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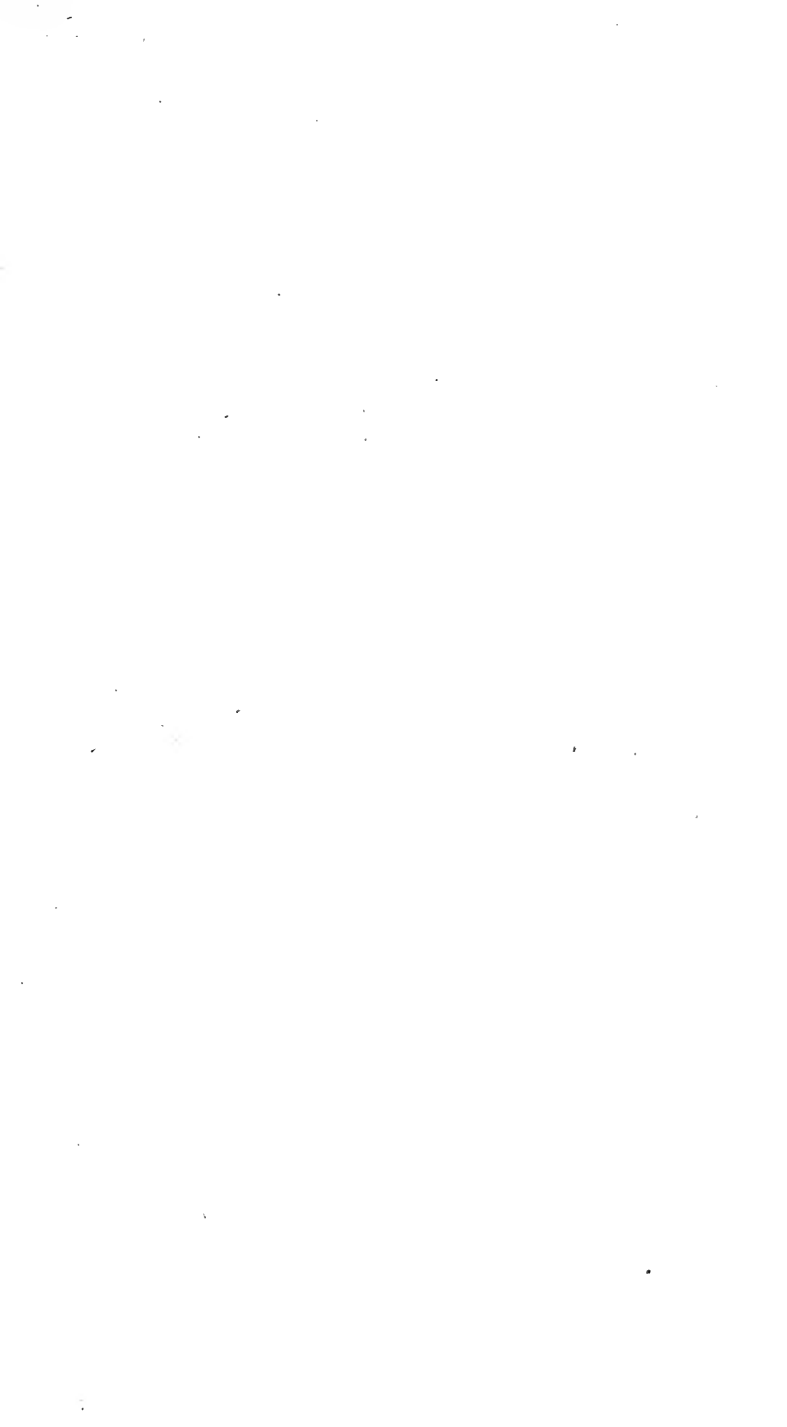
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Levin

Book 100



AN
ENQUIRY
INTO THE
Cause and Origin
OF
EVIL.

In which the Principal Phænomena of Nature are explained according to the true Principles of Philosophy; more particularly in Answer to Mr. *Bayle* and other Defenders of the anti-ent *Manichæan* Scheme of two independent Principles.

Being the Substance of Eight SERMONS Preached at the Parish-Church of *St. Mary le Bow*, in the Year 1719, at the Lecture founded by the Honourable *ROBERT BOTLE*, Esq;

By *JOHN CLARKE*, D. D.
Chaplain in Ordinary to His Majesty.

Isaiah xlv. 7. *I form the Light, and create Darkness: I make Peace, and create Evil: I the Lord do all these things.*

London, Printed for *JAMES KNAPTON*, at the *Crown* in *St Paul's Church-Yard*. 1720.

S. aug. de Civitate Dei, lib. 41, cap. 22.

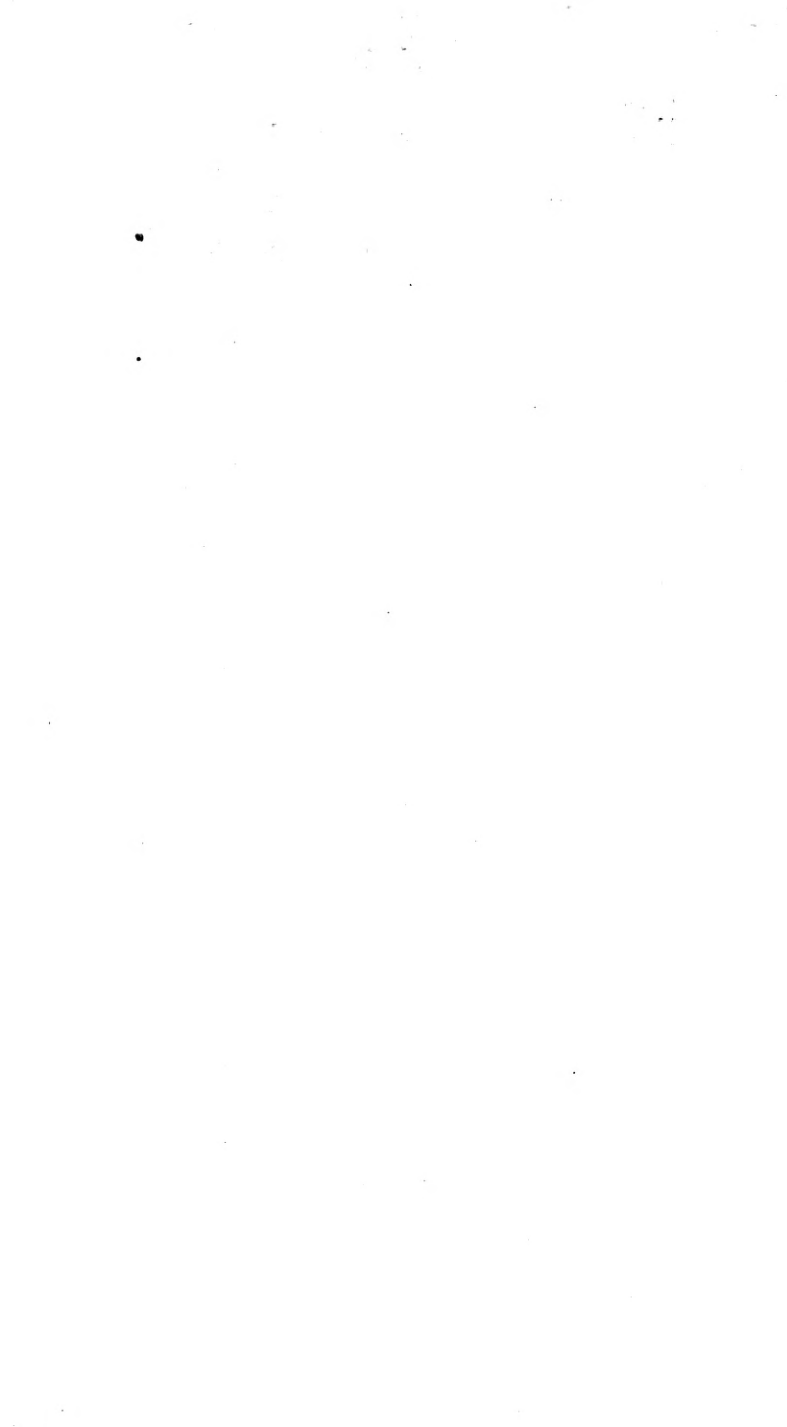
T O T H E
R I G H T H O N O U R A B L E
R I C H A R D,
Earl of Burlington:

The Right Reverend Fathers in God,
CHARLES, *Lord Bishop of Norwich,*
EDMUND, *Lord Bishop of Lincoln,*
SAMUEL, *Lord Bishop of Carlile,*
A N D
WHITE, *Lord Bishop of Peterborough,*
T R U S T E E S

Appointed by the Most Reverend Father in
God, THOMAS, late Lord Archbishop of
Canterbury, the last surviving Trustee
Named

BY THE HONOURABLE
Robert Boyle, Esq;

This Discourse is most
humbly dedicated.





T H E

P R E F A C E.



T H E Foundation of all Religion both Natural and Revealed, being laid in these two Things, that God is, and that He is the Rewarder of them that diligently seek him; it becomes every One who has any Regard for his present and future Happiness, to endeavour after the clearest Evidence, and highest Conviction possible, of such sub-

A 3 *stantial*

The Preface.

stantial, and important Truths. Now there are only two Ways by which we can be satisfied in these Particulars; And they are, either an Examination of the Works of the Creation, or else an extraordinary Manifestation of the Will of God from Heaven. By the former of these, we come to the Knowledge of the Existence and Wisdom and Goodness of That Being, who is the Cause of such wonderful and surprizing Effects; and by the latter we are assured of the final Justice and Equity of all his Dispensations and Proceedings towards his Creatures. It is the first of these only, that the following Discourse

The Preface.

course relates to; viz. to vindicate the Works of the Creation in those Particulars, which have been thought beneath the Skill of an infinitely wise and good Being. Though Atheistical Men have not been able to show wherein Such Arguments are defective, as have been urged to prove from a Necessity of Nature, that an infinitely Wise and Good Being must exist; yet they have imagined from the observation of Facts, that the contrary may be made appear, in that there are some Parts of the Creation which are so irregular and imperfect, as not to be reconcileable with the Notion we have of so per-

The Preface.

fect and excellent a Cause ; and consequently that these two things are inconsistent with each other. I have endeavoured to make appear the Weakness and Folly of These Men ; by showing that the principal Instances alleged by them, prove the direct contrary to what they are alleged for ; and that it is wholly owing to their Ignorance of the Ends and Uses of those Things, that they have raised such Objections against them. For upon the most exact Inquiry, according to the nicest Observation, and strictest Rules of Reasoning ; every Particular, which we have any Means of knowing the Circumstances of, is
demonstra-

The Preface.

demonstrably made the most useful and serviceable, that the Nature of the Thing is capable of; And we ought by Parity of Reason to conclude the same of those Things, which we have not had Opportunity or Means of coming to so thorough a Knowledge of. The farther we carry our Improvement, the more universal does this Argument appear, till at last it must coincide with the other Method of Arguing from the necessary Perfections and Attributes of the Deity; so that they mutually strengthen and confirm each other. These are sufficient to convince any sincere and unprejudiced Person, so far

The Preface.

*far as Religion and Vertue is concerned; But against Obstina-
cy and Vice, there is no Remedy of this Kind.*



The



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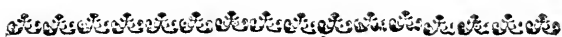
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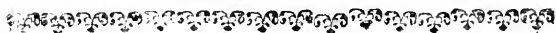
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A N
 ENQUIRY
 INTO THE
 CAUSE and ORIGIN
 O F
 E V I L.



WHAT is the * Cause and Original of Evil is a very important and very ancient Question;

The Introduction concerning the present State of Things.

Every Man's own Experience of what befalls himself in this present State, and a small Observation of the Condition of others, sufficiently teaches him how imperfect

* Τὸ ὄντα τὰ ἀγαθὰ καὶ πονηρὰ πᾶσι τὰ κακὰ. Marc. Tyrius Dissert. 25.

B Things

Things are, and what *Disorder* and *Confusion* they are liable to. The natural Faculties and Powers of Men, either with regard to their Minds or their Bodies, are at best very weak and infirm. Their Understandings are capable of comprehending but a few Truths, their Judgment is very unsettled, and their Practice consequent thereupon irregular and uncertain. And with respect to their Bodies, the *Materials* of which they are composed, the *Manner* in which they are framed, and the *Laws* they are subject to, render them very frail and brittle, but of a few Years Duration at longest, and subject to Dissolution much sooner. And the same may be affirmed of the Things without us, the whole *material* World. The present Constitution of it is such as makes it liable to perpetual Changes and Alterations,

Cause and Origin of Evil.

3

rations, which cause great *Disorder* and *Irregularity*. This is what we observe in the Things themselves considered singly: But if we apply them to each other, and see their mutual Influences and Effects, the *Disorder* will appear still the greater. From the strict Union of Soul and Body, the spiritual and rational Part, with the material and sensitive, arises that Discord described by St. Paul, Rom. 7, 23, *But I see (or I experience) another Law in my Members warring against the Law of my Mind, and bringing me into Captivity to the Law of Sin which is in my Members.* Thus the Dictates of Reason and Conscience draw Men one way, and the Suggestions of Sense and Passion entice them another. From the various external Objects which the World affords, all which are

accommodated to the Bodily Senses, and make such deep Impressions on the Mind, and often interfere with what calm and impartial Reason directs; arise also many *Neglects* and *Abuses*. These St. *John* comprehends under *the Lust of the Flesh, and the Lust of the Eyes, and the Pride of Life, which is all that is in the World*, 1 *John* 2. 16. To these we may add the many *natural Evils* which Men are subject to; and which are entirely out of their Power, such as *Sickness, Pain, and Death*, either arising from within themselves, or being caused from without by *Storms, by Pestilences, by savage Creatures*, and the like. And to compleat the whole, we may take in the *moral Evils* which proceed from the *Abuses* of Men. Under which are comprehended all Kinds of *Sin and Wickedness*, which is
clo-

eloquently described by the Prophet *David*, and from him by *St. Paul*, Rom. 3. 10, 18. *There is none righteous, no not one; there is none that understandeth, there is none that seeketh after God, they are all gone out of the way, they are together become unprofitable, there is none that doeth good, no not one; their Throat is an open Sepulchre, with their Tongues they have used Deceit, the Poison of Asps is under their Lips; whose Mouth is full of Cursing and Bitterness, their Feet are swift to shed Blood; Destruction and Misery are in their Ways, and the Way of Peace have they not known, there is no Fear of God before their Eyes.*

Such a Kind of Survey as this of the Condition and Circumstances of Things, hath led Men to enquire into the Cause and Reason

The different Effects of such Considerations upon Men.

B 3 of

of them: Which has produced different Effects, according to their respective Inclinations or Views.

*Upon
religious
Persons.*

Pious and sincere Men have been very much shock'd and disturb'd with such Observations, and have been sometimes driven to complain of the Dispensations of Providence. Thus King David says, *Psal. 73. 16. When he thought to know this, it was too painful for him.* And thus the Prophet *Jeremy* complains of God Almighty's Dealings with Men, *ch. 12. v. 1. Righteous art thou, O Lord, when I plead with thee, yet let me talk with thee of thy Judgments: wherefore doth the Way of the Wicked prosper? Wherefore are all they happy that deal very treacherously?*

*Upon
religious
Persons,*

On the other hand, wicked and irreligious Men have taken occasion from hence absolutely to deny the Providence of God, that he at all

Cause and Origin of Evil. 7

all created the World, and all Things in it, at the beginning; or that he has since had any Hand or Share in the Government of it.

