* which is rendred in Prose by *Gassendus, in Synagmate Philosoph. Epicur. sect. 2. cap. 4.*

*Tum ubi terra dedit primum mortalia secla,
 Multus enim calor atque humor superabat in arvis;
 Hinc ubi quaque loci regio opportuna dabatur,
 Crescebant uteri terra radicibus apti;
 Quos ubi tempore maturo patefecerat atas,
 Infantum fugiens humorem, aurâsque petissens
 Convertibat ubi natura foramina terra,
 Et succum venis cogebat fundere apertis:
 Consimilem lactis sicut nunc semina quæque
 Quum peperit dulci repletur lacte, &c.*

And again, *Lib. 2. Pag. 265.*

*Denique caelesti sumus omnes semine oriundi;
 Omnibus ille idem Pater est, unde alma liquentes
 Humorum guttas mater cum terra recepit.
 Facta parit nitidas fruges, arbutaque leta,
 Et genus humanum, &c.*

And afterwards, in the same Book, *Pag. 281.* he gives us the reason why the Earth gives not the same Productions now.

*Jamque adeo fracta est atas, effataque tellus,
 Vix animalia parva creat, qua cuncta creavit
 Secla, deâitque ferarum ingentia corpora partu.*

But although *Epicurus* and his followers suppose that small and imperceptible Atoms of Matter are the first *Principia* of all Corporeal things, yet he doth suppose that these *Principia* are first moulded into *Semina*, or *Seminales molecule*, which were the immediate Constituents of all compleat Bodies, whether animate or inanimate; whereby all things are contained and determined within certain *Species*. *Vide lib. 1. pag. 35.*

*At nunc seminibus quia certis quidque creatur,
 Inde enascitur, atque oras in luminis exit,
 Materies ubi inest quotusque & corpora prima,
 Atque hac re nequeunt ex omnibus omnia gigni;
 Quod certis in rebus inest secreta facultas.*

Which *Gassendus* thus renders, *Sect. 2. Cap. 4. in Syntagmate Philosophiæ Epicuri*, having given us an account of the Concretion of the Heavenly and Elementary Bodies, he thus determines out of him concerning the smaller Parts of Nature: *De minus præcipuis & veluti partium particulis, videtur in prima illa commixtione effecta fuisse generabilium & corruptibilium rerum, varia semina ex quibus res varia & conformata tum fuerunt, & deinceps magna ex parte propagari etiam potuerunt.*

And this casual Production of Mankind at first was not only the Supposition of *Epicurus*, but also of the *Egyptians* and *Phœnicians*.

Touching both, *Calius Rhodog. lib. 2. cap. 11. Phœnicum quidem & Ægyptiorum theologia, casu homines & reliqua animantium genera prorepisse è terra*

terra asseverebatur. And *Diodorus Siculus, lib. 1.* gives us a large Relation of the Opinion of the *Egyptians*, very like to that of *Epicurus* and *Anaximander*; wherein, after some declaration of the Manner of the first Separation of the Elementary and Heavenly Bodies, he proceeds to tell us, *Terram verò lutosam evasisse, & omninò mollem: Hæc primum cum Solis ardore densior evasisset, ejus postmodum superficie vi caloris tumefacta, multis in locis humores esse concretos, in quibus putredines tenui contexta pellicula sint excitata; quemadmodum in paludibus & stagnis Ægyptiis adhuc videmus accidere, cum frigidam terram subito æstus aeris calefacit. Cum verò in humidis calore adhibito generatio fiat, & noctu quidem circumfusus aer humorem præset, qui die Solis virtute consolidatur: tandem putredines illæ ad summum perductæ, adveniente veluti partus tempore, exutis contractisque pelliculis, omne genus educunt animantium: quorum ea quæ majorem sortita calorem sunt, in superiorem regionem volatilia effecta abierunt; quæ verò plus terra continebant, serpentina, aliæque terrestria evaserunt animantia. Naturam aquosam nata in sui generis elementum delata sunt, & appellati Pisces: Terra deinde cum Solis ardore, tum ventis deinceps arefacta, à gignendis majoribus animalibus desit. Sed quæ generata erant, mutua commixtione alios animantes procreaverunt. Hac & Euripides Anaxagoræ Physici discipulus sentire videtur, cum in Menalippo cælum & terram mixta olim fuisse tradat, separata postmodum generasse singula, arbores, volatilia, feras, aquatilia, & omne mortaliū genus. De prima terre generatione quamvis præter opinionem nonnullis esse videatur, tamen ea quæ nunc sunt testimonium his videntur afferre. Nam juxta Thebaidem Ægypti, cum Nili cessavit inundatio, calefaciente Sole limum ab aqua relictum, multis in locis ex terra hiatu multitudo murium oritur: quod argumentum est ab ipso orbis primordio animantia similiter omnia generata esse. Eodem modo quoque & homines à principio genitos, in agris pastum quærentes vixisse. And again, in his second Chapter of that first Book: Tradunt Ægyptii ab orbis initio primos homines apud se creatos, cum bonitate felicitatæque soli, tum propter Nilum qui & multa generat, & suapte natura quæ genuit facillimè nutrit: nam arundinum radices præbet, & loton & Ægyptiam fabam, multaque præterea ad hominum victum exposita. Prima animantia apud se esse orta ea utuntur conjectura, quod nunc etiam in Thebaidis agro certis temporibus multi & magni generantur mures; quæ ex re plurimum stupent homines, cum videant anteriorem usque pectus & priores pedes murium partem animatam moveri, posteriori nondum inchoata, sed informi. Ex hoc perspicuum fieri aiunt, ab ipso orbis ortu primos homines Ægyptum protulisse. In nullo enim orbis parte accidit eo modo animalia creari. I have transcribed it at large, as *Ensebius* did before me, *Lib. 1. Præpar.* because it contains a large and full Exposition of the *Hypotheses* of those Philosophers that thus suppose an Origination of Mankind, and that by a spontaneous Production.*

In these precedent Opinions of *Anaximander*, *Empedocles*, *Epicurus*, and the *Egyptians*, there is something that agrees with that Truth that I have asserted, namely, The Origination of Mankind *ex non genitis*. And for this purpose these Instances are especially given by me. But there is something that I shall in what follows impugn, namely, The Method or Manner of such Productions, which according to these Mens Opinions is either purely Casual, as *Epicurus* and his followers held; or at least Natural and Necessary, as *Anaximander*, *Empedocles*, and some of the loose passages of *Aristotle* seem to import, *viz.* by some great Conjunction of

of the Heavenly Bodies, and some great Natural Mutation in the Elementary World.

5. I now come to the farther Examination of the *Hypothesis* of the *Stoicks*, who also agree in this main Truth, That Mankind had an Original *ex non genitis*: and the Founder of that Sect hath given a rational and true Method thereof, namely, That this Origination was by the Power and Will of Almighty God: But when those of this Sect came to give a more particular Explication of the Manner of this Production, they seem to differ.

Tully was generally well inclined to the *Stoical* Sect, yet sometimes he is a *Stoick*, sometimes an *Academick*, sometimes an *Epicurean*, and indeed in some of his Discourses which he hath digested in Dialogues, he seems to be every thing.

In his first Book *de Legibus* he hath this passage touching the Origination of Man: *Nam cum de natura omni quaeritur, disputari solent nimirum ista: perpetuis cursibus, conversionibus caelestibus extitisse quandam materiam ferendi generis humani, quod sparsum in terras, atque satum, divino auctum sit animorum munere. Nam quod aliquibus coherent homines, e mortali genere sumserunt, quae fragilia essent, & caduca: animum esse ingeneratum a Deo: ex quo verè vel agnatio nobis cum caelestibus, vel genus vel stirps appellari potest. Itaque ex tot generibus nullum est animal, praeter hominem, quod habeat notitiam aliquam Dei; de ipsisque hominibus nullagens est neque tam immansuetas, neque tam fera, quae non, etiam si ignoret, qualem habere Deum deceat, tamen habendum sciat. Ex quo efficitur illud ut is agnoscat Deum, qui nude ortus sit, quasi recordetur ac noscat.* By this he supposeth that there might be as it were a Profemination of the Humane Fabrick by the Conversion of the Heavens, and then the same were stored with Souls immediately produced by Almighty God.

Seneca, following the received Opinion of the Vicissitudes of the Destruction of the inferior World by Floods and Conflagrations, and the Restitutions thereof by the Power of God, though he seems to admit Eternal Vicissitudes of such Making, and Unmaking, and Restitutions of the inferior World, in the latter end of his third Book of Natural Questions, before cited, *Sect. II. Cap. 9.* speaking of the Destruction of the World by Universal Floods: *Qua ratione inquis? eadem qua conflagratio futura est; utrumque fit cura Deo visum ordiri meliora, vetera finire: aqua & ignis terrenis dominantur; ex his ortus, ex his interitus.* And in the end of that Book: *Nec ea semper licentia undis erit; sed peractò exitio generis humani, extinctisque pariter feris in quarum homines ingenia transierant, iterum aquas terra sorbebit: natura pelagus stare aut intra terminos suos fervere coget, & rejectus è nostris sedibus, in sua secreta pelletur Oceanus; antiquus ordo revocabitur, omne ex integro animal generabitur, dabiturque terris homines inscius scelerum, & melioribus auspiciis natus; sed illis quoque innocentia non durabit, nisi dum novi sunt.*

And with this seems to accord the Judgment of *Plutarch*, 2. *Symposiac. quest. 3.* and out of him, *Macrob. in 7. Saturnal. cap. ult.* where in the dissertation of that seeming ludicrous Question, *Ovumne prius an Gallina?* the Disputant for the latter concludes; *Natura primum singula animalia perfecta formavit, deinde perpetuam legem dedit ut continuaretur propagatione successio.* And *Plutarch*, *Probabile est primum ortum ex terra temporis per-*

fectione absolutum fuisse, nihilque indigentem hujusmodi instrumentis, receptaculis, & vasis qualia nunc ob imbecillitatem natura parat & machinatur patiensibus.

This was the Sentence and Judgment of the *Stoical* Philosophers touching the Origination of perfect Animals and Men.

Upon all which foregoing Discourse it should seem, That the generality of the Learned World rather supposed an Origination than an Eternity of Mankind; and this upon two great Motives.

1. A Tradition which seems generally to have been derived unto Mankind from the first Parents thereof, and so generally believed and entertained.

2. A great congruity of Reason that attended this *Hypothesis*, and an extrication thereby of the Minds of considering Men from infinite Difficulties which the Supposition of Eternal Generations doth necessarily produce.

I should now come to those Philosophers and Learned Men of later Ages, *Avicenna*, *Cardan*, *Pomponatius Cisalpinus*, *Berogardus*, and others; which nevertheless I shall refer to the next Chapter to be examined to another purpose.

C A P. II.

Touching the various Methods of the Origination of Mankind.

Hitherto I have endeavoured to shew those Evidences both of Reason and of Fact, which seem to assert the Origination of Mankind; and I have concluded with that last in the two precedent Chapters, namely, The Opinion and Perswasion of the Unlearned and Learned part of Mankind that have supposed such an Origination of Mankind, the weight or authority of which rests in the consideration of those Means whereby this Opinion or Perswasion hath been ingenerated in Mankind: For the Opinions or Perswasions of Men, concerning especially a Matter of Fact, have their weight or authority in argumentation from that Principle or Motive of such a Perswasion: and this I have reduced to one or both of these:

1. Some Tradition that hath been derived, and derived in probability from the first Parents of Mankind, that best knew their own Inception, which hath since accordingly prevailed almost in all Places and Ages.

2. The congruity of such a Supposition to Reason, and the Solution of those Difficulties which must needs arise from an Eternal Succession of Mankind. And this Motive of this Perswasion, though it began with the more thinking and considering sort of Mankind, yet from them hath been insinuated and derived unto the rest of Mankind, and by them entertained, as consonant to the common Reason of Humane Nature.

I have laid the weight of my reasoning touching the Origination of Mankind upon the Reasons first given in the beginning of this Tract: and I have only subjoyned those Reasons of Fact that might probably bear testimony to the truth of the Supposition, and I have endeavoured

to shew where the strength, and where the deficiencies of those Evidences of Fact do rest, and which are most concludent, and which not.

I have concluded all these Evidences of Fact, with this concerning the common or general consent of the greatest and learnedst part of Mankind therein; and I have concluded with this Evidence of Fact, not as if this were entertained by all: for 1. It is not without Opposers; as Aristotle, Ocellus Lucanus, and the Pythagoreans; and 2. Common Opinion or Perswasion of Mankind, especially touching Matters of Fact, is very fallible and unstable: 3. In this very Matter in question, there are by common perswasion of many of these Men, superadded certain fabulous, incredible and untrue Surmises touching the Manner and the Methods of this Origination, appearing in some of the Opinions delivered in the former Chapter.

But the reason why I conclude with that Instance touching the Opinions of Men, is, because it lets me in to that which is the Second principal Part of this Discourse, namely, The various Hypotheses of those that supposed, admitted, or believed this Origination, which are in effect all contained in the former Chapter, which I intend in the following Discourse to examin.

Therefore, having thus partly out of the common Perswasion of Mankind, but principally by the other foregoing Reasons made my Conclusion, That Mankind had a Beginning, now, as I think, delivered what may be said for the proof of this Proposition, That Mankind had their Original *ex non genitis*, and in some good measure established that Supposition; I now proceed to examin the truth or probability of those several Suppositions which are before delivered, touching the Means, Method or Manner of this Origination.

And not to examin every particular Adjunct or Explication of these several Methods, I shall divide these general Suppositions of the Ancients touching the Origination of Mankind into these three.

1. The Opinion, That the production of Mankind was *ex non genitis*, was fortuitous or casual; such was the Opinion of Democritus, Epicurus, and some others: the manner of the Explication thereof I shall hereafter consider.

2. The Opinion, That the production of Mankind was *ex non genitis*, was natural, and was founded upon a natural concurrence of Causes; especially the disposition of the Earth and Water, and the Influx of the Heaven. This was the Opinion of some of the Antients, but much improved by some later Philosophers.

3. The Opinion, That the production of Mankind *ex non genitis* was by the immediate Power, Wisdom, and Providence of Almighty God, and his meer *Beneplacitum*. This was the Opinion of the Stoicks, and differs but very little from the Divine Truth touching Man's Creation, as it is delivered by Moses.

And that which is said either for or against these Methods of the production of Mankind, will be also applicable to the production of the perfect Animals that have their ordinary production *ex conjunctione maris & feminae*, and not otherwise; though what is said concerning these Animals will be more evident touching Man, which is a far more perfect nature than other Animals.