This was the Notion of the *Epicureans* of old, as ap-

pears from the Account* *Lucretius* him-

self gives of them: *The System of the World*, says he, could

not possibly be the Effect of a Divine Power, because it is so very faulty. And the Instance he gives of its Faultiness is *e cæli rationibus*, from Astronomy, or the Constitution of the Heavens; that the Inclination of the Ecliptick to the Equator is such, as renders the greatest Part of the Earth uninhabitable both to Men and other Creatures; the Heat in the torrid, and the Cold in the frigid Zones, being so excessive great, that they

* Nequaquam nobis divinitus esse creatam Naturam mundi, quæ tanta est prædita culpa.

Lucretius, lib. 2. v. 180.

cannot subsist under it. This is his principal Argument. To which he adds the Usefulness of a great Part of the Earth to Mankind, by reason of the many Seas and Rocks and barren Heaths, and the Difficulty of the other Parts yielding Fruit, without great Labour in tilling and manuring it; and after all, its Liableness to have them destroyed by Storms and Tempests, or by wild Beasts and Animals. In a word, their Method of arguing

I shall give you in the Words of a learned Writer thus. **The Topick of Evils in general is insisted up-*

* Dr *Cudworth's* intellectual System, p. 78. and *Lactantius de Ira Dei*, cap. 13.

on by them (the Epicurean Atheists) after this manner. The supposed Deity and Maker of the World was either willing to abolish all Evils, but not able; or he was able, but not willing; or thirdly, he was
neither

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neither willing nor able; or else, lastly, he was both able and willing; This latter is the only thing that answers fully to the Notion of a God. Now that the supposed Creator of all Things was not thus both able and willing to abolish all Evils, is plain, because then there would have been no Evils at all left; wherefore since there is such a Deluge of Evils overflowing all, it must needs be that either he was willing, and not able, to remove them, and then he was impotent; or else he was able, and not willing, and then he was envious; or lastly, he was neither able nor willing, and then he was both impotent and envious. This was their Method of arguing concerning natural Evils, such as Pain and Trouble, and the like; And their Objection about moral Evils was much the same, viz. That if the
Divine

Divine Providence concerned it self at all in the World, it would appear in Human Affairs, in protecting the Innocent and Virtuous, and in discouraging the Prophan and Wicked; but they observed that all Things came alike to all, that there was one Event to the Righteous and to the Wicked, to the Good, and to the Clean, and to the Unclean, to him that sacrificeth, and to him that sacrificeth not; as is the Good, so is the Sinner, and he that sweareth, as he that feareth an Oath, Eccl. 9. 2.

The No-
tion of
the Sto-
ick and
other Phi-
losophers.

Thus the prophane *Dionysius*, notwithstanding his open Contempt, and ridiculing of all Religion, and every sacred Thing,

* Hunc nec *Olympius Joviter* fulmine percussit, nec *Æsculapius* misero diuturnoque morbo tabescentem interemit; verum in suo lecūlo mortuus in Tym-

* yet lived free from Divine Vengeance, and died peaceably in his Bed. And *Diogenes* the Cynick, tho'

tho' himself acknowledged the Being and Providence of God, yet was forc'd to confess, upon seeing the Prosperity of *Harpalus*, a famous Robber and Pirate in those

Times, who committed many great and notorious Wickednesses, that he did *Testimonium dicere contra Deos*, bear Testimony against the Gods. This Argument is at large set forth

by the *Academick* in * *Tully*; where by a long Induction of particular Instances of very great and enormous wickednesses committed by Men in † private and in publick, he endeavours to shew, that it had been better for Mankind if

panidis rogam illatus est, eamque potestatem quam ipse per scelus nactus erat, quasi justam & legitimam hereditatis loco tradidit. *Cicero de Nat. Deor. Lib. 3. § 35.*

* *De natura deorum, Lib. 3. Sect. 26.*

† *Sentit domus uniuscujusque, sentit forum, sentit curia, campus, focii, provincia, ut quemadmodum ratione recte fiat, sic ratione peccetur, &c. Ibid.*

they

they had had no *Reason* at all given them, than such a Share of it as they have, which they so perpetually abuse; and consequently that God did not herein consult the Good and Benefit of Men, and therefore they are not under the Direction of his Providence.

Poetical Representations of the same. And as the Philosophers amongst the Heathen reasoned in this manner concerning the present State of Things, so likewise was it the Subject Matter of the Poets, who entertained their Readers and Hearers with lively Representations of the many Evils and Misfortunes that

* *Lib. ult. Iliad. Διοίτι δὲ
πὲ πῖθου καὶ ἀκακίας ἐν
Διὸς ἕδρῃ.*

Mankind were subject to. Thus **Homer* represents *Jupiter* as having two Hogsheads set before him, the one filled with *evil*, the other with *good* Things, a Mixture of which he dispenses amongst

mongst Mankind, sometimes taking out *Evil*, and sometimes *Good*. And this Topick has supplied the Tragædians with Plenty of Instances to exercise their Inventions, and to divert their Auditors. After this manner have Atheistical Men treated this Subject of the *Original of Evil*, so as to collect from the Observation of Facts, either that there was no God at all, by whom all Things were at first created; or at least that they are not at present under his Divine Care and Inspection.

There are others who have been more modest in handling this Subject: Who, whatever the natural Consequence of their Solutions may be, have not so barefacedly attack'd the Wisdom of Divine Providence. And These are they who have admitted Two first *Principles* or *Causes* of all Things; the

The Notion of the ancient Magicians.

the *one* the Original from whence every thing that is *good* proceeds, and the *other* the Original from whence all *Evil* springs. This was the principal Doctrine of the ancient *Magians*, of the Religion of the *Medes* and *Persians*, established for many Ages in the Eastern Countries before the Reign of

Darius; A short Account of which a learned *Author gives us in the following

* Dr *Prideaux*, Scripture Connexion, Vol. 1. p. 169. Fol. Edit.

Words: *They held the being of two first Causes, the first Light, or the good God, who was the Author of all Good; and the other Darkness, or the evil God, who was the Author of all Evil; and that of the Mixture of these two, as they were in a continual Struggle with each other, all Things were made.* And to this the following Words of the Prophet

phet *Isaiah* seem to relate, being spoken by him to *Cyrus* King of *Persia*, and therefore probably had reference to this Sect of the *Persians*, who then held *Light* and *Darkness*, *Good* and *Evil*, to be the Supreme Beings, without acknowledging the one only true God, who is the sole and original Author and Cause of all Things. Verse 5, 6, *I am the Lord, and there is none else, there is no God beside me: I girded thee, tho' thou hast not known me, that they may know from the rising of the Sun, and from the West, that there is none beside me: I am the Lord, and there is none else, I form the Light and create Darkness, I make Peace and create Evil, I the Lord do all these Things.* These first Causes or Principles of *Good* and *Evil* were by the *Persians* called *Oromasdes* and

and *Arimanius*; by the *Egyptians*, *Osiris* and *Typhon*; by the *Chaldeans*, good and bad *Planets*; by the *Græcians*, *Jupiter* and *Pluto*; and the good Principle was also called *God*, and the bad Principle

The Manichæan Notion. the *Devil*, as *Plutarch* informs us. And * in the early

* In the *Third Century.*

Ages of *Christianity* we find this same

Opinion brought out of *Persia* by one *Manes* a *Persian*, who introduced it into the *Christian Religion*, and formed the *Sect* of the *Manichæans*: Of whom

† Δόγματα γε μὴν ψευδῆ καὶ ἀθεὰ ἐκ μυθίων ἢ πρὸ παλαιῶν ἀπεσθηκῶν αἰρέσεων συμπερορημένα κατήχασας, ἐκ τῶν περσῶν ἐπὶ τῷ καθ' ἡμᾶς οἰκουμένῳ ὡσπὲρ τινα θανάσιφόρον ἰδὸν Ἑωμόρξαλο, ἀθ' ἔτι δὴ τὸ μανιχαίων δυαθεῆς ὄνομα τοῖς πολλοῖς εἰς ἔτι νῦν ἐπιπολάζει; τοιαύτη γὰρ οὐκ ἢ καὶ τῆσδε τῆς ψευδωνύμου γνώσεως ἰσχυροὶς καὶ τῶν διηλωμένων ὑπορρέσεως χροῖνης, *Eusebii Eccles. Hist. Lib. 7. Ch. 25.*

† *Eusebius* gives this short Account: That he vented false and atheistical Opinions, patched up out of an infinite Number of old extinguished Heresies, which he brought from *Persia* into this

Part

Part of the World, and spread the deadly Poison of them about; from whom the impious Name or Sect of the Manichæans is derived, and still remains amongst

many. To this, * So- crates the Historian adds the Opinion it self: He attempted, says he, to introduce the Opinion of Empe-

* Την ἐμπεδοκλήος καὶ πυθαγόρου δόξαν, εἰς τὴν χριστιανισμόν παρήγαγε, διὰ φύσεις ἐπὶ τὸν ἀγαθὴν τε καὶ πονηρὰν, ὡς καὶ ἐμπεδοκλῆος, νεκροῦ ὀνομαζομένου τὸ πονηρὸν, φιλίαν δὲ, τὴν ἀγαθὴν. Securis Eccles. Hist. Lib. 1. Ch. 17.

docles and Pythagoras into the Christian Religion; he asserted that there was two Natures, as Empedocles also did, the one good, and the other evil; the evil he called Discord, and the good Friendship. This Sect was at first settled in many Provinces, spread it self very much, and continued a long Time; (see Bayle under the Word Manichæans;) inso-much that in the 7th Century, under the Name of Paulicians (see Bayle under

the Word *Paulicians*,) from one *Paul*, who became their Head, it had over-run the whole *Roman Empire*; and no less than 100000 of them were massacred in *Thrace* and *Bulgaria*; which yet did not extinguish them, but in Time their Absurdities were so gross that it came to nothing. But it has been lately revived by a

23.
—
The same
Notion
revived
by Mr.
Bayle.

* Mr *Bayle*. See his Dictionary, under the Word *Manicheans*.

* learned Person, who pretends to have cleared it of all those Ab-

surdities, and affirms that there is no other way of accounting for the present Matters of Fact, and that the *Phænomena* of Nature cannot be explained by any other Hypothesis. He endeavours to illustrate his Doctrine in a feigned Dispute between *Zoroaster* and *Melissus*: The former defends the two Principles of the *Manicheans*, and the latter the one Principle, *viz.* God,
to

to be the Cause and Author of all Things. Their ridiculous Inventions of a long War between the two Principles, and the Fights and Prisoners which the *Manichæans* speak of, he wholly gives up, as too absurd to be defended. For,

as himself says, * *in order to render the Hypothesis the less offensive, the long War between the two*

* See Bayle's *Diction.* Remark D under the Word *Manicheens*. Pour rendre son Hypothese moins choquante, &c.

Principles, which the Manichæans speak of, might be denied, as also their Battels and Prisoners rejected; So that the whole might be reduced to the certain Knowledge the two Principles have; that one could never obtain of the other but such and such Conditions; And thus an eternal Agreement might have been made upon this Foot. After this Preface, he states the Phænomena in the following

* Bayle *ibid.* L'homme est mechant & malheureux, &c.

manner: * *Man*, says he, is wicked and unhappy. This every one knows by what he ex-

periences within himself, and by that Commerce he is obliged to have with his Neighbours. Five or Six Years Observation is sufficient fully to convince any one of the Truth of this; but they who live longer, and are engaged in Worldly Affairs, know it still more clearly. Travels afford perpetual Lectures upon this Subject; Which shew every where Monuments of Mens Misfortunes and Wickednesses; as appears by the many Prisons, Hospitals, Gibbets. and Beggars. Here we see the Ruins of a flourishing City, in another Place the Ruins are hardly to be found.

Jam seges est ubi Troja fuit,
rescandaque falce;

Luxuriat Phrygio sanguine pin-
guis humus.

Ovid. *Epist. Pen. ad Ulyss.*

Read

Cause and Origin of Evil. 21

Read the following excellent Words taken out of a Letter written to Cicero. "Ex Asia rediens, cum ab Ægina Megaram versus navigarem, cœpi regiones circum circa prospicere: Post me erat Ægina, ante Megara, dextra Piræus, sinistra Corinthus; quæ oppida, quodam tempore florentissima fuerunt, nunc prostrata & diruta ante oculos jacent. *Sulpitius ad Ciceronem.*"

Men of Learning, without going out of their Studies, are the proper Persons to acquire the clearest Knowledge hereof, because in reading History they have a full View of all Ages and all Places in the World. And History, properly speaking, is little else but an Account of the Crimes and Misfortunes of Mankind. On the other hand it is observed, that these two Evils, the one moral, and the other natural, do not take up the whole of History; there are every where some

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Things

Things that are naturally and morally good, some Examples of Virtue and Happiness. And this makes the Difficulty. Were there none but evil and unhappy Men, there would be no need of an Hypothesis of two Principles: it is the Mixture of Happiness and Virtue with Misery and Vice, that makes it requisite. Here he

*lays the Stress of the whole Matter: *Whence is it that Man is subject to Pain and Misery, if Man be the*

** Si l'homme est l'ouvrage d'un seul principe souverainement bon, &c. Bayle *ibid.**

Workmanship of one only Being, sovereignly good, holy and powerful? Can he be exposed to Diseases, Heat and Cold, Hunger and Thirst, Pain and Grief? Can he have so many evil Inclinations? Can he commit so many Crimes? Can Sovereign Holiness produce a criminal Creature? Can Sovereign Goodness produce an unhappy Creature? Would not Sovereign

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reign Power, joined with infinite Goodness, furnish his own Workmanship plentifully with good Things, and secure it from every thing that might be offensive and vexations?

And again a little further, * *If Man were the Workmanship of a Principle infinitely good and holy, he should not only have been created without any actual Evil, but also without any Inclination to Evil, since that Inclination is such a Defect as could not have such a Principle for its Cause.* Thus we find his stating the Case, and affirming concerning it, that there is no possible way of solving these Appearances, but by having recourse to two necessary, independent, eternal Principles, directly opposite to each other, † *who*

* Que si l'homme étoit l'ouvrage d'un Principe infiniment bon & saint, il auroit été créé. &c.

† Les deux principes las du chaos, &c. Bayle *ibid.*

at first put a continual Stop to each others Designs; but at last being weary of this Confusion, they came to an Agreement; each of them yielded something, each of them had a Share in the Production of Man, and in the Laws of the Union of the Soul; the good Principle obtained those which procure to Man a thousand Pleasures, and consented to those which expose him to a thousand Sorrows; and if it consented that moral Good should be infinitely less in Mankind than moral Evil, it repaired the Damage in some other Kind of Creatures, wherein Vice should be much less than Virtue. If many Men in this Life have more Misery than Happiness, this is recompensed in another State; what they have not in a Human Shape,

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of all Re-
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Thus we see prophane and
atheistical Men in every Age em-
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ploying all their Wit and Invention to find out Hypotheses, in order to subvert all Religion, and to encourage Men to go on in the Practice of Iniquity. For to this End all their Discourses manifestly tend; either to destroy the very Existence of God, to deny his Providence and Government over the World, or to introduce a Plurality of Gods, whereby all religious Worship is confounded; or else to make God the Author and immediate Cause of all Evil and Wickedness, and consequently Men to be mere Machines, not acting of themselves, but only being acted upon, so that they cannot be accountable for what they do or leave undone: Which destroys the essential and eternal Difference of Good and Evil, Virtue and Vice, and takes away the Foundation of Rewards and Punishments. *These,*
I say,

I say, are unavoidable Consequences of such Hypotheses, and they are such as the Authors themselves saw, and were not ashamed to own.

† Nous n'avons aucune Idée distincte qui puisse nous faire comprendre, &c. Bayle *ibid.*

Thus the forecited Person affirms, that † *we have no distinct Idea that can make us understand that a*

Being (such as Man is) which does not exist of it self, can nevertheless act of it self. Zoroaster therefore will say, that the Free-will which was given to Man, is not able actually to determine it self, since it exists continually and totally by the Action of God. What is this but to affirm that Man has no Free-will, is no Agent at all, but is wholly passive, and acted upon by the Supreme Being, who does every thing in him, and that therefore Man can no more properly be said to be at Liberty than a Watch or a Clock?

a Clock? Thus ingenious Men make *Hypotheses*, in order to account for Difficulties; which instead of explaining those Difficulties, overthrow the most plain and certain Truths in the World. They take *Principles* for granted, which neither themselves can prove, nor ought others to allow; and then draw such Conclusions from them, as contradict every ones own Experience. In Enquiries of this Nature we ought to consider,

First, The Dignity and Weight The Dignity and Weight of this Subject. of the Subject; what Kind of Arguments and Proofs may be expected, and the Manner in which it ought to be treated. Mens Reason and Understanding was given them on purpose that they might use them in the Search after Truth, and the whole Creation is a proper Object for them to exercise those Powers and Faculties

ties upon. But that which relates more immediately to the Happiness of Mankind, which teaches him what sort of a Creature he is, wherein his greatest Perfection consists, what his proper Business and Employment ought to be, and what his final Hopes and Expectations, this should be their *principal* Enquiry, and they should endeavour to gain the greatest Satisfaction in it. The Question now before us takes in all these Particulars, and is of the highest Importance and Concern; for if we conceive our selves to be in a *natural and moral* State of *Evil*, and know not what to ascribe it to, neither how we came into it, nor which way to escape out of it, we shall be very much perplexed and confounded. Hence have arisen the extravagant Opinions of *Fate*, as if every thing existed necessarily

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ly in the Manner it does, thro' an eternal Succession of Ages, without any Cause or Reason: And of *Chance*, as if the whole System of the Universe fell into that Order in which we now see it, by a fortuitous Concourse of Atoms: With numberless other incoherent Notions. Hence also have arisen the grossest Superstition, and most absurd Worship of dead Heroes and Kings, and of mere Names and Modes or partial Considerations of the Deity, which have been appointed by Tyrannical Governours, to keep the Ignorant in awe, and to serve Worldly Purposes. And from hence Men have been led into all Kind of Wickedness and Immorality, having no Sense of the Authority of a Deity, no Remorse of Conscience, nor any other Obligation to the Practice of Virtue and Honesty. As therefore we have
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any Regard for the Honour of God, that, as *St. Paul* says, *Rom.* 3. 4. he *may be justified in his (Works, as well as) his Sayings, and may overcome when he is judged*; As we have any Esteem for Virtue and Truth, which are eternal and immutable, and which are founded in the Nature and Reason of Things; And as we have any Value for our own selves; and that Happiness we are capable of enjoying: We ought diligently to search into the *Cause* and *Foundation* of all the *Evils* incident to Mankind, that we may be able to form a true Judgment of them, that we may know what a Hand we have in bringing them upon our selves, and consequently how we ought to act under them.

Secondly,

Secondly, In such Enquiry we ought to consider what Kind of Arguments or Proofs are to be expected. For these are always proportioned to the Nature of the Subject. In some Things they are Demonstrations, and in others they are only greater or less Degrees of Probability. Of Demonstrations there are two sorts; Demonstrations *a priori*, when we argue from the Cause to the Effect; and *a posteriori*, when we argue from the Effect to the Cause. Thus when we argue from the Idea's we have of Immensity, Eternity, necessary Existence, and the like, that such Perfections can reside but in *one* Being, and thence conclude that there can be but one Supreme God, who is the Cause and Author of all Things, and that therefore it is contradictory to this to suppose that there can be

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two necessary independent Principles, the one the Cause of all the *Good*, and the other the Cause of all the *Evil* that is in the World; this is an Argument *a priori*. Again, when the *Manicheans* and *Paulicians*, from what they observe in Things and Facts, from the many *natural Evils* which they see in the World, and the many moral Wickednesses which are committed by Men; conclude that there must be two different Causes or Principles from whence each of these proceed; this is arguing *a posteriori*.

* Ainsi en consultant ces idées, on ne trouve rien de plus absurde que l'Hypothèse des deux principes éternels, & indépendans l'un de l'autre, dont l'un n'ait aucune bonté, & puisse arrêter les desseins de l'autre. *Bayle ib.*

According to the former way of Reasoning, the forementioned Author allows the Defenders of the *one Principle* of all Things to have the Advantage, and

* *that*

that nothing can be more absurd, if we consult our own most clear and distinct Idea's, than the Hypothesis of two eternal Principles, independent on one another, whereof one has no Goodness, and puts a Stop to the Designs of the other. But this seems to be said because he thinks such Idea's are only mere Imaginations of the Mind, and have nothing without to answer to them; and that therefore the certainest Way is to argue *a posteriori*, by explaining the Phænomena, and giving an Account of the Matters of Fact, which he affirms the admitting of two Principles does, and therefore *

he has hit the Mark, and his Method of arguing exceeds the other notwithstanding the Beauty of Idea's and Reasons. Yet the Idea's of Necessity,

* Je regagne donc l'avantage. Vous me surpassez dans la beauté des Idées, &c. Bayle *ibid.*

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Unity,

Unity, Immenſity, and the like, are as clear and diſtinct, and the Exiſtence of a Being to whom they belong does as unavoidably follow, and we are as certain of it, as of our own Exiſtence, and of any thing without us anſwering to thoſe Impreſſions we feel within us, and as we are of thoſe Facts which he calls Phænomena. So that the Reaſoning *a priori* is in it ſelf as ſtrong and concluſive as that *a poſteriori*, and they have a ſtrict Connexion with each other; for by the Obſervation of the Facts we get an Idea of the Cauſe, and from the Nature of the Cauſe we judge concerning the Facts.

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treated.
Luk.vii.
v. 30.*

Laſtly, The Manner of treating this Subject, ought to be ſuch as the Dignity of it requires. *Wiſdom*, as our Saviour ſays, *will be juſtified of her Children*. Such Perſons only who have a Love and

and Concern for Truth, and are diligent and earnest in the Pursuit of it, are able to find it out, and to vindicate it. Prejudice and Passion blind the Understanding, and vicious and corrupt Habits disable the Powers and Faculties of the Mind; so that it can no more judge of Truth than a vitiated Eye can judge of Colours, or than Colours can be distinguished through a false Medium. Truth is unalterable, and the Ways of finding it out certain; it is not to be made and unmade at Pleasure, or diversified according to the various Humours and Fancies of Men; it is universal, and all of a Piece. It is therefore our Part to enquire into the Truth and Reason of Things with Sincerity and Integrity, to lay the Foundation in what we are sure cannot deceive us; in the essential Diffe-

rence betwixt Virtue and Vice, Right and Wrong, Good and Evil; in which we can no more be imposed upon, than Light can be made appear to us as Darknefs, or Bitter and Sweet have the same Taste. And whatsoever we build upon this Foundation, will be as firm and unshaken by all the Attacks of vicious and prophane Men, as a House built upon a Rock is by Storms and Tempests.

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ties.*

Had these Rules been observed, there would have been no occasion for inventing absurd Hypotheses to explain any of the Phænomena of Nature. As *Truth* may be left to the strictest and most impartial Enquiry, without any Danger of its *being* or *appearing* like *Falshood*, so the System of the World may be very safely committed to the closest and most curious Examination of the nicest

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Enquirer, assisted by all the Helps of Art and Nature; without fearing that any Part of it should be below the Workmanship of its Creator, or cast any unworthy Reflexion upon him. *Error* and *Irregularity* only, are ashamed to appear in the Light, and must be supported by Art and Human Contrivances. *Here* there is many times need of Darkness, or of a false Light; *these* must be supported by Power or Interest, and the like, to gain them Reputation; But the Works of the Creation want no such mean Artifices to recommend them to the Esteem and Admiration of all that behold them. Nothing more is required, but to judge of them by the unerring Rules of Reason and Knowledge; and the nearer they are viewed, the more exactly they are compared together, so

much the more beautiful do they appear, and more nicely adjusted to each other. In any other Method than this, they may seem disordered and confused; In the same manner as in Human Arts and Sciences; to a Person who has no Skill in Building, who understands not the Rules of Architecture, the most regular and well contrived Edifice may seem disproportionate, and without any Beauty; And by that Ear which has no Relish of Musick, the most perfect Concord and Harmony may not be distinguished. There are therefore some first and general Principles in every Art and Science, which it is necessary for those to understand, who would improve themselves in the Knowledge of them, or who would judge of the Skill of others; and if they are mistaken in *these*, or if they apply the Rules of one Science to another,

another, to which they do not belong, the Faults they unjustly cast upon it will return upon themselves. Thus likewise there are general *Laws*, by which the System of the World is governed, which it is necessary for every one to understand, who would judge of the Order and Regularity of it; and from Mens Ignorance in, or Misapplication of *these*, have arisen all those Objections which they themselves have thought so strong, and which they have endeavoured to answer in a different Way.

This was the Case of the *Epi-*^{The Weak-}
curians, as is manifest by the In-^{ness of}
 stances they gave. Their principal ^{the Epi-}
 Objection of the Obliquity of the ^{curian}
Ecliptick to the *Equator*, whereby ^{Arguments}
 the torrid *Zone* is rendered too hot,
 and the frigid *Zone* too cold for
 Men to inhabit; was owing to their
 Ignorance of those Places and their

Inhabitants. Modern Discoveries in Geography fully answer this Objection, by shewing the Facts to be false. The Heat is not so excessive, even under the *Line*, but it can be very well born; nay, it is so tempered with continual Wind and Rain, as render it very agreeable. Besides, the Sun's Motion in the *Ecliptick* (which near the *Equator* makes the greatest Angle with it) is then so quick, compared with what it is in the *Tropicks*, that it is not full Two Months in moving *Twenty* of the *Seven and Forty* Degrees of Declination; so that it is but a very little while vertical; and, which still diminishes its Heat, 'tis never more than *Twelve Hours* above the *Horizon*: And we have Instances of Persons who have lived to as great an Age, as Men in cooler *Climates*. So likewise the greater

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er Part of the frigid *Zone* is found to be habitable by *Men*, and the Produce of those Places furnishes both *them* and the Animals there, with Fences against the Extremity of the Cold. And if the *Epicureans* had considered the Effects of the Position of these Two Circles in any other Obliquity, they would have found much greater Inconveniences arising from the unequal Distribution of Light and Darkness, Heat and Cold; which in the present Situation are equally distributed upon the whole. Had the Obliquity been much *more* than it is now, the torrid *Zone* would have increased proportionably; and then the Heat and Drought might have been too great for Plants and Animals under the *Line*; and whilst the Sun approached one *Pole*, those Parts towards the other *Pole* would have been left in
much

much greater Darknefs, and longer Cold than now: And had the Obliquity been much lefs, the Heat would have been too near an Equality, fo as to have destroyed the agreeable Seasons of Spring and Summer, Autumn and Winter. If therefore we take in the whole Globe of Earth, and confider it in its prefent State, we fhall find that the Light and Heat is the moft equally difpenfed that it could be. The Inftances of the Ufelefsnefs of a great Part of the Earth, as *Seas, Rocks, Heaths*, and the like; are all fuch as fhew only the Ignorance of the Objectors in thofe Matters: As is plain by the late Discoveries in Navigation and Philofophy, and fhall be particularly made appear in its proper Place. At prefent this is fufficient to fhew how weakly they argued againft
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the Maker and Governor of the World ; by first supposing those Things to be *evil* or *useless*, which are of the greatest Benefit to Mankind in many respects, that they were wholly ignorant of, and then unjustly inferring from thence that they could not be created by a wise and good Being. The very Foundation of their Argument is false, and therefore what they conclude from it must necessarily be so too ; Till Men know the Nature of the Thing, the several Ways it may be applied, and all the Ends and Purposes it may serve, it is unreasonable to pronounce concerning it whether it be *good* or *evil*, and it is much more unreasonable after a groundless Determination to reflect on the Author of it. Upon a nicer Enquiry such Suppositions are found to be false, and the Reflections turn to the
Shame

Shame and Confusion of those who make them.

The Weakness of the modern Objections.

Thus it is with the *Epicurean* Atheists of old; and thus it is likewise with those who in later Ages have followed their Example. It

* *Alphonfus X. King of Leon and Castile.*

is reported of a * certain King, who from his great Skill in Astronomy was stiled the *Wise* and the *Astrologer*, that he should prophanely say, *If he had been with the Creator when he made the World, he could have taught him how to have made it better.* This Saying of his, was wholly owing to his Ignorance of the *true* System of the World; and has been fully answered since even to a *Demonstration.* The *apparent* Motions and Bignesses of the Planets are very different from the *true* ones. Upon the former the ancient Astronomers built their Systems,

Systems, which are so perplexed and confused that they are scarce intelligible. They observed the Planets to be sometimes nearer, and sometimes further off; to have different *Phases*; to be sometimes *progressive*, sometimes *stationary*, and sometimes *retrograde*. To solve these, and such like Appearances, they invented various Hypotheses. According to *some*, the Earth was the Center; and the Sun and Planets, together with all the fixed Stars, revolved about it every Day; And *others* would have *some* of the Planets move about the Sun, which should carry them along with it about the Earth. To account for all these *seeming* Irregularities, they were forced to have recourse to *Excen-*
trics, *Epicycles*, and *Epicycles* upon *Epicycles*, and the like; and with regard to *these* it was without
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all doubt, that the forementioned Astronomer spake ; And had *these* been the true System of the World, it would have been extremely difficult to have shewn the Wisdom or Contrivance of it; For according to *them*, there is no *Proportion* observed, no *Adjustment* of the Magnitude and Distance of the respective Bodies, nor any regular *Curves* in which they are moved ; but the great Bodies move about the lesser ones with the same Indifference as *These* would do about *Them*. But this is so far from being the Truth, that, as the Prophet eloquently expresses it, *Isaiah 40. v. 12. God hath measured the Waters in the Hollow of his Hand, and hath meted out Heaven with a Span, and comprehended the Dust of the Earth in a Measure, and weighed the Mountains in Scales, and the Hills in a Balance.* The Distances
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of all the heavenly Bodies from their *respective* Centers of Gravity, about which any particular Number of them move, and from the common Center of Gravity of them all, are most exactly in *reciprocal* Proportion to the *Quantity* of Matter contained in each of them; whence they are in perfect *Equilibrium*; and consequently by the mere Continuance of the general Laws of Nature, when once put in Motion, they will revolve in regular Figures about their common Center of Gravity and about each other. From hence arise their different Appearances and *seeming* Irregularities; when at the same Time they go on uniformly in their stated Course. Thus, when any Planet *seems* to be *stationary* or *retrograde*, it does in *reality* proceed on in its Orbit; and it is owing to our Position only, that it appears

appears otherwise. As shall be fully explained when we come to consider the *real* Motions of them, and the *Laws* by which they are govern'd. There was therefore no need of those fore-mentioned Inventions to explain the Phænomena of Nature. And those Persons who complained of the *Laws* of the Creation, complained only of *Laws* of their own making, which are no where to be found in Nature; and the Absurdity of which, they must answer for themselves.