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First therefore I begin with the Opinion of the Epicureans, which was in substance this, That there were eternally an infinite number of small imperceptible Bodies, that floated up and down in a vast infinite *Inane*; and these were the *Principia* of all other Beings beneath Almighty God: these they call Atoms. That those Atoms were eternally and casually moved in this infinite *Vacuum*; and by their mutual percussions the great Systems of the Heavenly and Elementary Bodies were framed and concentered: That besides that concurrence of Atoms that constituted the greater Integrals of the World, there was a certain coalition of Atoms that constituted certain *Semina* or Seminal Bodies; for the storing and furnishing the greater Integrals of the Universe, especially the Earth and Seas: That though the coalition of those *Semina* were casual, and by an accidental or fortuitous aggregation of some Atoms; yet these were the immediate, primitive, productive Principles of Men, Animals, Birds and Fishes, and that determined them in their several *Species*: That those Primordial Seeds thus fortuitously coagulated out of the *Prima principia*, or Atoms, were scattered by their Motion into the Earth and Seas: That by reason of the strength of the newly coagulated Bodies of the Earth and Water, and the heat of the Sun, these *Semina* did bring forth Man, and Brutes, and Birds, and Fishes; but that by the decay of the strength of the Earth and Waters, that Method of production of Men and perfect Animals is ceased, and their production now delegated ordinarily to Propagation: though in some places, and at some times, especially between the Tropicks, such a Pullulation of Men and Beasts may be supposed to be: That yet to this day the spontaneous production of some sort of Vegetables and Insects continues still in force, the Earth and Waters being furnished with a sufficient store of such *Semina* either of old or daily production; and with a sufficient strength, by the help of the Solar or Ethereal Heat, to perfect their productions: That the first spontaneous production of Men and the perfect Animals was in certain *Folliculi* or Bladders, excrement from the Earth, and the growth of these Men and Animals gradual, being first *Embryones*, then grown ripe for Birth, then breaking out of those *Folliculi*, and furnished with nourishment from the Earth, *instar lactis*, till they were able to shift for themselves.

Touching this Supposition, although it contain in it that Truth that I have hitherto contended for, namely, That Mankind had an Original *ex non genitis*; or, That the Generations of Mankind in that order which now it holds, was not Eternal: yet the Manner or Method of this Epicurean Origination of the World, and particularly of the perfect Animals, but especially of Mankind, is meerly fictitious, untrue, and impossible.

1. The *Principia* or Atoms of infinite number floating in *Vacuo infinito*, is a thing meerly invented, and hath neither truth, nor evidence, nor probability in it.

2. The Motion of these Atoms in this great *Vacuum*, unless first excited or put into Motion by some intelligent active Principle; is fabulous and incredible.

3. The Coalition of these Atoms by fortuitous strokes or motions, and their Coalition into that admirable Order and Constitution which

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we see in the Universe, or greater Integrals of this *Mundus affectabilis*, is utterly incredible, and indeed impossible. But these things being beside my present purpose, and deserving a large prosecution, I shall dismiss.

4. Touching these *Semina*, and the Coagulation of them by the fortuitous coalition of Atoms, they were driven to this Supposition, because they found themselves at a loss, if they should have supposed, that *per saltum* their Atoms had been the immediate Constituents of Men and Animals; they could never have salv'd that specification of things in their several kinds, and the continuation of them in that constancy and order which is evidently found in the natures of Men and Animals; but either there would be an utter uncertainty in the first Constitution of them, *quidlibet ex quolibet*; or at least it were impossible that they should continue their Propagation of their kind, but the constituent Atoms that should make up a Man, might have fallen into the Constitution of a Horse, or a Lion. *Lucret. ubi supra.*

*Atque hac re nequeunt ex omnibus omnia gigni,
Quod certis in rebus inest secreta voluntas.*

And again, *Lib. 2.*

*Non tamen omnimodis connecti posse putandum est
Omnia: nam vulgò fieri portenta videres,
Semiferas hominum species existere, —
Quorum nil fieri manifestum est, omnia quando
Seminiibus certis certa genitricis creata.*

And again, it were never explicable by the various concurrence of Atoms, that there could be such an orderly, constant, and admirable accommodation of the parts of the Body to their use, or one to another. It is truly said by *Galen* in his 9th Book *De Hipp. & Platonis decretis*, l. 9. *Quippe cum artem raro sine suo frustrari, fortunam raro eundem assequi, nemo sit qui nesciat; quocirca temerariam & fortuitam, neque artificialem causam fabrica nostri corporis existimare, absurdum.* And again, in that divine Book *De Usu Partium*, but especially *Lib. 11.* that excellent Philosopher shews the gross absurdity and impossibility that any happy concurrence of Atoms can ever fit and settle that congruity in the Parts of the Humane Body that is there. There needs no other Confutation of the vanity of that Opinion, than that excellent Exposition in that Book, fit for the matter, but too long for the tenth of it to be here transcribed.

And therefore to avoid that insuperable absurdity, they have substituted a *Medium* between the Atomical Principles and the constitution of the spontaneous Birth of Men; namely, these *Semina*, made up to be the immediate Principle of these spontaneous Productions of Mankind, as also of perfect Animals in their first production.

What *Semina* there were in the first Constitution of Mankind, I shall have occasion at large to examin in the next Chapter: But at present it shall suffice to say and prove, That there is as great an absurdity and impossibility to suppose a casual production of such *Semina*, as there is to suppose

suppose an immediate casual production of any Man or Animal *omnibus numeris perfectum.*

For this *Seminiū humane nature* must have in it the Vital Nature, the power of attracting to it self that substance which must serve to make up the Individual: It must have the power and energy of that formative act, whereby the Matter is conformed to its specific Nature, it must have potentially at least the whole Systeme of Humane Nature, or at least that Ideal Principle or Configuration thereof, in the evolution whereof the complement and formation of the Humane Nature must consist, and besides this, it must have in it at least potentially all the Faculties of the Humane Soul, not only the *vim altricem*, but the *vim sensitivam & intellectualem*, and all this drawn from a fortuitous coalition of senseless and dead Atoms. Whereby these two grand Absurdities would ensue:

1. That a sort of dead, senseless, unintelligent Particles of Matter, should by their Coalition be advanced into a Being, that at least potentially hath all the Faculties of Life, Sense, or Intellect; and so arise to a perfection beyond the Sphere and Circle of their own Nature or Power.

2. That though it might be possible, that by skill and the wise conduct of an Intelligent Being, these Atoms might be so marshalled or qualified, that they might advance to be a fit *Seminiū* of a reasonable Creature, yet it is not possible to suppose, that meer Chance or Fortune should make up these Seminal Rudiments of the Humane Nature, because the Actions of this Seminal Principle must be so noble and high, and yet so various and complicated, so curious and choice, that it is never possible for Chance to make it up, and yet if the least *stamen* of this Composition be out of order, the whole office and use thereof is disappointed: And therefore the same *Galen* makes the *processus formativus fetus* to be no less admirable than the goodly structure of the Humane Body, and as impossible to be the work of Chance as the other: And therefore in his Book *de formatione fetus* he saith, *Ego vero, sicut fabricam nostri Corporis ostendi summam Opificis & sapientiam & potentiam præ se ferre; ita demonstrari à Philosophis velim, utrum is Opifex Deus aliquis sit, & sapiens & potens, qui & prius intellexit quale uniuscujusque animalis corpus esset fabricandum, & deinde quod proposuerat potentia fuerit affectus; an Anima aliqua à Deo diversa. Neque enim natura qua appellatur substantia, sive corporea sive incorporea ea sit, ad summum sapientia dicent pervenisse, quam ne ulla sapientia esse præditam inquit, unde eam tam artificiose in fetuum formatione se gessisse credendum non est: Hoc enim ab Epicuro alii que qui sine providentia omnia fieri opinantur audientes, nullam fidem adhibemus.* And in the Conclusion of that Book he as well blames the *Platonicks*, *Dicentes Animam mundi fetus formare: nunquam tamen aduici potui ut crederem Scorpiones, Phalangia, Muscas, Culices, Viperas, Vermes, Lumbricos, Pytalas ab eadem fingi & formari, prope ad impietatem accedere hanc opinionem ratus.* So far was he from thinking it possible for the Nobler Natures of Mankind, or perfect Animals, to be the work of the *Anima mundi* (much less of Fortune) that he could not suppose it a sufficient Cause of the Generation of Insects.

And besides all this, although a Man that hath received the Principle of Believing, that Almighty God might indeed *ad beneplacitum* mould up certain *semina humane nature*, and endue them with that admirable

Formative Power: Yet surely for a Man that (as *Epicurus* did) pretends to be guided by the Conduct of Nature only, to suppose a thing so strange to the nature of things, as they now appear, that there should be another kind of *semen humanum* or *animale* than what is moulded in the Bodies of Men or Animals, and elicited from them by a coincidence only of stupid, dead, and senseless Atoms, seems below the *Genius* of a Philosopher. *Oportet enim Physicum similiter se habere in omnibus.*

5. And as his Supposition of these *Semina*, thus casually produc'd, seems unconsonant both to the Reason and Course of Nature, so his Supposition of the Manner of the Generation, and Production, and Nourishment of this *Fetus*, seems a Fiction utterly inconsonant to the whole Method of Nature, in relation to Mankind: For what Person, or what Age or Country, ever saw any such kind of Production as this: any such *folliculi humani fetus*? Or that ever credibly heard of any Man conceived *nisi in utero muliebri*? abating some of those Fables that *Fortunius Licetus* delivers in his First Book, *cap. 28.* or such as have been begotten by an abominable conjunction.

Again, how is it possible, that an Infant, whose Nature cannot be kept alive one moment *sine calore uterino*, should be preserved in Bladders adhering to the cold Earth? Or that that Infant, who by the very course of Nature cannot be supported without the care and oversight of others for divers Months; nay some Years after his Birth, should be able *sub die & Jove frigido* to preserve it self? Again, who ever saw, or credibly heard of those *vena lactea* arising in the Earth, and yielding a surable nutriment to a new born *Fetus*? These Suppositions must withall suppose a total Inversion of the Course and Nature of Things quite from what they now are, and in all Ages have been, which, though it is true, those that admit a higher Principle than Nature, do and may with sufficient warrant and consonancy to their *Hypothesis* admit, yet is utterly unreasonable for such a Philosopher, who not only with some of the ancient *Peripateticks* excludes any Divine Providence below the Moon, but wholly exterminates it, *ultra flammantis mania Cæli.*

And this is all I say at present, touching that Opinion which supposeth a meer casual Production of Mankind. There will be something in the ensuing Chapter, which though it be applied to the Imaginary *Hypothesis* of the Natural Production of Mankind, yet will be of use in relation to this *Hypothesis* of the Casual Production of Mankind.

C A P. III.

Touching the Second Opinion of those that assert the Natural Production of Mankind ex non genitis, or the possibility thereof.

THe second Opinion is, that by a certain kind of natural Connexion of Causes, Mankind not only may be, but in their first Origination were produced *ex non genitis*: Which though for distinctions sake from the ordinary course of Generation we may call spontaneous or accidental, yet the same, if it were true, were truly natural, and deduced by a certain

certain Chain of Natural Causes; as the yearly production of Insects, *ex patri materia*, or, as the Mice or Rats in *Egypt* are supposed by *Diodorus Siculus* to be produced after the decrease of *Nilus* in *Egypt*.

This seems to be the Opinion of some of the Ancients, that yet subscribed not to the *Hypothesis* of *Epicurus* touching the casual production of things by the uncertain concurrence of Atoms, as of *Anaximander* and some others, which I shall not need here again to repeat; and the same Opinion hath been asserted by others, but with these two Correctives.

1. That the same is no casual and fortuitous Production, by the meer casual conjunction of Atomical Bodies, as *Epicurus* would have the first *Semina*, at least of Men and Animals, to be made up; but by an ordinary, natural, and necessary connexion of Natural Causes and Effects.

2. That yet many of them blame the Ancients, as being too venturous in telling us the particular Method or Order of those Productions out of *Folliculi*, or *Corticis spinosi*, or Fishes, because that is not a thing discoverable by Experience, or Natural Light; yet herein they agree, That this Production may be, and hath been a Natural Production *ex non genitis*, though the particular Manner of it is not so easie to be certainly explained.

Hippocrates the great Physician seems to have inclined to this Perswasion; for, *Sect. 3. de Carnibus*, he writes to this purpose; *Quod Calidum vocamus, id mihi immortale esse videtur; cunctaque intelligere, videre, & audire, sentireque omnia tum presentia tum futura, cujus pars maxima cum omnia perturbata essent in supremum ambitum secessit, quod mihi veteres videntur Æthera appellasse: altera pars locum infimum sortita Terra quidem appellatur, frigida & sicca, multasque motiones habens in qua multum sanè calidi inest: tertia verò pars medium aeris locum nata est, calidum quid existens: quarta pars, terra proximum locum obtineus, humidissima & crassissima. His igitur in orbem agitata, cum turbata esset calidi pars magna, alias in terra relicta est, partim quidem magna, partim verò minor; & alias etiam valde parva, sed in multas partes divisa, & temporis successu resiccata terra ista, in ea tanquam in membranis contenta circum se putredines excitans, & longo tempore incalescens, quod quidem ex terra putredine pinguedinem sortitum est; & minimum humidum habens, id citissime ossa produxit:* And then assigns the Methods of conformation of the Nerves, Veins, Arteries, and the rest of the Body in conformity to this Supposition. So this great Physician and Naturalist delivers his Opinion. Wherein we may observe, that he takes the Hot or Fiery Nature to be God, knowing and understanding all things, which seems to be the ancient Error of the Eastern Countries, especially the *Persians*.

Yet this is observable, 1. That he supposeth an Origination of Mankind after the Formation of the World. 2. Though the Formative Process of Mankind seems in his Opinion to be in a sort Natural, yet he supposeth it not purely so, but a Production by those fiery Particles which were Particles of a Divine Intelligent Nature. And though he be mistaken in the Method of the Origination of Mankind, as shall be shewn, yet he supposeth it, *Opus intelligentis Naturæ agentis per scientiam.*

Avicen in the second Book of his *Metaphysics*, *cap. 15.* delivers his Opinion; *Possibile esse hominem generari ex terra, sed convenientius in matrice:* which Opinion *Averroes* his Country-man perstringeth with some indigna-

indignation, *Commentar. 8. Physicor. cap. 5. Ille sermo ab homine qui dat se scientia, est valde fatuus*: his Reasons, I confess, are such as may not be admitted; for being a rigid Assertor of the Eternity of the World in the state it now stands, he formeth his Reasons against the Opinion of *Avicenna* principally, if not altogether, upon that *Hypothesis*.

Cardanus, in his ninth Book, *de Animalibus que ex Putredine generantur*, discoursing about Locusts, hath this passage; *Et non solum ea minuta, sed & majora animalia è putredine, imò omnia credendum est originem ducere; cum jam de Muribus constet, & Pisces in aquis recentibus sponte generentur*: but his severe Corrector, *Julius Scaliger*, in *Exersit. 193.* calls it, *Illa impia & nefaria vox; Si Bos aliquando ex putri ortus est, cur post hominum memoriam ex ejusmodi procreatione nullus existit? Casalpini*, in his fifth Book *Questionum Peripateticarum, cap. 1.* undertakes an entire Defence of the Position of *Cardanus*; and contends not only that it is possible, but that *de facto* it is true. The sum of his Opinion seems to be this,

That although the Soul of Man be of a higher nature and extraction, yet the Body, and these Powers or Faculties of Life and Sense may be, and have been formed *ex putredine*: without the conjunction of Sexes; as Weeds, Vegetables, and Insects.

And that he meaneth such a Production to be by an ordinary course of Nature, he largely insists upon that Axiom of *Aristotle, Sol & homo generant hominem*; which he understands *in sensu diviso*, and that there is in the heat of the Sun an active, generative Principle, which in Matter prepared for its operation, commonly called Putrefaction, produceth a Seminal Formative Seed, sufficient of it self for the production of the Humane Nature, as also of the nature of other Animals.

That the *Species* of Animals are eternal, not upon the account of an eternal succession by ordinary propagation, but by that succession that would arise in certain great Conjunctions of the Heavens, and the heat of the Sun, which would be productive of the Individuals of the several *Species*; though all the *Species* of Animals were destroyed by Floods or other accidents, as possibly they might be.