*With Re-
spect to
the mo-
ral
World.*

And the same will be found to be true likewise of the moral World, the several Parts of which are as exactly adjusted and proportioned to each other as those of the natural World. *Truth* is as agreeable to the Understanding, as *Light* is to the Eye; and *Vertue* is as beautiful to the Mind, as any *material*.

material Object is to the Sight. And every *Sense* belonging to the *Body*, has also its proper *Object*, which is duly calculated to it; and in a right Application of which, consists its greatest Enjoyment. If therefore we diligently examine into the Nature of the *Mind* and of the *Body*, the several Faculty's and Powers of each of them, their Dispositions and Inclinations, what the proper Objects of them are, in what Manner they are to be applied, and what is the Rule and Measure of Action; we shall find *this* also is a very regular and well-contrived System, and that there is no more Need of the Hypotheses and Fictions of Learned Men to account for the *Irregularities* and *moral Evils* of Mankind, than there was of *Excentricks* and *Epicycles* to explain the *Motions* of the heavenly Bodies.

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dies. Such Hypotheses for the most part dishonour the Creation; but a strict Enquiry into the *Laws* of it, always shews the Wisdom of the Creator more and more. We need not therefore to fear but in this Respect also God will justifie himself, and that the Wickedness which is committed amongst Men can be no Way charged upon Him. And thus the Prophet *Isaiab* affirms in Opposition to such Hypotheses, that God alone is the *Original* and *Author* of all things, and that He will vindicate Himself in the Creation and Government of them; *ch. XLV. v. 7. I form the Light, and create Darknes, I make Peace and create Evil, I the Lord do all these Things.* And *Prov. 16. v. 4. The Lord hath made all Things for himself,* (or as it should have been rendred; hath

hath suited Things to each other,) yea even the Wicked for the Day of Evil; that is, God hath made all Things corresponding to one another, hath exactly fitted and proportioned them, yea even the Punishment of evil Men according to their Deserts.

But before I come to explain this in Particulars, it will be necessary to consider That antient Hypothesis lately revived, of two Original Principles; the one the Author of all Evil, and the other the Author of all Good; and to show that notwithstanding the boasted Excellency of it, it is a very absurd and contradictory Supposition, such as cannot exist in Nature, and will by no Means solve the present Phænomena. And this I shall do by examining

The Weakness of the Hypothesis of two Original Principles.

E 2 *First,*

First, What Sort of an *Idea* That is, of an infinite, independent, necessary *evil* Being. And then, *Secondly*, I shall make it appear, that the very Supposition of the Existence of such a Being, is an express and direct Contradiction to the Existence of an infinite, independent, necessarily Good Being : And that therefore we are as certain that this is not a true Account of the Original of Things, as we are of the common Principles of all Knowledge :

* As Mr. *Bails* does in the forecited Place, in these Words : Les Idées les plus sûres et les plus claires de l'ordre, nous saprenent, &c. *Manicheens*, Remark D.

And that not * to allow of arguing thus from the most simple and clear *Idea's* of our Minds, is to deny the eternal and necessary Relations of Things, even the same in Effect as to say there is no Difference betwixt a Square and a Circle

a Circle, betwixt twice two and seven. *S. Clarke : Boyle Lect.*

If an *Evil Principle* be allow. *The Absurdity of two Original independent Principles.*
 ed at all, it must exist of it self absolutely independent of the *good Principle*; because 'tis supposed that they are equal, and share alike in the Government of the World; and because, if the *one* were superiour to the *other*, it would certainly prevail, and not suffer *That other* to act in direct Opposition to it. Wherefore the Defenders of this Scheme are so far consistent with themselves as to assert, that the *evil Principle* is infinite and independent, and in every thing opposes the Desigus of the *good Principle*: But they do not define their Terms, nor tell us what Sort of an Idea *That of infinite Evil* is, nor how it can be applied to such a Being. All *Evil* supposes *Understanding* and

Power and *Liberty* of acting ; because it is the Consequence or Effect, either of the *Neglect* or *Abuse* of one or more of *these*. For in the *Imperfection* or *Want* of them it cannot be supposed by these Men to consist ; because an Understanding infinitely *imperfect*, or an infinite *Want* of *Understanding*, is no *Understanding* at all : And the same may be affirmed of *Power* and *Liberty* and the like. Their first Principle therefore must be endued with infinite *Knowledge* and *Power*, and with perfect *Liberty* of acting ; and how does this agree to the Notion any one has of an infinite *evil Being* ? Can *Knowledge* and *Power* and *Liberty* in any Propriety of Speech be called *evil*, much less the highest Degree and most universal Extent of them ? With Respect to *these* therefore absolutely considered,

such

such a Being cannot be styled *evil*, because He is endued with such Powers and Faculties as are not *evil* in themselves. It remains therefore that the *evil* must consist in the *Abuse* or *Misapplication* of these Powers and Faculties; either in not *knowing* what is fittest and best to be done; or else in not being *able* to do that which Wisdom directs; or else in having some *Temptation* or *Interest* to the contrary. For these are the only Causes of any Being's acting contrary to what is just and right. Let us try to apply these to the supposed infinitely *evil Principle*, and see how well they will agree with it. Can we imagin that infinite *Knowledge* can be imposed upon or deceived? that it should not be intimately acquainted with the Nature and Reason of Things, their essential Differences, what the

Consequences and Effects of the diverse Application of them will be, what they are in different Circumstances capable of, and what are the proper Means to obtain the respective Ends? So that in this Particular there is no room for *Evil*; for Knowledge and wisdom are the most perfect and compleat in such a Being. If to *this* we add infinite Power; the Object of which, is every Thing that is possible to be done, and which cannot be resisted nor controuled by any Force whatsoever; it cannot be, but that the Being in whom *these* reside, must exercise this Power according to the unerring Rules of that perfect Knowledge He is endued with.

Again, with Regard to *Liberty*, there can be nothing from *within* or from *without*, to induce such a Being to act contrary to Goodness and Truth; no *evil* Disposition or Inclination; because the necessary

sary Result of his own Perfections is infinite Happiness to himself, a perfect *Rectitude* of Will, and consequently no Motive either to make any Creatures that are *evil*, or to commit any *Evil* towards them ; neither can he have any Temptation from other Beings to do *Evil*, because all such Temptations manifestly arise from *Weakness* or *Depravation*, which are contradictory to All-sufficiency.

Whether therefore we consider the *first Principle* with Regard to its *natural* or *moral* Powers, the Abiurdity of its being infinitely *Evil* evidently appears: it is at first Sight a confused Jumble of Ideas, an absurd Mixture of Perfections and Imperfections, of Powers and Wants, of Excellencies and Depravations, all in one Subject ; and which, considered singly, are absolutely inconsistent with and contradictory to each other.

But

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other.

But that which shows the Absurdity of this Hypothesis still further, is the utter Impossibility of conceiving two necessary independent Beings at all ; it is an express Contradiction in the very Terms, and the Ideas destroy each other. The Idea which every one has of *Necessity* is a plain, simple, uniform Idea, which supposes Unity, Immensity, Eternity and the like : And if we attempt any Way to diversify it, to make any Change or Alteration in it, if we try to multiply it or to confine it to any particular Time or Place, it immediately vanishes. Thus for Instance, to suppose *two* necessary independent Beings, is to suppose *neither* of them to be necessary ; because *either* of them being absolutely independent on the other, might have existed without that other, and consequently

quently we can conceive *either* of them to be absent, which is directly contrary to the first Supposition of its being necessarily existing. So also with Regard to the essential Properties of such a Being, for Instance *Immensity*; the necessary existing Being must be *every where*; and the very supposing Him to be absent from any one Place, destroys his necessarily existing at all. For if we can conceive Him not to be, in any *particular* Place; we can as well conceive Him not to be in any *other* particular Place; or in *any* Place at all. And the same holds true with Respect to *Duration*: Whatever can be supposed not to exist at any *one* Time, may as well be supposed not to exist at any *other* Time, and by the same Reason not to exist *at all*, which is a
flat

flat Contradiction to the Idea of necessary Existence. There can therefore be but one first *Principle*, the *Original* and *Cause* of all Things that are, a Self-existent Being, who is eternal, immense, all-wise and all-powerful, infinitely good and happy. As has been at large, and in every Particular, demonstrated by *others* in the Course of these Lectures.

The Difficulty of judging of the Goodness of the System of the World.

The whole System of the World was at first created, and is still governed by this Being, who is every where present, sees the Nature and Essence of all Things, knows their Powers and Faculties, and what Ends and Purposes they will best serve. So that if we would judge aright concerning any Part of the Creation, we ought to do it by such Rules as are consistent with the known and certain Perfections of the Deity ; And since

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it is demonstrable that it is the Effect of Wisdom and Goodness, we should endeavour to reconcile it to them. Thus in the present Inquiry concerning the original of *Evil*, we ought first to consider *what* it is we call *Evil*, which perhaps may be very *improperly* so called; Whether it does not arise from the Imperfection of our own Understandings, who presume to condemn what we have not a perfect Knowledge of. In the ordinary Works of humane Art and Contrivance, we see how difficult it is to account for any particular Part of it, without knowing the whole Composition of it. As in a Clock or a Watch; He who should go about to condemn the Shape or Use of any particular Wheel, the Situation or Design of which was not at all understood by Him; it would but discover his own Ignorance,

norance, and not at all reflect upon the Workman. We need not therefore be surpris'd, if in our Survey of the Universe, we be often at a Loss how to account for many things that we observe there. Many Parts of it are wholly out of our Reach; as may justly be inferred from the Multitude of fixed Stars perpetually discovered by Telescopes, as they are improved in Goodness. Other Parts we know very little more of than their bare Existence; as, of the nearest of those Stars, that they are fixed and luminous Bodies. Other Parts, as they approach nearer to us, we know something more of; and by Observation and Analogy, judge them to be of the same Species with this Earth which we inhabit. Such are the *Planets*. But amongst these is a very numerous System of *Comets*, the Nature
and

and Use of which we are in a great Measure ignorant of. And of those Parts which are nearest of all to us, even our own Globe, how little is it that we know of it? We live upon the Superficies, and cannot tell what is contained within the Bowels of it, for many thousand Miles; Nay even upon this Superficies, there are whole Species of Creatures, which it will be difficult to us to determine what Purposes they serve. And we find by the Improvements of Microscopes, that Nature knows no End in *Smallness* as well as in *Greatness*, from the Multitude of minute Animals which every where appear. To be able therefore to pronounce peremptorily concerning such a System as this, requires to be every where present in it, to be able to understand and connect every
Part

Part of it, and to see the *Fitness* and *Adjustment* of the whole : Which the wisest and most sagacious of Men are so far from being able to do, that we can scarce conceive it of any created Being of the highest Rank or Station.

Acts xv. v. 18. Known unto God Alone seem all his Works, in This Sense, to be from the Beginning of the World to the End thereof. But though we cannot understand the whole of the Creation of God, yet this does not hinder, but we may understand a great deal of it ; enough to serve all the Purposes of this present Life ; enough for us to judge in general of the Power and Wisdom and Goodness of the Maker and Governour of it ; and what our Demeanour towards Him and towards one another ought to be. By that little which we do know,

we

we ought to determin e concerning other Things which we are not so certain of, and have not the Means of being acquainted with ; and not immediately to condemn them as *useless* or *evil* because we are ignorant of the *Good* or *Service* that they do This is the Method we take in judging of human Arts and Compositions ; and so ought we to do in the Works of Nature. Upon the first Examination of the Structure of the Bodies of Men and Animals, there were many Parts, which to the curious appeared *inconvenient* or *useless* ; but afterwards upon stricter Enquiry, or upon depriving them of those Parts, they were found to be of great Service ; And continual Improvements of the same Kind have demonstrated the Animal Body to be so far from being *ill* contrived, that it is the

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most surprisingly curious and exact.

*The true
Method
of judg-
ing of the
Goodness
of the
System
of the
World.*

In the same Method ought we to go, in forming our Judgment concerning all other parts of the Creation. They appear at first Sight to be *good* and *useful* in some Respects; and in those respects wherein they appear otherwise, we should suspend our Thoughts till we have searched more narrowly into them. There is Room for perpetual Study, and new Scenes of Knowledge continually open to us. If therefore we would acquit our selves as sincere and impartial Enquirers after Truth, and expect to find any Satisfaction in what we do; we must be content with that Measure of Understanding which God has given us, and apply it in such a Manner as He intended; and not blame either *it* or the *Objects* of it, any more than we do our Eyes, because

that is, fit for that End and Purpose, for which it was designed. Again, on the other Hand ; From observing the *Goodness* and *Excellency* of *some* Parts of the Creation, which are so obvious that we cannot help seeing them, we come to form a general Judgment of the *Wisdom* and *Goodness* of the Creator in *other* Things, the immediate Use or Benefit of which to the whole, is not so manifest. Each of *these*, are assisting to the *other*, and will at last prove coincident. It is therefore a very good Argument *a priori*, the Force of which no Fatalist can avoid ; that *as* sure as we are of infinite Intelligence, Power and Goodness, and that the Universe could not be the Effect of mere Chance or Necessity, (all which have been fully and clearly demonstrated by Others in the Course of these

these Lectures;) *solure* are we that every Thing created by such a Being, must be worthy of those Perfections; and that all Arguments to the contrary, drawn from the seeming *Evil* or *Irregularity* of some Parts considered singly or with some private View, are only Arguments *ad Ignorantiam*. This may be a general Satisfaction; and we must in many Things be forced to acquiesce in it, unless we could hope to have Understanding enough to comprehend at once all the Parts of the Universe, and see the *End* for which they were intended, and the exact *Subserviency* of every one of them to it.

But this hinders not, but that under this general Apprehension we may with Modesty and a good Intention enquire into the Works of the Creation, and

This Difficulty, no Reason why we should not particularly enquire into the Nature of it.

thoroughly examine and consider those Parts of it especially, which seem to cast a Shadow upon the Lustre of the whole, and to eclipse the Beauty of it. And by so doing, we shall find that such Enquiries will either vindicate the Laws of the Creation, or else convince us that the Defect lies in Our Understandings, and not in the Nature or Constitution of the Things themselves. Wherefore before we can pronounce concerning any Thing, that it is really *Evil*; we ought to consider what it is we mean by *Evil*, and wherein it consists.