That although the ordinary Method of preserving the *Species* of Men and Animals by ordinary Generation, be fitted for the ordinary continuation of the *Species*; yet without this Method of production out of prepared Earth, Nature were defective, and wanted a sufficient Expedient for the preservation of *Species* upon great Occurrences.

That although this production of Men and perfect Animals *ex putri* be not obvious to our ordinary Experience, it is not because the Supposition wants truth, but because 1. Every place is not fit for such a production; but where there is a constant and sufficient heat, duly to prepare and digest the Matter. But the likeliest place for such production is some unknown place between the Tropicks, where the heat is great and constant. 2. Because the maturation and ripening of such Productions require longer time than that which is sufficient for the production of Insects: for we see greater Animals, even with all the advantages of the *calor uterinus*, require a longer time for their formation and maturation; as, a Man nine months, an Elephant two years; and consequently, their productions without this *auxilium uterinum* must require longer time.

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Then he gives us a large account touching Insects, that arise *ex putredine*, and yet are of the same *Species* with those that are produced *per coitam*; and that when they are produced *ex putri materia*, yet they propagate successively Individuals of the same kind: and that if greater Animals were thus produced, they would be of the same *Species* with the like Animals propagated *per generationem ordinariam*, and would accordingly propagate their kind; as many Herbs and Trees arise spontaneously, yet are of the same *Species* with others that are *per seminationem*, and produce Seed, and thereby continue their *Species* as well as others that arise *per profeminationem*.

This I take to be the effect of his Position and his Reasons; which are very learnedly and smartly refuted by *Fortunius Licetus*; in his first Book *de Spontaneo Ortu*.

But yet there was one difficulty which *Casalpini* doth not at all, as I remember, obviate, which yet renders his Supposition utterly inexplicable; namely; since the Heat and Influences of the Heavens, even in their supposed extraordinary Conjunctions, must needs be uniform at those times, and in or near those Climates wherein they happen, how comes it to pass that the same univocal Heat doth produce at that time any variety of Animals? why should it not produce only Men, as the best of Animals, rather than Horses, Tigers, Lions, &c. Again on the other side, since the disposition of all the parts of Terrestrial Matter is so divers; and qualified with infinite combinations of Qualities and Particles; how it comes to pass, that in these great Conjunctions there are not infinite varieties of things produced, but they are determinate in certain Ranks and *Species* of Being; whereas the modifications of the Matter are so various and infinite, that the *Species* of things would be infinite, irregular, *Humano capiti cervicem equinam*. So that there seems necessary some superintendent Intellectual Nature, that by certain election and choice determineth things in those determinate Ranks, and contained them within it: For the heat and influence of the Heavenly Conjunctions and of the Sun being common and universal, and the various Particles of the Earth variously modified and qualified, there could never only by these means be any determining or containing the *Species* of Animals within any determinate constant figures or bounds: And this we shall hereafter find necessary, when we come to consider the determination of Insects also in their several *Species*.

Again, he gives us not any reasonable Explication by this *Hypothesis* how the discrimination of Sexes happens, how all things thus produced come to propagate their kind, and to contain their Productions within the specifick limits of the natures of such Animals; all which were necessary to be done; to render his Supposition of this natural production of Men or Animals *ex putredine* to be any way tolerable.

Beregardus therefore in his 10th *Circulus Pisanus* hath refined and rectified this *Hypothesis* of *Casalpini*, and of *Pomponatius* that went before him; and though he can never make out the truth or probability of his Supposition; yet he hath rendred it more tolerably explicable, especially in relation to the forementioned deficiencies; I will give the sum of his Supposition briefly, as I understand it: And it seems thus;

That the *Calidum innatum* is that *Altrix anima*, and *Principium seminale sine*

sine quo nihil gignitur, and is the *Basis* of Life in all things that have it, but yet it is never single, and by it self, but is the first Rudiment of Life, and determined by the particular *Species* of Life in every Individual that hath Life: for there is no *vivens* that is not either *Equus*, or *Canis*, or *Vitis*, or some other determinate Vegetable or Animal.

That there are three kinds of this Life wherein it is specifically determined, *viz.* Vegetable, Sensible, and Rational.

That at least the two former (he means the latter also, if he durst speak out) are raised out of certain Seminal Principles, whereby the *Calidum innatum* is specifically determined to this or that Specific Life.

That these *Semina* are not eternal, because made up of things or *Principia* that are pre-existing: this seems perfectly to agree with the Doctrine of *Epicurus* before mentioned, whose Patronage he seems to take in the Person of *Aristaus*, yet with some Correctives, as is hereafter shewn.

That there were in Nature various kinds of *Calida*, or Fiery Particles, or *Spiritus ignei*, and various kinds of *Humida* and *Frigida*; these were eternally floating up and down in small Particles, and variously agitated and mingled, which made up by this mixture the constituent *Semina* of Vegetative and Sensitive Natures.

That in this Constitution of the various kinds of the *Spiritus ignei* were the constituent *Anima vegetabilium & sensibilibium*, and the various kind of *Humores* were the *Oleum* and *Balsamum vite*; and according to the variety of these *Spiritus ignei*, which were as it were *Seminum natura*, were the various *Species* of these *Semina*, and the various specific production of Vegetable and Sensible Natures arose from them.

That the Composition of these *Semina* was not merely fortuitous, as *Epicurus*, but he gives us a more gentle Explication thereof, *Præcipua verò & planè divina est permissio ista, quæ in particulas diffinguntur minutissimas, & quantum satis est ad componendum semen misti alicujus aptissime coagmentantur, ut non magis quam par est, neque minus illud efficiant; quippe sunt nature ad hoc determinate.*

That these are the Seeds of all living things, and they were scattered up and down in the Earth and Waters, and that therefore every living Being had its proper *Semen* for his Origination there lodged.

That yet till the Matter wherein these Seeds were lodged were conveniently prepared, there would be no production of Animals by these Seeds.

That the *Semina* of Mankind, and of the greater Animals required a greater and more effectual preparation of the Matter, or a *Menstruum* for their production out of those *Semina*, and therefore required the greater Conjunctions of the Heavens for their production; though ordinary Conjunctions serve for the production of Insects and Vegetables, namely, the regrefs of the Sun.

That by these *Semina* of all living Beings, though the World were eternal, there might be successive Supplies and Reparations of Animals and Men; and though the whole *Species* of Men and Animals were destroyed, yet upon the returns of these great Conjunctions and Positions of the Heavens requisite for a due preparation of the *Menstruum* in the Earth for these *Semina*, their *Species* would be restored out of these *Semina*.

That

That the *Terrigenæ* might either be produced *adulti*, and so able to shift for themselves; or else be furnished with a convenient nourishment from the Earth; or that they might be in their first production not like Infants new born, but able to get their livelihood, as some young Brutes are.

Thus we have the Supposition of this witty Man also, who by the supposition of these antecedent *Semina*, made up of the divers *Spiritus ignei* and *Humores*, hath supplied what was wanting in *Casalpinus*, or at least better explicated it; and by supposing this mixture of these *Spiritus ignei* and *Humores* in their several proportions, by something more than a fortuitous means, hath something rectified the exorbitancy of *Epicurus*; though still he suppose those *Spiritus ignei*, which were as it were the various Souls of those various Seeds, and afterwards of the several Animals produced by them, were natural and eternal.

That which seems to have given the original ground-work of all these Opinions; hath been,

1. Some Expressions that fell from *Aristotle*, which are before mentioned, that seem to give countenance to this Opinion.

2. A proud vanity in Men of Wit, to resolve all things into Nature and pure natural and necessary Causes, unwilling to recognize the interposition of Almighty God, and his *Beneplacitum* in the Origination of things, and yet finding too many absurdities accompanying the *Hypothesis* of Eternal Generations of Mankind, *ex successivis genitis*.