What is meant by Evil *Evil* is a relative Term, and either regards the *Being it self*, which is so styled, or it refers to some *other Beings* with whom it is connected, or else it respects the *Author* by whom it is made. With
 Regard

Regard to the Being
 it self, * there is a
 private Use or Good,
 some End or Aim to
 be served by it ; for
 which it is naturally
 and originally constituted ; to-
 wards which, it regularly moves ;
 and to promote which, its Powers
 or Faculties most easily tend. If
 there be any Thing in such a Be-
 ing which is not conducive to
 this End, but, on the contrary,
 hinders the attaining of it ; that is,
 if the Constitution of it be di-
 sturbed, or the Powers and Fa-
 culties of it not permitted to ex-
 ert themselves and produce their
 genuine Effects ; such a Being is
 so far ill to its Self, is in an unnatu-
 ral and uneasy State. And because
 there is no such Thing as any fi-
 nite Being existing alone and inde-
 pendent of all others ; but there

* Πᾶσα τέχνη καὶ πρῶτα
 αἰθροῦσθαι, ὁμοίως δὲ πράξις
 τε καὶ ἰσχυροῦσθαι, ἀποθεῖναι
 ἐφ' ἑαυτῶν ἰδίαν. Aristot. Eth.
 in Principio.

is a Connection and Relation which they have to each other; whereby a *System* is composed, which has a general *End* or *Good* to which every one of the Parts has a natural Tendency in its proper Place: Whatever Being disturbs the Order and Harmony of such a System, That Being is *evil* with Respect to *others*, is ill affected and injurious to them. With Regard to the *Author* and Contriver of such a System, it cannot be styled *evil* in any other Sense, than as it is unworthy of such an Author, below the Wisdom and Goodness of such a Being to create it: For the *System* is supposed to be as compleat as in the Nature of Things it can be, and to have no Reference to any Thing else; and there is really no such Thing as *Evil* at all, *abstractly* considered. Having thus determined

mined what is meant by *Evil*; all the *Evils* that are, may be distinguished into these three Sorts: *Divisio .*

First, All *Wants* and *Imperfections* in our selves, or the *Things* about us, the either not having, or not having to that Degree which other Beings have, certain Powers, Faculties and Excellencies; or else the *Weakness* of those Laws by which the material World is at present governed, compared with more *perfect* ones of which it is capable. 74 .

Secondly. All *natural Evils*, such as *Diseases*, *Pain*, *Death*, and the like; which Men and all other Creatures are incident to; 233 .
And all kind of Disorders and Irregularities in the *Things* without us, as Storms, Tempests, Earthquakes, &c. And

Thirdly,

Thirdly, *Moral Evil*, or all those *Sins* and *Vices* which we see committed by Men every Day, and which render them so corrupt and miserable. *Elsewhere*.

These Particulars take in the whole of what can in Any sense be called *Evil*; and comprehend all the *Objections* that have been at any Time made against the Constitution and Government of the World.

Of the
Evil of
Imper-
fection.

1. *First*, I shall consider those *Wants* and *Imperfections* which we experience within our Selves, compared with Other Beings of superior Rank, who either have *Powers* and *Faculties* which we have not; or else have those that are in common with us, to a much greater Degree and Perfection: And also the *Weakness* of those Laws, by which the *material* World is at present governed, compared with
more

more *perfect* ones which it is capable of. And I shall show that there is no just Ground of Complaint in these Respects.

Before we can form any Judgment of the *Perfection* or *Imperfection* of any Part of the Creation, whether *animate* or *inanimate*; we must understand what Powers and Faculties it is endued with, what Laws it is subject to, and what is the Effect of the right Use or Application of them; For without such Knowledge we can have no just Idea of the Being it self, of what Use it is in the World, nor wherein the *good* or *evil* of it consists. Thus for Instance, whoever would pretend to judge of the Excellency of the *planetary System*, ought to have a particular Knowledge of the Constitution and Laws of it; the Bigness, Distance and Situation of those Bodies,

with

What Knowledge is requisite to judge of such Imperfection.

with Respect to one another; the Laws of Motion, and the Curves in which they are directed: From a due comparing of all which together, it will be manifest whether there be any Uniformity, Proportion or Order, observed amongst them or not. And the same holds true in any *One* of those Bodies, suppose this Earth: We must be acquainted with its Distance from the Sun, the Obliquity of its Axis to the Plain of the Ecliptick, the Properties of the annual Orb in which it moves, and its Rotation about its own Axis, in Order to see the Contrivance of it, by which are produced the several Climates, and the Succession of Day and Night, Summer and Winter, Seed-time and Harvest. And so likewise must we proceed in the Consideration of the particular Parts of it, as the Mountains, Seas,
Desarts

Defarts and the like, or of any of the Inhabitants of them. Of these latter, *Man* is the principal: Who as He is composed of Soul and Body, the *One* Immaterial, endued with *Thought, Reason, Liberty* and the like; the *other Material*, endued with different *Powers* and Organs of *Sense*; so it is absolutely necessary to have a distinct Knowledge of the Nature and Extent of *these*, and their mutual Influence on each other, before we can tell wherein the *Perfection* of Man consists, or wherein he may be said to be *defective*.

It is therefore in these kind of *The true*
Inquiries, as it is in *Mathema-* *Method*
ticks. There are two Ways of com- *of such*
ing at the Truth, the one *Synthe-* *Enquiry.*
tick, and the other *Analytick*.
To this latter Method we owe all
the Improvements that have been
made in natural Philosophy of late
Years,

Years, which will furnish us with Answers to every material Objection that has been made against the System of the World. This *Analytick* Method consists in making a great Number of Experiments and Observations, sufficient to enable us to draw some *general Conclusion* from them. Thus in the forementioned Instances, by a large Induction of Particulars we

* *Hac Analyfi* licebit, ex rebus compositis ratiocinatione colligere Simples; ex motibus, vires moventes; & in univcrsum, ex effectis causas; ex causisq; particularibus generales; donec ad generalissimas tandem fit deventum, *Newt. Optices. Edit. Sec. p. 413.*

may proceed from *
Compounds to the simple Ingredients of which they consist; from considering the particular Motions, to the finding out the Forces that are necessary to generate them; and in general, from Effects we may go to Causes; and the more universal the Effects are, so

so much the more universal must the Cause be, till at last it ends in the most general that can be. It is very true, that this is not a strict *Demonstration* of the general Conclusion ; because That can be had no other Way than by trying all the Experiments that can possibly be made every where, which is infinite and endless ; but it is the best that the Nature of the Thing is capable of, and ought to be satisfactory, if there be no one Instance found to the contrary. Thus by continual Experience and Observation we find all the *Parts* of Matter we are conversant with, to be *extended, moveable and impenetrable*. And these being obvious Properties, and no single Objection against them ; we justly conclude that *this* may be affirmed of all the *Parts* of which the vvhole Earth is composed ; and
from

from thence by *Analogy* conclude the same of the heavenly Bodies, and of all *Matter* in general. And so likewise concerning any *particular Law* of Motion that Matter is subject to : There are numberless Experiments which convince us that Bodies are *heavy*, or tend towards each other with a certain determinate Force. This sufficiently appears from the different *Weight* of such Bodies : And there being no Instance to the contrary in so often repeated Tryals, we reasonably infer that this is true in all other Places of the Earth as well as here. And because it is found to be in a certain *Proportion* to the *Distance* and *Quantity* of Matter, we apply it also to the heavenly Bodies; and lay it down as a *general Law*, that All Bodies whatsoever *gravitate* towards each other. This is the only Method

we

we have of coming to the Knowledge of the Nature and Constitution of Things, by Reasons *a posteriori*; and Observations of the Effects, in Order to find out some simple and universal Causes or Laws; and then by Arguments *a priori*, or from such known and established Causes, to collect particular Effects in such Cases where we have no Means or Opportunity of making the Experiments.

And this is very different from The Difference betwixt this Method and that of the anti-ent Philosophers. the Method of the *Epicureans* and *Peripateticks*: The former of which endeavoured to explain the System of Nature by *Hypotheses* which were only Fictions of their own Mind, and had no Foundation in the *Nature* of Things, nor were of any Use in, nor could they be proved by experimental
 G Philo-

Philosophy ; The *latter* attempted to solve the same Phænomena, by ascribing to every *Species* of Things, some *specifick* or *occult Qualities*, upon which the Actions of all Bodies depended, in a *Manner* wholly unknown to them. And if any one asked whence any particular Effects proceeded, as suppose, what is the *Cause* of *Gravitation* or *Electricity* ; it was thought a sufficient Answer to say, that it arose from the *Nature* of the Body ; or from a particular *Quality* that lay hid in it, without so much as attempting to explain what that *Nature* and *Quality* was. This is indeed to put *Names* instead of *Things*, and to amuse Mankind with a *Shadow* of Knowledge, which leads them into Obscurity and Error, instead of Light and Truth. Whereas on the contrary, if from the *Phænomena* we
are

are able to derive some few *general* Laws or Principles, which are not *hidden* and *occult*, but manifest and obvious *Qualities*, (though perhaps the *Causes* of such Qualities may be wholly unknown;) and from these Principles endeavour to explain the Actions and Properties of *corporeal* Things: This is to go in a rational Way, and is the only *one* that can give us any true Satisfaction, and by which we can make any real Improvement in explaining the Wisdom of the Creation. Having premised this in general, to show what *Method* we ought to proceed in, and what is reasonable to be expected in Enquiries of this Nature:

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I come now to consider particularly wherein the *Evil* of *Imperfection* consists; and That in the following Respects. *First*, with Regard to *corporeal* Things and the

Wherein the Evil of Imperfection consists.

Laws they are subject to. *Secondly*, with Regard to *animal Creatures* and the *Powers* they are endued with. And *Thirdly*, with Regard to *Men*, and the *Faculties* peculiar to Them. Strictly and properly speaking, there can be no such Thing as *Perfection* any where but in God, who is immense, eternal, omnipotent, allwise and good. All other Beings, of how high a Rank or Station so ever, are but dependant and limited Beings; They owe their Original and all that they possess, to the supreme Being; who as He gave them *it* out of his own Will and good Pleasure, so He can deprive them of *it* again when He sees fit. Whenever therefore we speak of *Perfection* and *Imperfection* with Respect to finite and created Beings, we mean only in a *relative* Sense, compared one with another: So that
the

the *Evil of Imperfection* is not properly any *Evil* at all, but the *necessary* Consequence of being *finite* and *dependant*. And the Objection holds equally against all created Beings whatsoever; it not being possible to suppose any Beings, of how high a Rank soever; but there may be conceived Others still higher, with Respect to whom they may be more *imperfect*: So that either there ought to have been no created Beings at all, or else the *Evil of Imperfection* will unavoidably follow. And hence arises the different State and Condition of all *created* Beings. God Almighty is infinitely Happy in the Enjoyment of his own unspeakable Perfections; nothing can add to, or diminish from his Happiness; so that with Respect to *that*, it is all one whether any other Beings had existed or no; *They*

can contribute nothing towards it; it is of his good Pleasure only, that they are and were created. The whole of *this* therefore, must be resolved into the divine Will. Infinite Understanding *knows* all the *Things* that are possible to be done, all the infinite Variety of Creatures that can be made, what they are capable of and subject to. Omnipotence can do all that can be done, can create any or all, at any Time and in any Place, of those Variety of Creatures. And infinite Wisdom can judge of the Kind, of the Number, of the Time, Place, Duration and all other Circumstances relating to them. With Respect to the supreme Being therefore, we may concerning *These* affirm with *Moses, Gen. I.* that *behold they are all very good*, that is, fitted for
for

for those Ends and Purposes intended by the Creator.

Thus, to begin with the inferior *The Im-*
 Part of the Creation. Let us con-^{perfecti-}
 sider the Nature of *material Things*,^{on of the}
 and the *Laws* they are capable^{material}
 of. *Space* is infinite and bound-^{Part of}
 less, and consequently can contain^{the Crea-}
 Variety of all Kinds of Beings;^{tion in}
Matter is finite and limited, and^{general.}
 there is a greater Quantity of it
 in some Places than in others of
 the same Dimensions, as is evident
 from their different Weight ;
 Whence it follows that *Space* is *ne-*
cessary, in the same Manner as
Time or *Duration* is *necessary* ; And
 the very Supposition of its Ab-
 sence is a Contradiction : For let
 any one fix in his Mind a particu-
 lar Part of *Space*, suppose a Cu-
 bick Foot, and then try to ima-
 gine its Absence. This will be
 a Cubick Foot of Nothing ; which

is an exprefs Contradiction, be-
cause nothing has no Properties,
and consequently no Dimensions.
Wherefore there must necessarily
be some *Subject* actually existing
without us, to which these Relati-
ons belong. But this cannot be af-
firmed of *Matter*: For *as* That is
actually absent from some Places,
so it might have been absent from
all; Its Existance therefore is not
necessary, but depends upon the
Will of the Supreme Being. And
the same may be said also of its
Quantity: As it does not fill all
Space, it might have been *more* or
less; and there can be no other Rea-
son assigned for this determinate
Measure of it, but only the mere
Will of him that created it. The
Existance of *only* this particular
Quantity of Matter, cannot be
called *Evil*; Because it is not at
all inconsistent with the Notions

we have of infinite *Power* and *Wisdom*, to create *any* of all the possible Things that are the Objects of such *Power* and *Wisdom*; and because there is no Objection against this particular Quantity, but what will hold equally against any other Quantity.

After such Creation, the next The Imperfection of the particular Qualities of Matter. Thing to be considered is the *Powers* or *Qualities* of such *Matter*. It is in it self merely *passive*, that is, indifferent either as to *Rest* or *Motion*: It will continue in *either* of those States, by receiving *Motion* in Proportion to the *Force* that impresses it, and resist as much as it is resisted. This *Principle* supposes nothing but *Existance*; Nothing more is required than the preserving it in Being, and it is a necessary Consequence. But by this *passive* Principle alone, Bodies could never have been put
into

into Motion: Some *active* Principle was necessary in Order to begin such Motion: And if the *Quantity* of it varies, or the *Determination* of it be altered, such *active Principle* is necessary in Order to effect those Changes. Hence it follows, that as *Matter* is capable of *Motion*, and there are infinite *Degrees* of Velocity, and infinitely various Determinations of such Velocity, in every *Moment* of Time and every *Point* of Space; it must be subject to have any *particular Laws* impressed upon it, according to the Will of Him who governs it; None of which *Laws* can properly be styled *Evil*. but in their own Nature perfectly *indifferent*.

The Imperfection of those

Laws of Motion which

Matter is subject to.

So likewise when we consider *Matter*, not as one uniform *Substance*, whose Parts are necessarily connected with each other; but

as

as consisting of an infinite Number of Particles, which are all distinct Substances, and actually separated and independant of each other ; It is manifest, that such Particles, may be of very different *Magnitudes* and *Shapes* ; their *Order* and *Position* may also be as different ; The necessary Result of which, will be various Compositions, arising from such Textures : Every *One* of which Compositions was originally intended by Him who formed it, and consequently is merely arbitrary, and to be resolved into his Will.

These and such like Considerations will help us to account for the Appearances of the *material* World ; and convince us that those Things which have been thought *Ill* or *Irregular* in it, are such *Imperfections* only, as are essentially in the *Nature* of the Things them- Hence the Phenomena of the material World are in general accounted for.

themselves, and the necessary Result of those Laws they are subject to : As will be evident from a particular View of them. *Space* is infinite and boundless, capable of receiving numberless *Systems* of all possible Kinds ; But whether *all* such are actually created or no, we know not ; Great *Variety* we have Reason to think there are, from the *Analogy* of the fixed Stars to the Sun, of which we see no End : And they shining by their own Light, and being at such vast Distances from each other, seem to be Centers about which planetary Bodies revolve, whose reflected Light is too faint to reach our Eye. About *these* therefore we have very little more than Conjecture ; But concerning *this System* in which we bear a Part, we have Means of knowing enough to judge of the Excellency

cy and Perfection of it. That determinate *Quantity* of *Space* which the heavenly Bodies possess, as also That determinate *Quantity* of *Matter* of which they are composed; the *Division* of it into such a particular *Number* of Bodies, the placing them at such *Distances*, and the impressing such *Laws* of Motion upon them; are originally the manifest Effect of *Choice* and not of *Necessity*; For *that* admits of no *Variation*; and in the Nature of the Things themselves, there can be no Reason of preferring one to the other. But as the supreme Being has an absolute Right to create all Sorts of Creatures, and proposes such a *particular End* or *Perfection* in each of them: If every Thing be the most conducive possible to *That*, 'tis very unreasonable to call it *ill*, when it is the natural and genuine Effect of those

those Laws which the Things are subject to.

*And of
the pla-
netary
System in
particu-
lar.*

Thus it appears by Observation, that there are but *six* Planets belonging to this Sun ; Against which Number there can be no Objection made, but what will affect any other Number, it being merely indifferent in it Self ; And perhaps in other Systems there are different Numbers, and so there may have been or may yet be in *this*. By Observation likewise it appears what *particular* Laws of Motion these Bodies are subject to ; That they not only move about the Sun, but that their *periodical Times* are in a '*sesqui-alterate*' Proportion of their *Distances* ; that is, the *Squares* of their *periodical Times* are as the *Cubes* of their *Distances*. This Proportion is the necessary Result of that *Law of Gravity*, to which the *material System* is at present

present Subject; Which *Law* is evidently not *essential* to Matter, but originally is the mere Effect of Choice; which possibly extends not to other Systems, and may not for ever be the Rule in this. And there can be no Complaint made of it, but would have been made for the same Reason against any other. So likewise if we suppose any of the Circumstances of this System different, the Effects will be different likewise; and a new Appearance of Things will follow, which in a comparative Sense only may be called *better* or *worse*.

Thus, to instance in one Particular, *viz.* our Earth; The most natural and simple Motion, is that of a straight Line; To produce any certain invariable Degree of which, nothing more is requisite than one single proportionate Impression, and

The Phœ-nomena of the Earth's Motion accounted for.

and in this State it would by the mere Laws of Nature continue for ever. But in Order to any compound Motion, as That in every *Curve* is; 'tis necessary that in every *Point* of Space, and every *Moment* of Time, a new Direction should be given to it, by a continually repeated Impression: According to the *Force* of which, compared with the Projectile Motion and the Direction, will the *Kind* of the Curve be. If the *projectile* Determination, or Direction of the Tangent, be *perpendicular* to the Distance from the Center or the Radius; and the *Velocity* be such, as that the Force with which the Body would fly off in a straight Line, be equal to that Force with which it tends to the Center, it would revolve about that Center in an exact Circle; But if the *Position* of the Tangent be *oblique* to the
Radius

Radius, it will move in some other *Curve*, according to the *Degree* of such *Obliquity*, and the *Velocity* given to the projected Body. And hence it is, that the Earth moves about the Sun in an *Ellipsis*, of which the Sun is the *Focus*; The necessary Consequence of which is, that the *Areas* described by it are exactly proportioned to the *Times*; that the *Velocity*, with which it moves, is *greater* in some Part of its Orbit than in others, according as the Force with which it tends to the Sun, conspires with, or retards the *projectile Force*; and that one Half of the Year is by several Days longer than the other.

The same may be applied to all the other *Planets*, and the *Irregularities* of them will be found to arise from this Principle: In order for them to partake of the Light

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The Phaenomena of the Planets Motions accounted for.

and Heat of the Sun, it was necessary that they should revolve about it, at such particular Distances, and in such determinate periodical Revolutions, as are adjusted to their respective Densities; and which upon the whole, is most conducive to obtain the designed End and Effect. It appears by Observation, that they all describe *Ellipses* about the Sun, as the common Focus of all their Orbs; the natural and necessary Effect of which is, that *They* likewise in the same Manner as the Earth, describe Areas exactly proportioned to the Times, and move swifter when they are nearer the Sun, than when they are farther of; and that their Year, or periodical Revolution is divided into two unequal Parts, as ours is. All which arise from the same Principle, namely the Degree of projectile
Force

Force at first impressed upon them; and the particular Determination, or Inclination of the Tangent to the Radius or Distance from the Center; compared with the Force of Gravitation or Tendency towards such Center. None of *These* can be styled *Evil* or *Irregular* when considered singly; and when compared together, they are only relatively so; as in the Nature and Reason of Things, some must be more excellent, have more useful Properties, and serve better Purposes than others. There are various Figures in which Bodies are capable of moving; and abstractly considered, there can be no Reason why *one* should be preferred to *another*. Thus a Circle, an Ellipsis, a Parabola, &c. are in themselves equally *good*, though they have different Properties; and it seems much more agreeable,

that the infinite Wisdom and Power of the Creator to whom they are all alike possible, should be displayed in making all the Variety that can be; than that He should be confined to some few Particulars exclusive of the Rest. And this is confirmed by Experience in the Works of the Creation. The Planets do all actually move about the Sun in Ellipses, and the Comets in Ellipses so very large, that their Curvatures are insensibly different from those of Parabola's: And there are Instances in Nature where Bodies are exactly moved in Parabola's and Hyporbola's, as in Projectiles, and the Ascent of Fluids. And what other Curves, or different Species of *these*, may be applyed to other Systems, we do not certainly know; But there is just Ground to think, that there is infinite Variety, because

cause the Degrees of projectile Force are infinite ; the Determination of it, with Respect to the Radius is infinitely different, according to the Angle it makes ; and the Force of Gravitation may also decrease in any Proportion of Distance ; The Result of which, will be so many different Curves, all equally harmonious in their proper Places. Thus we see the Motion of every one of the heavenly Bodies considered separately, is exactly regular and uniform about the Sun, preserved by that single Principle of Gravitation, which hinders them more or less every Moment from flying off in straight Lines. In the same Manner as we see by Experience, that if two homogeneous Bodies of different Magnitudes be connected together by a *Thread* or *Wire*, and a Center be found by dividing the Distance

in *reciprocal* Proportion to their Magnitudes ; when they are once put in Motion, they will for ever revolve about that Center, unless hindered by some external Force. And the same Reason holds, whatever Sort of Matter it be, or how much soever we increase the Distance or Quantity of it : So that if this be applyed to the Sun and any of the Planets, it appears upon Calculation to be the very same in Them likewise.

*The same
applyed
to the
whole
System.*

Having thus considered the several Parts of this System singly, and the Laws they are governed by ; let us now put them together, and examine what is the Result of such a Composition. It is evident that the Sun was created to communicate Light and Heat. Each of which decreasing in a certain Proportion, *viz.* as the Squares of the Distances increase ; they can

can be of Use to other Bodies, to a determinate Distance only, and in Proportion to their respective Densities : And hence it is that their Number is limited, and that they extend but to a certain Distance. A Luminous and Hot Body, diffuses its Light and Heat uniformly all round : The most convenient Place for *it* therefore is the Center ; And *these* being Qualities peculiar to the Sun, it is for this Reason made the Center of the planetary System ; every part of which, as it depends upon the Influence of the Sun, so it is proportion'd to it in every Respect. These two Properties, as they are the most useful, so they are the most universal ; For some degree of Heat is necessary to all kinds of Vegetation and Animal Motion ; No Planets or living Creatures could be at all produced or subsist

without it. And without Light, both rational and irrational Creatures would be in utter Confusion, not knowing which way to direct themselves, but would perpetually interfere with each other. It is necessary therefore that every one of the heavenly Bodies should be adjusted to the Sun, both as to their Density, Distance, Quantity of Matter, and the like; that they may all receive from it the greatest Benefit they are capable of. And thus upon strict Enquiry they appear to be; The Heat, (and Light which is proportionable to the Heat) proceeding from the Sun, is as the Density of its Rays, that is, (if the Sun be considered as a Point, as it may very well be compared with the whole System) 'tis reciprocally as the Squares of the Distances: So that were we *twice* as far removed from the Sun

as

as we now are, we should have but a *fourth* part of the Light and Heat we now enjoy : And were we *four* times as far, we should have but a *sixteenth* part so much. But it is necessary also to take in the Density of the Bodies to be heated : Because two Bodies of unequal Densities, such as *Lead* and *Wood*, will not be equally heated at the same Distance. Wherefore since all the Planets could not revolve about the Sun at the same Distance, their Densities must be, *ceteris paribus*, greater or less at different Distances. And thus upon examination we observe them to be : *Jupiter* is more dense than *Saturn*, and the *Earth* more dense than *Jupiter* ; and *Mercury* probably is much more dense than any of them ; (though we have as yet no certain Means of finding out his Density :)

For

For it appears upon Computation
*, that were our Earth

* Aqua nostra, si
Terra locaretur in Orbe
Saturni, rigesceret, si
in Orbe Mercurii in
Vapores statim abiret.
Newt. ibid.

as far removed from
the Sun as *Saturn*,
the Water would be
all turned into Ice;
and were it as near

the Sun as *Mercury*, it would boil
all away into Vapours. I say, this
Proportion of the Densities to the
Distances, is only *ceteris paribus*;
because this Rule does not hold
in the smaller Bodies (such as the
Moon,) which are more dense
than the larger, for another Rea-

son†, *viz.* that the
Force of Gravitation
upon their several Su-
perficies might ap-
proach nearer to an E-
quality. In general
therefore the Planets
are placed at such dif-
ferent Distances from
the

† Denfiores itaq; sunt
Planetæ qui sunt mino-
res, ceteris paribus.
Sic enim Vis gravitatis
in eorum Superficiebus,
ad æqualitatem magis
accedit. Sed & denfio-
res sunt Planetæ, cete-
ris paribus, qui sunt So-
li propiores; ut Jupiter
Saturno, & Terra Jove.

the Sun, that each of them might enjoy a proportionable Quantity of Light and Heat, according to the Degree of their respective Densities.

The Planet *Mercury*, which is so much nearer to the Sun than we, is in a due Proportion so much denser; and the Planet *Saturn*, which is so much farther remote, is also proportionably rarer. And by this Means Light and Heat are the most usefully diffused throughout the whole System. Had it been otherwise, those who are nearest the Sun, would have been destroyed by excessive Heat; and those which are most remote, by extreme Cold; whereas They all now enjoy a due Temperature suited to their respective Uses.

In diversis utique Distantiis a sole collocandi erant Planetæ, ut quilibet pro gradu Densitatis, Calore Solis majore vel minore frueretur. *Newt. Princip. Edit. Sec. Lib. III, Prop. VIII. Corol. 4.*

And

The particular
Law by
which
the planetary
System is
governed.

And this naturally leads us to enquire what that Law in particular is, by which the Planets are thus adjusted, and what the Consequence of it is. And this can be known only by Observation and Experience of the Facts. There are innumerable Laws in the Nature and Reason of Things, arising from different Suppositions of several Degrees of Velocity, Centripetal Force and the like, every one of which are equally the Object of the great Creator's *Power*; And it can be resolved only into his *Wisdom* and *Will*, which particular one, out of the infinite Variety, shall be observed in any System; Which when it is once determined, Whatever is the natural Result of *that*, ought to be esteemed the most *perfect* and *complete* in its Kind; And whatever *Defects* there may seem to be, which unavoidably flow

flow from hence, they cannot properly be styled *Evil* in themselves, but only comparatively less *good*, and such as cannot be prevented or remedied but by changing the Nature of the Things themselves, and giving new Laws to them. Thus That Law of Motion which obtains amongst all the great Bodies throughout this System, is what Astronomers call a *sesquialterate* Proportion of their periodical Times to their Distances; that is, the *Squares* of their periodical Times are as the *Cubes* of their Distances. This *Law* is necessary under the present Circumstances of the Creation, to preserve that Order and Harmony which is now established in it; But originally it might have been otherwise, and it is now wholly owing to that universal Principle of Gravitation, which in all Bodies is in
Proportion

Proportion to the Quantity of Matter contained in them, and decreases as the Square of the Distance increases.

This Law might originally have been different from what it is now.

This Property is no Way essential to *Matter*; because we can conceive Matter to be absolutely at rest, and therefore indifferent to, and capable of all Kinds of Motion and particular Determinations of it; but it appears to be universally impressed upon Matter, and to extend it self from the greatest Bodies to the most minute Particles of which they are composed. And if we suppose any Alteration here, the whole Frame of Nature is immediately changed. Thus if the Force of Gravitation in the several Planets towards the Sun, had been greater or less according to the simple direct Proportion of their Distances; they would all have revolved about the Sun, in
the

the same Time: So that their Years would have been of the same Length in the nearest Planets, as in the farthest of. If the Force of Gravitation, instead of decreasing as the Squares of the Distance increase, (as it does now,) had decreased simply as the Distance increased, then the periodical Revolutions of them would have been greater or lesser exactly in Proportion to their respective Distances directly. Any of *these* Laws might have been originally impressed on this System, or they may actually be so on others; and the Result would have been only different Appearances, and different Effects from what we experience now: But abstractly considered, they had been equally *good*, and, with Respect to the infinite Creator of all Things, equally the Object of his Wisdom and

and Power. Though thus much must be said in Favour of the present Law, that thereby the Planets are retained in regular Curves; whereas if we suppose Gravity to be in a reciprocal Proportion of the Distance on the one Hand, or in a triplicate Proportion of the Distance directly, on the other Hand; there are no regular Curves at all, that we know of, in which they could move: Which perhaps may be a Reason why no such Forces should be impressed. There are other Laws which are equally possible, but which by the great Inconvenience which would immediately follow, seem not at all probable to be put in Execution; except it be to bring about some remarkable Changes or Events. Thus if the gravitating Force had decreased, as the Cubes of the Distance increase, and not as the Squares; the Planets would

would all have moved in spiral Lines, and (according to the Direction of the projectile Force, *viz.* the Inclination of the Tangent to the Radius or Distance from the Sun,) would immediately have ran into or off from the Sun, and have been destroyed by excessive Cold or Heat. I have instanced in these Proportions so particularly, because they are absolutely necessary to be known, in Order to give us a true Notion of the present System of the World; to show the Wisdom and Contrivance of its excellent Architect; and the Weakness and Folly of those who pretend to find Irregularities in it.

Every single Circumstance is evidently the Effect of *Choice*, and not of *Chance* or *Necessity*. As Space is infinite, That Part which comprehends this System, might have been much greater or less,

I accord-

according to the mere Will of *Him* who prescribed it ; And as the *Quantity* and *Kind* and *Division* of the *Matter* contained in it, is also equally arbitrary, *These* also might have been entirely different according to His good Pleasure ; And so likewise might the Laws of Motion, by which they are every one directed. The whole Composition therefore is such, as the great *Creator* intended it should be ; who proposing a certain *End* by it, adjusted all the original Forces, so as best to attain that *End* : And having determined the *Time* of its Continuance, and the *Mutations* it should undergo, ordered the whole Connexion accordingly. What this general *End* is, 'tis impossible for us to find out, or for our narrow Capacities fully to comprehend ; the *Extent* of the whole material World being so very great, and the *Parts* so numerous and so strictly

strictly connected together. And the same may be affirmed of many of those Parts, and the several Uses and Purposes for which They are intended. But this hinders not, but that we may find out some of these particular Uses, and approach nearer and nearer to the general End, by repeated Observation and Improvement. Thus by the *Analogy* there is betwixt the Planets and our Earth, *viz.* that They also are dark Bodies revolving about the Sun pretty near in the Plain of the Ecliptick; that their Axes are inclined to this Plain; and that they turn about such Axes; It is very natural to collect, that They also are inhabited by several Species of Animals, who stand in Need of Light and Heat, and the like. For by this Means, They must in the Course of Things have, like us, a regular Succession of Winter and Summer, Day and

I 2 Night,

Night; and must also have different Climates. The Comets seem to be the most extraordinary Appearances in Nature, and to have been as yet least accounted for; having been thought very irregular and subject to no certain Laws. But from latter Observations and more strict Enquiry, even *These* also are found to move in very regular Curves, and to be situated in the best Position with Respect to each other; and to be of considerable Use. They appear to be very numerous; Which Consideration alone is sufficient to suggest to us, that there must be great Occasion for them in such a System as this. They are a Kind of Planets, being large and dense Bodies, with very gross Atmospheres, and are capable of emitting great Quantities of Vapours, as appears from the Bigness and Length of their Tails; And they revolve about the Sun

in very large Ellipses, of which the Sun is one of the Focus's. From all which we may collect some of their principal Uses also. The Body of the Sun must necessarily be diminished by that vast Quantity of Light that is perpetually emitted from it, and therefore in Time will decay and stand in need of a Supply of fresh Materials for Fuel. These may be had from Comets; For by Observation we find that They sometimes approach very near the Body of the Sun, and consequently must at last fall into it; * For by Reason of their prodigious Swiftnes at that Time, and the Density of the Sun's Atmosphere, their Motion must be somewhat resisted and

* Propter summam Velocitatem in Vicinia illa, & Densitatem aliquam Atmosphæræ Solis, Resistentiam non nullam sentire debuit, & aliquantum retardari, & proprius ad Solem accedere: & singulis revolutionibus accedendo ad Solem, incidet in retard-

tandem in corpus Solis.
Newt. Princip. pag. 480.