3. But principally the Observation of the spontaneous production of Insects and little Animals *ex putri materia*, whose structure nevertheless is as admirable as the structure of greater Animals; and that they also being thus originally produced, yet propagate their kind by successive Generations, have distinction of Sexes and Faculties: This, it seems, principally gave start to this Opinion touching the like Origination of Mankind and greater Animals by a natural spontaneous production.

And because this Instance of the natural production of Insects is that, which as it probably gave the rise to this Opinion for the like production of Mankind or other Animals, and seems to be the only experimental Instance that is given to assert the possibility or probability of the other, I shall consider it largely under these several Examinations.

1. Whether there be any *sponte orta* among Vegetables and Insects, but especially the latter.

2. Admit there be, yet whether those *sponte orta* do arise merely from any natural or accidental Cause.

3. Admit they may arise from any natural or accidental Cause, yet whether there be any consequence of a like possibility in the Origination of perfects Animals, but especially of Mankind.

4. Admit it may be possible in Speculation, yet how far forth *de facto* the same hath happened without the interposition of the Divine Power; which renders it a supernatural, not a natural production.

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Concerning Vegetables, and especially Insecta Animalia; whether any of them are sponte orta, or arise not rather ex præexistente semine.

THERE are several Ranks of Being in this inferior World, which have various specifical Degrees or Ranks of Perfection one above another.

The first division of them is into things Inanimate, and things that are Animate; wherein the latter have another, and a nobler Form, or (if that Word be disliked) Nature than the former.

Of things Animate there are three distinct natures, the latter exceeding still not only in degree but in kind, perfection, and excellence of nature the former; namely, things vegetable, that have simply Life, with those operations incident to Life. The second sensible, that have not only a Life of vegetation, but a Life of sense, and faculties, and operations corresponding to it. The third rational or intellectual, that hath not only a Life of vegetation and sense, but an intellectual Life, and faculties and operations subservient and suitable to that Life.

Among Vegetables, as to the purpose in hand, there seem to be two kinds or degrees: Some are the more perfect, which do not ordinarily arise but from Seminal Particles immediately derived from the Vegetable, either the Root, or the Branch, or the *Semen formatum* of these Vegetables; as an Apple-tree, or a Rose, &c.

Others seem to be less perfect, because they seem oftentimes to arise equivocally neither from Seed, Root, or Branch of the same *Species*, as well as from it.

But even in all these there are none but arise from a vegetable Principle, and not barely from what is inanimate; and for the most part, if not altogether, from a vegetable Principle or *Semen* of the same kind.

1. It seems that the upper superficies of the Earth at least, is plainly a Vegetable Nature; and that it is no more forcible Argument to say that the Grass of the Earth, Nettles, Docks, Thistles, and such like common excrescences are no more spontaneous productions in the Earth, than the Feathers upon Birds, or the Hair upon Beasts or upon the Heads of Men are a spontaneous production: for though these are excrementitious, and not really parts of the Bird, Animal, or Man, but growing in the Pores of the Skin, and having the Roots there as the Grass or the Thistle hath in the superficies of the Earth; yet they grow, and are nourished from that vegetable power that is in the nature of Animals: so that they are but vital Excrescences from a vital portion of the Earth, namely, its Superficies.

2. Again, it seems that there is scarce, if at all, any Vegetable that is in the Earth, but it ariseth *ex præexistente semine specifico*.

The *Semina* of Vegetables are of two kinds, according to their several natures; some are formally Seeds, those *Moleculæ seminales*, that are the choicest spirituous parts of the Vegetable moulded up into a specifical Seed:

Seed: And hence it is, that some smaller sorts of Herbs that yield a natural Seed dye the Winter after they have produced; partly, because they have as it were performed their trust that Nature committed to them for the preservation of their kind; but principally, because they have delivered up into the Seed that Vital Particle which maintained their own Life when they had it: And therefore such Herbs; if their femination be prevented by being cut, survive to the next Year.

And these Seeds are very numerous and various, and many times very small, whereby they are many times accidentally transplanted into great remote distances: for Instance, sometimes by Floods of Water and sometimes by Winds, sometimes by Birds, sometimes by Beasts, who taking them in among grosser nutriment, and by reason thereof, and of their smallness, escaping without maceration, they retain their seminal nature in their very Dung; and sometimes by Exhalations, for the Exhalations will sometimes lift up things of some bulk, together with the watry Vapours: we have seen it rain little grains like Rye, which upon search have been found Seeds of Ivy: and therefore those small *Moleculæ*, that are almost imperceptible, may with much more ease be raised, and transplanted as it were by the motion of the Clouds into other places or Countries, which may be conjectured to be fortuitous, and yet are truly and really univocal. This *Pliny* witnesseth, *lib. 19. cap. 3.* of the Herb *Lasertium*, whose Seed was transported, and sowed in a strange Country by a storm of Rain.

Again, there be some Seminal Parts of Herbs and Trees which produce their kind, though without that formal Seed whereof we have spoken; and commonly such Seminal Parts are either of the more imperfect sorts of Herbs or Trees, or else a very great coacervation of the Parts of those that otherwise require a more regular Seed.

There is scarce any Tree but these three parts are actually prolifick of its kind; 1. The Seed: 2. The Root: 3. The Branch or Buds, with incision into another Tree or Stock: the Branch of an ordinary Apple will not grow being set in the ground, but the Branch of a Willow, Codling-Tree, or Vine will take root being set in the ground. The Oak will not ordinarily grow but by the Seed or Root implanted; but common experience shews us that a woody ground of Oak, or any other Wood which hath stood long, and is after felled, will run to Oak again, though the Root be dead; a great quantity of the Leaves, Wood, *Cortex* or Rind putrified in the ground will leave a *Seminium* in it, which will after turn to a Wood of Oak again. And many Plants have all their Parts Seminal; though not so vigorous as the regular *Semen* of those Plants; the Branches and Leaves, nay if we believe those that pretend to have tryed it frequently, the Decoction, Infusion, Ashes of some Herbs scattered in good Mould and well watered, will produce their proper *Species*. *Vide Kircher. in Mundo Subterraneo.* And I do persuade my self; that the common Dew exhaled from some sorts of Herbs or Weeds, but especially from the common Grass, carries with it the Seminal Tincture of the Herb, which being again descended by Dews or Rain upon the bare and naked Earth, re-produce the same *Species*: and hence it is that Grass, which is the ordinary fruit of the Earth, and therefore most visited with the Dew of Heaven, and re-exhaled again; doth most

ordinarily re-produce Grass. And therefore Virgin-Earth taken out of the bottom of a Well and kept in a House, will, if at all, be very long before it will gain that Vesture; but exposed to the Air, where the Dew or Rain falls, it will soon be green, as those that have tryed it affirm: Sir Francis Bacon, Nat. Hist. Cent. 6. pag. 117. and upon the same reason it is, that (as the same Author there observed) foreign Earth will incline to bring forth Herbs of the same Country whence it was brought, because probably impregnated with the Seminal Particles of the Country whence it came.

It is true, many times Plants and Herbs, though arising by a specifical *Seminium* of their own Herbs or Plants, will seem to change their figure, and become of another kind; as by transplanting wild Flowers or Herbs into Gardens where the mould is better, or *è converso*, the poorness or richness of the Soil varies the shape or extent: Thus some say Corn will degenerate into Tares; Fruits will degenerate, being sown: And again, mixture of Seeds, or Seeds impregnated with Tinctures of other Seeds or things may change their smell, colour, taste, or figure. But in all these Transmutations, whether for the better or the worse, still the Seminal Specifical Principle remains.

So that it may seem that we are too hasty and inconsiderate, in concluding that all Trees and Herbs not produced *ex semine formato*, are therefore *sponte nata*: for there be infinite means of transplantation of real Seeds, and very many *Semina* or Seminal Particles of Vegetables that we know not. I do remember, many Years since, I found in a Ground that had no Oaken Trees in it, nor very near it, yet every Year abundance of young Oaks growing up some two, some three Inches high; and I thought them to be all *sponte nata*, and concluded an Oak to be of another nature than I formerly thought: But Observation corrected my mistake; for I found the Crows fetching the Acorns from a Wood not far off, and when they had eat what they pleased, they hid the rest for their future supply, but forgot them, and the next Spring they prospered into young Oaken Plants. We are not therefore presently to conclude every Vegetable *sponte natum*, because we see not its profemination.

But the Consideration of Insects is that which is of more congruity to this present purpose, because they are sensible Beings, and have in their little Model almost, if not altogether, all the Organs and Faculties of the greater Animals; yea and Phantasie and Imagination, and Memory, as appears especially by Bees and Ants, who find their ways home from a great distance. But yet we must say, that their Faculties and Organs, though admirable, yet are not of equal perfection with those of the nobler kind of Animals, as will appear more hereafter.

They also that seem to have their Origination *ex putrido*, or spontaneously, yet it is evident to Experience that they do propagate their kind; contrary to what was thought by Aristotle in his Book *de Gen. Animal. lib. 1. cap. 1.* who supposeth, *At verò qua non ex coitu sed ex putri materia oriuntur, ea generant quidem, sed genus diversum.*

And touching these Insects, though they seem to be *sponte orta*, yet there is much may be said that their Original is not spontaneous, but that even those Insects that seem *sponte orta*, arise one of these ways:

1. Either

1. Either immediately, *ex semine prioris Insecti ejusdem speciei*; 2. Or mediately, *ex hujusmodi semine*; Or, 3. *ex vivo animali diverse speciei*; Or, 4. *ex mortuo animali diverse speciei, seu cadavere*: For some think that it is not easily grantable, that a Being endued with Sense can by the course of Nature arise from a Being without Sense, or at least without Life. Vide Kircher. l. 12. *Mundi subterranei*; Fortunium Licetum, *de Insectis*.

Touching the first of these; many of those Insects that seem to be *sponte orta*, do indeed immediately arise from the *Semina* of Insects of the same kind: for these Insects for the most part *ex coitu* do produce an innumerable multitude of little Eggs or *Semina*, that sometimes in the same Year grow to Animals of the same kind; and sometimes their *Semina* are deposited in some Crannies or Coverts of the Earth, or Trees Leaves, or other Receptacles that serve for the *Seminium* or Store of the next Spring.

Malpighius, that hath made a curious disquisition touching the Silk-Worm, tells us, that the usual product of that Worm in one Year is never less than 300, but most often 500 Eggs, most of which are *fecunda*; and the like is visible in Caterpillars, Flies, Worms, Frogs, Locusts, Wasps, and all other Insects.

It is true, the Winter destroys most of these Insects, and many of their *Semina*, and therefore the colder the Winter is, the less the next Spring is infested with them: But many of these *Semina* are preserved till the next Spring, and then they assume their specifick Life by the heat of the approaching Sun.

These *Semina* being very small and light, are many times dispersed into other places by the Winds, sometimes carried away to other places by Waters and Floods; sometimes exhaled into the Air with the gross Vapours drawn up by the Sun, and poured down by Rain again on other places. And this multitude of these little *Semina* thus dispersed, assuming in the Spring their natural kinds; give Men occasion to think them *sponte orta*; whereas in truth they do as really arise *ex semine specifico*, as the greater Animals.

And therefore credit is hard given to the Story of Diodorus Siculus, or of the Poet out of him, concerning the Mice arising in Egypt, out of the Slime of Nilus;

Altera pars vivit, manet & pars altera tellus.

Neither to the confident Helmont, in his Tract *De Imagine Fermenti impregnante massam Seminis*, pag. 113. who tells us, that if a foul Shirt be put within the mouth of a Vessel where there is Wheat, that in the space of 21 days it will turn the Wheat into Mice; nor that other Relation of his in the same place, that the Herb Basil being bruised, and exposed to the heat of the Sun some days, will breed Scorpions.

And as concerning the productions of Insects out of Vegetables, *viz.* those little Animals that are bred in Flowers and Herbs, there are some that think they are not the natural production of the Vegetables, but that they are the small *Semina* of those Flies that are lodged in the cavities of them; such as are in the Leaves of Elms, or in the Leaves or Fruits of other Herbs or Trees; as in the Oak-apple, the Hasel-nut, and some others.

And

And besides these formal Seeds, the several parts of Insects have also their Seminal Nature in them, and produce often Insects of the same kind: see for this the whole Tract of Kircher in his *Mundus subterraneus*, lib. 12. cap. 1. & seqq. wherein he gives us the Solution of the *ortus spontaneus* of the Barnacles in the *Orcades* and other Parts, by the Eggs of the Sea-Fowls that are driven upon this Shore; and many Instances of the Artificial production of Insects out of the macerated Materials of Worms, Frogs, Locusts, Shell-Fish, Scorpions: whereby it appears that all their Parts are feminal, though not so active and formative as their Formal Seeds are.

2. As to the mediate production of Insects, yet out of the Seminal Natures of others of the same *Species*: Thus out of the *Fimeta* of Horses, Oxen, and Sheep arise *Scarabei* or Beetles, and according to Kircher, *ubi supra*, Bees have their production out of the *Stercus Bovis*; which yet he attributes to those *Molecula seminales* deposited in those Flowers whereupon Cows do feed, but not so macerated in the digestion but that they retain their primitive Seminal Nature; though perchance this may be too remote and laborious a reduction, and possibly it were better to be reduced to that which follows, namely, from the *Animal vivum*; upon which account he supposeth, that Ants are *Humane urinae proles*.

3. Therefore the third Original of Insects is from the living Body of another Animal, whose excrementitious parts do naturally breed Insects, as Lice, Fleas, Worms; yea and according to the Author's Observation, there is scarce any noysom Disease in the Body but it breeds Worms: yea and according to a late curious Anatomist, *Kirkringius*, there are scarce any *Viscera* of the Body of Man, but hath many sorts of Worms in it. And the Solution of these Productions seem to be thus:

That the Sensitive Nature being divisible, communicates it self in various degrees unto all that is united to the Body, the Chyle, the Humors, nay the very Excrementitious Parts, the natural Excrements, the Urine, the Hair, the excrementitious Sweat and Evaporations carry along with them the mean and low *Effluvia* of the Sensible Nature or Animal Spirits.

That these *Effluvia*, when they are closed up in any viscous Continent that may contain and keep them together from being presently diffused and wasted, assume the form of an Animal, though not of the same nature, nor worth, nor excellence, nor perfection of the Animal it self that produceth it: for the meanest and basest *Effluvia* of the Animal Soul accompany these mean and base *connexa* of the Animal Body, namely, the foul Humours and Excrements. And hence it is, that those nasty Productions, as Lice, Fleas, *Cimices*, the Worms in the Intestines or Ventricle, nay in the Heart, Liver, Ears and other parts of Men are bred: and from this participation of those baser *Effluvia* of the Animal Spirits, the Hairs of Horses lodged in standing Water will gather life, and the form of an Insect.

4. As the *Animal vivum* thus communicates a Sensible Nature to Insects produced from it, so doth the *Cadaver* or dead Body: Hence come generally Worms, which in the heat of the Sun sometimes turn into Flies; and according to the Tradition of the Ancient and Moderns, Bees grow out of the dead Bodies of Cows, Wasps and Hornets of Horses; which

which nevertheless some attribute to a *residuum* of those Seminal Particles of the very Insects which these Beasts devour, with the Flowers and Herbs where they are lodged.

And to maintain that general Supposition before insisted upon, That *Viva & sentientia non generantur ex non vivis & sentientibus*; they say, That even in the *Cadaver* there remain certain Animal Spirits, *tanquam in vase*, which serve for the production of Animal Natures of this base and low allay.