† Sed & in Aphelio, ubi tardissime movetur, aliquando per Attractionem aliorum Cometarum retardari potest, & subinde in Solem incidere. *Newt. ibid.*

retarded; So that they will revolve nearer and nearer till they run into it. This may also be promoted by the † Gravitation of other Comets, when they are in Aphelio; because They move slowest in that Part of their Orbit, and

consequently will be retarded by such Attraction, and an Alteration be produced in the Figure of their Orbs. But before they come to This, there are very good Reasons to think that they are of great Benefit to the Planets. Experience shows us that the Water in the Sea continually decreases, and the dry Ground continually increases; the great Quantity of Vapours which are exhaled from thence, being converted into Nourishment
 for

for all Kind of Vegetables, which when they come to putrify, are in good Measure turned into dry Earth ; so that by this Means a great Part of the Liquid is destroyed : All which Defects are probably supplied from the Tails of Comets ; For These consisting chiefly of such Vapours, and spreading themselves to an immense Distance through the Heavenly Spaces, || may fall by their own Gravity into the Atmospheres of the Planets, and there be condensed, and turned into Water and other Substances. To this we may add, † that the finest and most spirituous Part of our Air, which is the most subtilc, and the

|| Vapores autem qui ex ... caudis Cometarum oriuntur, incidere possunt per gravitatem suam in Atmosphas Planetarum, & ibi condensari, & converti in aquam & Spiritus humidos &c. *Newt. ibid.*

‡ Porro suspicor illum, qui Aeris nostri pars minima est, sed subtilissima & optima, & ad rerum omnium vitam requiritur, ex Cometis præcipue venire. *Newt. ibid.*

best, and is necessary to preserve Life in every Thing; may with good Reason, be thought to proceed chiefly from the Comets.

And from all These things put together it is manifest why the Comets are not, like the Planets, confined to the Zodiac, but cut the Ecliptick at all Angles, and move freely through every Part of the Heavens, *viz.* That when they are at the greatest Distance from the Sun, and move most slowly, they might also beat the greatest Distance from each other, and so disturb one another as little as is possible by their mutual Attraction.

All Evils that arise from hence, are only natural Imperfections.

In this Respect then, there is no other *Evil* but what the natural Imperfections of material Things, and the Qualities they are capable of, subject them to. And it is as unreasonable to find fault with the Materials themselves, or the Disposition

sition of them; as it is to complain of an Architect, who designs to build a House for a hundred Years; that the Materials and Contrivance is such, as will not last a thousand. What *St. Peter* says of *Time* with Respect to the supreme Being, 2 *Epist. Ch. 3. ver. 8. that one Day is with the Lord, as a thousand Years, and a thousand Years as one Day*; may equally be affirmed of Extension or Motion, and any Powers or Qualities of created Beings. The largest Space that we can conceive, bears no more Proportion to Immen- sity, than any limited Time does to Eternity; And there is no Velocity so swift, no Qualities of Matter so *intense*, but they are capable of being still increased infinitely, according to the Power and Will of Him who is the original Author of them. It is evident

dent therefore, that as God is present every where, as a living, active, intelligent and free Being, that endureth from everlasting to everlasting, he must propose to himself some *End* in the Creation, to which all the Parts must be regularly subservient, and endued with such Powers and Qualities as are most conducive towards the Attainment of it. But *what* that *End* is upon the Whole, how extensive the whole Creation is, of what Duration past or to come, or what Alterations it *has* or *will* undergo; is impossible for our shallow Understandings to find out; The utmost we can do, is to observe the exact Harmony of that Part which is within our Reach, and to judge of the Wisdom and Knowledge of the Creator in general by this particular Instance of his Workmanship. This is the
most

most obvious Way of Reasoning ; and thus, as *St. Paul* tells us, *Rom. 1. 19. That which may be known of God is manifest unto Men, for He hath shewed it unto them.* God is in his own Nature invisible ; no Man hath seen, nor can see him ; But He may be made known to our Understandings, so far as they are capable of apprehending him, by observing the Excellency of his Works, and from thence collecting the Goodness of their Author : And thus *the invisible Things of God from the Creation of the World are clearly seen, being understood by the Things that are made, even his eternal Power and Godhead, v. 20.* This is very eloquently expressed by the Royal Prophet, *Psal. 19. ver. 1, 2, &c. The Heavens declare the Glory of God, and the Firmament sheweth his handy Work ; Day unto Day uttereth Speech, and Night,*

Night unto Night sheweth Knowledge : There is neither Speech nor Language nor any Voice heard amongst them ; yet their Line (viz. Proportion,) is gone out thro' all the Earth, and their Sound (viz. Harmony,) to the End of the World. That is, whoever takes a View of the glorious Fabrick of the Heavens, and sees the Number of the Stars placed therein ; cannot but be led immediately to admire the Greatness and Power of Him who created them : And he who goes so far as to examine their Motions and Order and the like ; will reap from thence the most desirable Knowledge. For every Day and Night by their regular Succession, bespeaks as plainly, as inanimate Things can speak, the Wisdom of him who moves them : And their Proportion is so exact and universal, so plain and manifest, that no Nation, Language,

guage,

guage, or Capacity, can possibly in some Degree or other escape the Observation of them. This Harmony and Proportion was particularly specified by the famous Hea-^{* Macrobius} then Philosopher * *Pythagoras*,^{Lib. II.} and called the Harmony of the^{in Som.} Spheres, so often mentioned by^{Scip.} antient Writers.

And had the Epicurean Atheists ^{*This*} of old, or the forementioned ^{*Consideration a*} modern Astronomer duly examined ^{*sufficient*} these Things, they would not ^{*Confutation*} have so rashly pronounced concern- ^{*tion of*} ing the *Faultiness* of the Crea- ^{*Atheists.*} tion; They would have seen on the foregoing Principles, that what upon their Hypotheses is so irregular and uncertain, is in Reality most uniform and determinate; and that all their Complaints are founded upon their Ignorance of the true System of the World, and the not distinguishing betwixt the *true* and *apparent* Motion of the hea-
venly

venly Bodies. For if the several Planets revolve about the Sun at different Distances, and with different Velocities, and are illuminated by it ; it must from thence necessarily follow, that to those Persons who inhabit one of the middle Ones; as we on the Earth do, the Others must be some times *nearer* and sometimes *farther off*, and have different *Appearances* according to their respective *Position*. Those that are betwixt us and the Sun, must have all the Phases which the Moon has, as the enlightened Part is turned to or from us ; and Those which are more remote, must appear sometimes *bigger* and sometimes *less*, must seem to go *forwards* in some Part of their Orbs, and to stand *still* or go *backwards* in other Parts, according to the Difference or Equality of their Velocity. All these Irregularities are
only

only *relative*, and such as could not possibly be avoided upon the present Constitution of Things. And if we suppose the original Disposition of them to have been different from what it is now, and other Powers and Qualities impressed on them; there would then arise only different Appearances and other Kinds of Irregularity; So that the Variety being infinite, it must depend entirely on the Will of the Creator which of them shall actually exist, they being all equally *good* with Respect to Him.

Having thus examined the natural *Imperfections* which are inherent in the greater Bodies of this System compared with each other, let us come now to a particular Examination of the several Parts of our own Earth and what belongs to it, so far as they affect us; That we may see whence all those *natural*

Whence the Irregularity's of any Part of this System proceed.

ral

ral Evils arise, which both Mankind and all other Creatures are subject to. And here it will be more difficult to account for the great Variety of Phænomena; because the heavenly Bodies are very large and visible; their Distances such as are easy to be observed; and their Revolutions afford sufficient Time for taking Notice of them. But *These* are much more complex: They depend upon the particular Constitution of Parts so small, that they are absolutely invisible not only to the naked Eye, but even however assisted by Art; nay some are utterly impossible to be seen at all, (such as the Rays of Light, because they are themselves the *Means* of seeing all Objects;) Wherefore it is very hard to find out their different Shapes and Magnitudes, the Position they are placed in with Respect

Respect to each other; the original Forces impressed upon them, and the Laws they are governed by, consequent thereon. Yet such Improvements have been lately made in natural Knowledge, as are not only sufficient to convince us in the general, that all *these* are exactly proportioned to each other; but enable us by repeated Experiments to assign the very *Laws* by which they are regulated, so that we can determine what the Effect will be, and consequently what would arise from any Alteration of them.

Some of the principal of these *These also are the Effect of some particular Laws of Motion.* Laws it will be necessary to enquire into, in Order to see wherein the *Good or Evil*, the *Perfection or Imperfection* of that *Thing or Being* consists, which is governed by them. Thus the several Parts of the Earth are compacted together

in the Form of a Globe, by the Law of *Gravitation* of all those Parts towards the Center ; All Kinds of Plants are generated and increase by the Law of *Vegetation* ; Inferiour Animals, such as Beasts and Birds, are governed by *Instinct* ; And *Men*, which are the highest Order of Beings here, have beside *these* the Law of *Reason* to direct their Actions. *These* are so many distinct Principles, accommodated to the Nature of those Beings in which they inhere ; According to the Kind and Degree of which, they are *more* or *less* perfect ; and according to the different Composition of them, does the one prevail over the other. And by distinctly considering the respective *Ends* or *Uses* they naturally serve, the *Imperfections* and *Abuses* they are necessarily liable to, and how much the *one* is compensated

penfated by the *other*, we fhall be able to form a true Notion of *Good* and *Evil*, and to fee from whence each of them arife. As to the Body of the Earth in general, with which we ought to connect the Moon, its near Neighbour and conftant Attendant; They are the greateft Confirmation that can be, of the forementioned Law of Gravitation; for by this fingle Principle every the moft minute Irregularity in them is accounted for. It is obvious to any one who confiders the Moons Position with Refpect to the Sun and Earth, that it muft be very differently affected by them, and its Courfe perpetually interrupted: And its Motion is ftill more complicate, becaufe its Plain is different from that of the Ecliptick, (as it was neceffary it fhould be, in Order to prevent much greater Irregularities, fuch as con-

stant monthly total Eclipses and the like, if the Moon and the Earth had moved in the same Plain ;) Yet so well known is the Cause of its Motion, that though it continually alters its Course, yet its Place may be exactly determined for any particular Time to come. And as the Moons Motion in its Orbis thus exactly stated, so likewise the Figure of its Body, and the Situation of it with Regard to us, is owing to the same Cause: For as the Force of Gravitation is greater or less, in the forementioned Proportion to the Distance; it must of Necessity be, that That Part of the Moons Body which is nearest to the Earth, must be more strongly attracted than that which is farthest of: And consequently if it were a Fluid, or if it be not one continued Body, but the Parts distinct from each other; the Force by which they would tend
to

to their own Center and make an exact Globe, is diminished on one Side and increased on the other; so that it must become oblong, and have its longer Axis pointing towards the Earth: And if we suppose it to revolve about its other Axis, the same Face must always be turned towards us; for it would not rest in any other Position, but be perpetually 'librating' to and fro, till it came to this Situation. So likewise with Regard to the Earth and its Revolution about the Sun, nothing more is requisite to solve all the various Phænomena, but this single Thing, that the Axis about which it turns every Day, be inclined to the Plain of the Ecliptick in an Angle equal to the Complement of the Suns Declination, and that it keep the same Parallelism continually (that is, move always parallel to an Axis passing through the Center of the *magnus Orbis* and incli-

ned to the Plain of it always with the same Angle.) Hence must arise the perpetual Succession of Day and Night, and the Increase and Decrease of them; and hence must proceed different Seasons of the Year, Spring and Summer, Autumn and Winter. To this Cause are owing the various Climates of the several Parts of the World, the extreme Heat in some, and the excessive Coldness in others; And to this Cause likewise is owing the unequal Approach and Return of the Sun from one Tropick to the other.

These Irregularities cast no Reflection on the Good of the Whole.

Thus we have seen the Origin of every Irregularity that appears in the greater Bodies of this System, and may say with the wise Son of *Sirach*, Eccles. 39. 16. *That all the Works of the Lord are exceeding good, and whatsoever He commandeth shall be accomplished in due Season, and none may say, what is this? wherefore is that?*

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For at Time convenient they shall all be sought out.— All the Works of the Lord are good, and he will give every needful Thing in due Season; so that a Man cannot say, this is worse than that, for in Time they shall all be well approved. It is only our Ignorance or partial Consideration of the Works of Nature, that makes us think we see great *Faults* in them; But if we examine more closely into them, or if we try to mend them, it presently appears that the *Mistake* is in our selves. Thus it has been thought, that if the Earth and Planets moved about the Sun as a Center, in exact Circles, the System would be more beautiful and uniform than it is now: But this is a very great *Error*; for though the System might be esteemed better in that particular Respect, yet something much worse than the present

small Irregularities would arise, *viz.* that the System would not be governed by one stated certain Law, as it is now; but Forces must be continually added or diminished, in Order to effect such an Hypothesis. For supposing the Planets did move originally in Circles (as possibly they did) according to the present Laws; yet still their Velocities must have been different; and consequently they must have overtaken each other; And then the mutual Actions of Comets and Planets upon one another must necessarily have altered the Figures of their Orbs, and created those little Irregularities

* Newt. which are scarce worth Notice, * as
 Prop. is observable in *Jupiter* and *Saturn*
 XIII. near their Conjunction. Therefore
 Lib. III. in the present State there is the least
 Inconvenience that the Nature of
 Things will admit: And *That* is a-
 bundantly compensated by the su-
 perior

perious Convenience. Thus the Inequality of the Earth's Velocity and Distance from the Sun, makes no sensible Difference from what it would be, if it moved in a perfect Circle, as to the Benefit we receive from its Light and Heat. Eight Days bear but a small Proportion to half the Year, and the *Excentricity* is but as near seventeen to a thousand, which can produce but very little Effect. And the same may be applyed to all the other Parts of the System. They serve the End for which they were appointed, in the best Manner possible upon the Whole; and they are all so strictly connected, that if we try to vary or disturb them, the Consequence tends to confound all the Frame of Nature. So that notwithstanding the Objection of Atheists in this particular, we may affirm with the Royal

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al Psalmist, *That God appointed the Moon for Seasons, and the Sun knoweth his going down, Psal. 104. ver. 19.* That as He has made the heavenly Bodies to have a mutual Influence upon each other, so He has determined the particular Course and Order of them, which they never in the least deviate from. And the Words of *Job* upon the like Occasion will well become such Objectors, *Ch. 40. ver. 4. Behold, I am vile, what shall I answer thee? I will lay my Hand upon my Mouth. Once have I spoken, but I will not answer; yea twice, but I will proceed no further.* And that this will be the Case with Relation to the Government of the World in Those Particulars which more nearly relate to us, the *Evil* of which is so greatly complained of; will appear by the like Examination of them.