And so in all those productions of Insects *ex animale vivo vel cadavero*, the *Semen* of that Insect is a Vital and Animal Principle, though it be not, immediately at least, of the same kind.

And because these Productions are not immediately of the Seminal Particles of the Insect, but of a living nature of another kind, therefore always the *Productum* or Insect is of a different, baser, and more imperfect nature than the Producent.

And this is the Sum of what is observed by *Licetus*, *de Sponte ortis*, and *Kircherus*, *ubi supra*, viz. *Lib. 12. Mundi subterranei*.

But yet though much of this be very true, and that Insects are not therefore *sponte nata*, as people think, yea they are never *sponte nata ex non viventibus*; yet I do doubt that it may be found by experience, that some sorts of Insects do arise from Vegetables, at least of a very exalted nature: for the truth is, that some sort of Vegetables seem to be in the next degree to the lowest sort of Insect Animals, as may appear in the Plant called the Sensitive Plant and some others: And therefore it is not impossible but some sort of Insects may arise immediately out of some sort of Vegetables, as the *Gurgulio*, that ariseth in the Wheat, the *Wivel*, that riseth in the Malt; and the *Hippuris* or Horse-tail, and the *Liburnus* or White Vine, that Kircher himself mentions in the same 12th Book, *Sect. 1. Cap. 9.* to grow into an Insect in the Water; and those Instances in the same Chapter of *Franciscus Corvinus*, that in every Vegetable had observed a proper Insect bred in it, and living upon it; and the experience of the growing of Moths out of the Seeds of Lavender, and Worms in Rose-Cakes: these experimented Observations seem to correct the universality of the Assertion, that *Non nascuntur Insecta animalia ex non animalibus*; though I think it may be universally true, that they are not produced *ex non viventibus*, they are always the production of the *Semen* or Seminal Particles of an Insect, or of the Parts of an Animal or *Cadaver animalis*, or of that which is or was vegetable.

Yet some there are, that think that these *Insecta animalia* that seem to be produced immediately *ex herbis, stirpibus, arboribus, & vegetabilibus*, or Animals of another kind, yet the first *Seminium* of these *Insecta* are either the *Semina*, or the Seminal Particles of Insects of the same *Species*, percolated through the various parts of Vegetables or Animals: In so much that *Gassendus* that inquisitive Naturalist seems to think, that the very Lice and Fleas and Worms in a Man, are but the Productions of the several Seeds of Animals of the like kind; *Cum in eodem homine ex sordibus capitis Pediculi, ex sordibus barbae Ala, inguinis Ricini, ex intercutaneo humore Cyrones orientur, & ita de ceteris; quoniam alio id referamus quam ad diversa semina quae à diversis sive plantis sive animalibus proliciantur, & sese ad diversas partes quatenus congruunt, recipiant, accommodantve inter nutriendum?*

I do

I do not here take upon me a distinct and exact Discourse touching production of Insects, it is one of the most abstruse, curious, and various Inquiries in Nature: There be many that have busied themselves on purpose in it, to which any one may have recourse, as *Cardanus* in his Book *de Subtilitate*, and *Scaliger* his *Animadversions* thereupon; *Gassendus* in *Physicis*, sect. 3. l. 4. cap. 1. *Kircher*. l. 12. sect. 1. & 2. *Aldrovandus*, per totum; *Fortunius Licetus*, his Book *De Ortu Sponte nascentium*; *Vossius*, *De Origine Idololat.* lib. 4. cap. 65. & seqq. All that I shall say farther in it, is but this:

First, that it is most certain that many of those productions of Insects which Men ordinarily take to be spontaneous, are yet in truth univocal from Insects of the same *Species*, their formal Seeds or Seminal Particles.

Secondly, that it is not certain that any production of Insects is spontaneous, or not from the Seed of other Animals that were of the same *Species*: for we are not certain, but that the *Semina* or Seminal Particles of these Insects may be percolated or derived by divers *Meanders* and long obscure passages into or through the Bodies of Vegetables or Animals of another *Species*.

Thirdly, that it is very probable that they are so traduced by these experimental Assays that have been either experimented by Observation, or by Art; whereby it is rendred evident to Sense, that their production at this day may be, and often is of the *Semina* or Seminal Particles of Insects of the same kind.

The Consequence whereof is, That the production of all these little Particles of Sensitive Life, as well as of the greater Animals, though at the first it were *ex non genitis*, by the Power and *Fiat* of Almighty God; yet since that time it may be probable they have their propagations univocal, *Ex semine vel seminio praeexistentis Insecti ejusdem Species, vel formato vel analogo.*

This Consideration may assure us, That the production at least of the generality of Insects which seem to be spontaneous, is truly seminal and univocal; though possibly upon a severe disquisition it may be found, that some are meerly spontaneous and equivocal Productions *ex putri*, whereof I shall give a farther account in something that follows, especially in the next Section.

C A P. V.

If it be supposed that any of those Insects at this day have their Original ex non genitis, or spontaneè; whether yet the same may be said a Natural or Fortuitous Production.

I Come now to the Second Particular, which is this, That admitting there were any such production of Insects at this day, whether the same were purely Natural: Wherein I shall briefly say,

1. That it seems very probable, that the *Species* of Insects were at first in their first Creation determinate and certain; and although since partly by

by degeneration, partly by various mixtures their *Species* are changed and multiplied, even as the perfect Animals in *Africa* are by a mixture of *Species*; yet they were at first determinate.

2. That it seems the production of the first Insects was like to that of perfect Animals: they were not produced *ex semine*, or *per processum seminale*, whether *ex Ovo* or *ex Verme*; but were produced in the complement of their specific and individual existence. For it is much more suitable to Reason, and to the nature of things, that the Animal should have an antecedence to the Seed, and that the *Semen* should be rather the effect of an Animal at first than an efficient; or according to *Plutarch's* Discourse, that the Hen should be before the Egg, rather than the Egg before the Hen.

3. That yet if we should suppose that in the first production of Insects at least, they should arise *ex praeexistente semine*, or that at this day they should arise *de novo*; yet bare Matter were not possibly sufficient for its production, without some Seminal Principle that might determin the Insect to its kind, and advance in it that formation and organization of Parts, and effect those admirable Faculties of Sense and Imagination which we see in them: For it were exceedingly above the bare activity of Elementary qualities, though the most active, as that of Heat, to raise so curious and admirable a Fabrick as the Bodies of those little Animals, much less the Faculties of Life, Sense, and Imagination. And if it were possible that some of the qualities and dispositions, or modifications, or temperament of Matter could arrive to the production of any such little sensible Being; yet it could never be contained, nor contain it self within any determinate *Species* or kinds, but as the modifications, temperaments and qualities of Matter are infinite and various, according to its various Mixtures and Combinations, so the Productions would be ever irregular, monstrous, and never colligated or contained in any certain *Species*.

It remains therefore that in the first production of Insects, whether at this day, or in the first eduction of their *Species*, if they were not produced in the complement of their individual and specific nature, they must necessarily be produced *ex aliquo semine congruo, & determinante materia.*

And certainly the Constitution of such a *Semen* is, as I have before observed, a work of great Wisdom, Intelligence, and Power, no way less than such a Power that must have made an Individual of the same kind in his complete existence. For the *Semen* of every thing contains in it the small *Idea* of that Nature which it is to produce, which is as it were minted and stamped upon it, and contains an admirable power of evolving and dilating it self; and bringing forth that admirable Fabrick, and that singular Conformation of Parts, and those wonderful Faculties of Life, Sense, and Imagination, and the several Organs and Operations belonging to it.

Some there are that have said, and with very great truth, That the smallest Animal in the World sets forth the Wisdom and Excellence of the great Architect of the World more conspicuously than the Fabrick of the greatest Whale or Elephant: as the smaller an excellent Watch is (if it have all its parts, motions, order, and constancy) it more sets forth the skill of the Artist than a greater Fabrick. When a Man shall see in