Let

Let us therefore consider the several Parts of which our own Earth is composed, and the Manner we are affected by them; that we may see whence all those *natural Evils* arise, which both Mankind and other Creatures are subject to. Upon a particular Enumeration of the Works of the Creation in the 1st. *Ch. of Genesis*, they are pronounced *very good*, and such as are worthy of God to be the Author and Framers of; Yet there is scarce any *one* of them, but in some Respect or other has afforded Matter of Complaint, and been thought by Some an Objection against the Wisdom and Goodness of the Creator.

The dividing the Light from the Darkness, *ver. 4.* in the Manner it now is, has been objected against, as very unequal with Respect to the several Parts of the Earth;

Earth. Likewise the gathering together of the Waters unto one Place, that the dry Land might appear, which caused the *Earth and Sea*; is also attended with many *Inconveniences*; For such is the Proportion, and Division of them, that the Quantity of Water is so very great in some Parts, as to form large Seas and Lakes, and none at all in other Parts; by which Means vast Tracts of Land become barren Deserts. The Quality of the Water is also objected against, *viz.* its Saltness, by which it is rendred unfit for Drink, and for many other Uses of fresh Water: And, which is still worse, 'tis liable to produce Deluges, by which whole Countries are overflowed and destroyed. The Air also, with which the Earth is surrounded, and which is so absolutely necessary to Life, that no Kind
of

of Animals, nor even Plants can be at all preserved without it; is subject to perpetual Storms and Tempests, Thundrings and Lightnings; The Effects of which are often fatal to Men and other Creatures. And it is many Times so infected and corrupt, as to cause Plagues and Famines, by which whole Cities and Countries are depopulated and made desolate. The Grass, Herbs and Trees yielding Seed and Fruit after their Kind, *ver. 12*, have also their Objections; Many of them are noxious and poisonous, and others of them are said to be a Curse rather than a Blessing, *ch. 3. ver. 17. Cursed is the Ground for thy Sake.—Thorns and Thistles shall it bring forth unto thee.*

And as the *Inanimate* Part of ^{With Re-} the Creation, is thus liable to Dis-^{spect to} ^{the Ani-} order and Irregularity; The *Ani-* ^{mate Part} *mate* ^{of it.}

mate and Rational Part is subject to much greater Evils and Inconveniences. The various Kind of Fish with which the Seas and Rivers are filled; The different Sorts of Birds that fly in the Air; And the Fowls, Beasts, and creeping Things that move on the Surface of the Earth; These are a Prey to each other. The weakest and most defenceless are Food for the strongest; who are provided with natural Weapons to take and devour them: And many of them are hurtful and some poisonous to Mankind. But the greatest of all *Evils* are those that Man is subject to. Though He was *created in the Image of God*, that is, made Lord and Governour of this lower World; yet *He was formed out of the Dust of the Ground, and had the Breath of Life breathed into his Nostrils, whereby he became*

came a living Soul, Ch. 2. v. 7. This Composition renders Him liable to numberless Accidents and Calamities. That Body which is made of Dust, must be liable to be resolved into Dust again: And there are Variety of Means by which this may be effected. And as He becomes living and sensible, by the Breath of Life; so must He be obnoxious to Pain, Diseases and Death; *In the Sweat of thy Face shalt thou eat Bread, till thou return unto the Ground out of which thou wast taken, Ch. 3. ver. 19.* These are Calamities which Mankind are subject to, in common with all other animal Creatures; But they are endued moreover with Reason and Liberty, from which arise still greater *Evils* than any of the forementioned ones, *viz.* all Kinds of Immortality and Wickedness; which
have

have brought greater Calamities and Desolation upon them, than all the natural Causes put together; A large Catalogue of which, St. Paul gives us in the 1st. Ch. of the *Rom.* This is the Division of the several Parts of this lower World, in the original Formation of it, according to the Days in which they were created: And notwithstanding the forementioned Objections, they are singly at the Conclusion of every Days Work pronounced *good*; and God saw that they were good. By which must be meant, that they are such as are agreeable to the Wisdom and Goodness of God to make; That they are as perfect as the Nature of Things will allow them to be; And that, whatever Defects or Abuses they are subject to, are upon the whole sufficiently compensated by that general *Fitness* they have

Said
Gen. 1.

have to obtain the End proposed by them. This will more plainly appear, by considering the several Parts of the Earth, and the Inhabitants belonging to them ; the Materials, of which they are composed ; and the Laws they are subject to ; From whence arise all those *Evils* of Imperfection, which I proposed to account for. By *Analogy*, we might justly conclude, from what has been shown concerning the exact Harmony and regular Motions of the greater Bodies of this System ; that the several Parts, of which these Bodies themselves are composed, are also with Respect to each other adjusted most nicely, and made subject to such Laws, as are proper for the Uses designed by them ; And that all their *Irregularities*, are only *seemingly* and *comparatively* such, and the *natural* Effects of those

L

Powers

Powers and Qualities with which they are endued. This is a very natural and easy Inference ; And the modern Improvements in Philosophy have rendred it not only conjectural, but certain ; For by numberless Experiments, and a diligent Examination of the Nature of Things, they seem to have been compos'd in the following Manner.

The original Constitution of Things on the Earth.

That the great Creatour of all Things propos'd certain Ends by every Thing that He has made, is evident to the most common Observation ; For no Man can really be so void of Reason, as to think that his Eye was not made to see with, or his Ear to hear with ; or that the Objects of Sight or Hearing are not nicely calculated to reflect the Rays of Light, and to excite Vibrations in the Air, in a due *Manner* and just *Proportion*,

portion, so as best to attain to those Ends proposed. And the same may be affirmed of every Particular throughout the whole Creation. Whence it seems highly probable,
 * That God Almighty at the Beginning, created just such a *Quantity* of Matter, as is proportioned to the *Space* in which it was to move ; That the *Original* Particles of this Matter are *solid, impenetrable,* and very *lasting* ; That they are of a particular *Figure* and *Bigness*, and endued with particular *Laws* of *Motion* ; From the various *Texture* and *Composition* of which, a-

* Quibus quidem rebus omnibus bene perspectis & consideratis, illud mihi videtur denique simillimum veri ; utique Deum optimum maximum, in principio rerum, *Materiam* ita formasse, ut primigeniæ ejus particulae, e quibus deinceps oritura esset corporea omnis natura, solidae essent, firmæ, duræ, impenetrabiles, & mobiles ; iis magnitudinibus & figuris, iisque insuper proprietatibus, eoque numero & quantitate pro ratione spatii in quo futurum erat ut moverentur ; quo possent ad eos fines, ad quos formatae fuerant, optime deduci. *Newt. Optices, Edit. Sec. pag. 409.*

rise those different Sorts of Bodies of which this World is constituted. The Variety of *These* is infinite, and the possible Varieties of them are all equally the Object of infinite Power. It belongs therefore to Wisdom and Knowledge to determine *which* shall actually exist, and *which* will best serve the Ends and Purposes of the Creator. And to Us they can only be known by Experience and Observation. From whence we collect; that the original Particles of Matter are perfectly solid, without any Interstices or Pores (which all compound Bodies have, whose Parts touch one another in but very few Points, and which bear but a small Proportion to that Space which they possess, as appears by their different Densities;) the original Particles, I say, are so hard as not to be worn or diminished, and are not capable of being
broken

broken into still smaller Pieces by any Force how great soever in Nature; Because, if we suppose *These* to undergo any Alteration, the whole Nature of Things, which depends entirely upon them, would immediately be changed, and quite different ones arise. Thus, if we conceive the *Earth* or *Water*, as it now is, to be formed of such Particles as are before described, and that the Differences in those Bodies are owing wholly to the different Texture and Composition of such Particles; If *these* be by any Means lessened or put into new Figures, the Result must unavoidably be another Sort of Earth and Water from what we now behold, and such as perhaps does or may exist in other Parts of the Universe. As to the particular Figures and Bigness of these Particles, it is not possible for us to know them: They are so small that

no Improvements of Art can reach to the Discovery of them: But some general Laws which they are subj. & to, we can by Observation arrive at; and These discover to us the wonderful Contrivance of their various Compositions, and will help us to account for the Irregularities and Imperfections which are objected against them.

The Particular
Laws
they are
subjected
to.

The principal of these Laws are *Gravitation*, *Cohesion*, and *Fermentation*: By which Words we do not mean to explain the *Causes*, but only to signify particular *Kinds* of Motions or *Tendencies*, whatever *Causes* they are owing

to. * Thus as by *Gravitation* is meant That *Tendency* which all Bodies have mutually and equally towards each other, and

† Hanc vocem *attractionis* ita hic accipi velim, ut in universum solummodo vim aliquam significare intelligatur, qua corpora ad se mutuo tendant; cui-

is always exactly proportionable to the Quantity of Matter contained in them; So by *Cohesion* is meant another Sort of || *Tendency* (which is vastly superiour to that of Gravity) whereby the *smaller* Parts of all solid Bodies, when they come within a certain Distance, or perhaps touch each other in some Points, are strongly united together; The particular *Manner* or *Degree* of which, is very hard to find out; because the Distance is so very small before they begin to act upon each other, that we cannot well assign any *Pro-*

cunque demum causæ attribuenda sit illa vis. *Newt. Optic. pag. 380.*

|| Qui autem istiusmodi præduræ particulæ, adpositæ solummodo inter se, seque invicem in perpaucis tantum punctis contingentes, coherescere queant; idque tanta vi, quanta experientia novimus; utique, nisi causa sit aliqua quæ efficiat ut eæ ad se invicem *attrabantur* vel *apprimantur*, concipi vix potest. *Newt. Opt. ibid. pag. 396.*

** Nam particulæ e corporibus excussæ per calorem vel fermentationem, simulac e sphaera attractionis corporis sui evaserint, recedunt deinceps & ab illo & a se invicem magna cum vi; rursusque accedere fugiunt. *Newt. ibid. pag. 402.*

portion of it. And by

** *Fermentation* is meant that contrary *Tendency* which is in the Particles of fluid Bodies to recede and fly off from each other, with certain Degrees of Velocity not yet exactly determin-

ned; though by its regular Effects, in *emitting, reflecting, and inflecting* the Rays of Light, and in the producing of *Air* and *Vapours*, it appears that the Cause of These must be regular and act uniformly. These and such like particular Kinds of Motion impressed on the original Particles of Matter, are the universal Laws of Nature, by which every Thing is formed, and by which alone the present Phænomena can be explained; And they are derived from

from certain Principles *really* acting upon them according to the forementioned Rules. For all that such Particles are capable of in themselves, is only mere Passiveness; and therefore the various Degrees and Determinations of Motion, must be owing to some active Cause continually exercising certain *Forces* upon them; which *Forces* are of different Degrees, and applied in a *different*, though always regular and uniform Manner; and therefore ought to be distinguished from each other.

That there should be only three or four such universal Principles, from whence the whole Phænomena of Nature arise, and upon which all the Properties and Actions of corporeal Things depend, can be ascribed only to the mere Will of Him who created them. They might have been more or fewer in Number;

*These
Laws the
Effect of
Choice.*

ber ; They might have been different in Kind or Degree : For, abstractly considered, there is no End of the Variety, and in infinite Space there is Room for the Exercise of them all. *Those* that we experience here, are such as in the general are admirably well suited to the Purposes for which they are appointed ; and if at any Time they fail of attaining Them, it is only through such *Imperfection* as in the Nature of Things they must be subject to, and which could not be prevented or avoided but by changing their original Properties.

And appointed for very good Ends and Uses.

Thus by the forementioned Principle of Gravitation, all the Parts of the Earth tend towards the Center ; The natural Consequence of which is, that the whole Earth, is compacted into the Form of a Globe, the lighter Parts giving Way to the heavier
till

till they are all exactly ballanced. And this is the most convenient Form, for turning about its own Axis ; that every Part might have its Proportion of the Sun's Light and Heat ; And this affords also the largest and most regular Surface for Inhabitants. But this Form must necessarily be a little altered by the Earth's diurnal Rotation ; for thereby the Parts of the Earth about the Equator moving so much swifter than those towards the Poles, must by their Endeavour to fly off in streight Lines, diminish the Force of Gravity, and consequently those Parts must be higher ; and so by * Experience they require longer time than in those near the Poles ; wherefore the Spaces which heavy Bodies by falling describe in a given time by the accelerative Force of Gravitation, are greater as they approach nearer the Poles , and consequently the Force of Gravity is greater in those Places, and for that Reason they are nearer the Center of the Earth.

are

are found to be, the difference being about thirty one Miles. And if it was not thus, the Sea would sink at the Poles, and rise at the Equator and overflow all the Places about it. By this Force also, Things are retained upon the Surfaces of the Earth, and all Kinds of Animals are capable of moving upon it, and all Bodies acquire great Motion by falling.

The principal of those Uses. By the Principle of *Cohæfion*, which is so much stronger than that of *Gravity*, the original Particles of Matter are united together, so as by their various Texture and Composition to form those different sorts of Bodies which we observe in Nature, the several Kinds of Solids and Fluids; To enumerate the Particulars of which, would be to instance in all the Works of the Creation. Some of the principal we shall have

have occasion to consider, both as to the *End* they serve, and the *Irregularities* they are capable of; from whence we may judge of the rest, the whole being uniform and analogous. So likewise by the Principle of *Fermentation*, Heat and Life are preserved and maintained; the Sun it self is nourished and cherished hereby, which affords such Plenty of Light and Warmth to all the Parts of this System. All Generation and Vegetation of Plants and Animals is owing to *this*; the Juices in the one, and the Blood in the other, is kept in perpetual Heat and Motion thereby. So that were it not for these Principles of Motion, the whole material World would quickly become a mere passive Lump of useless Matter; the Earth and Planets would be involved in everlasting Cold and Darkness,

ness, and all the Species of Creatures in the Universe would immediately die.

These answers to the fore-mentioned Objections.

Having thus briefly described the Nature and Effect of the chief of those Laws by which Things are at present regulated; By a particular Application of them, we shall be able to answer the fore-mentioned Objections against the Excellency and Perfection of the present State of the Creation; and, notwithstanding such small Irregularities, to say with the Royal Psalmist, *Psal. 104. v. 24, &c. O Lord, how manifold are thy Works, in Wisdom hast thou made them all. The Earth is full of thy Riches; so is the great and wide Sea, wherein are things creeping innumerable, both small and great Beasts.* For if it appears upon the whole, that there is a particular *End* proposed by God Almighty

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ty in the Creation; that the several Parts of it are endued with such Powers and Qualities as are most conducive to that *End*; and that every natural *Evil* or *Irregularity* is such only as in the Course of things could not be prevented but by destroying also that Principle from whence every thing that is *good* and *regular* proceeds: If this I say, be evident, all such Objections must immediately vanish, and we may pronounce with *Moses* in the 1 *ch.* of *Gen.* that *every thing which God has made, is very good, though comparatively speaking some things are much more perfect than others.* And that this is the present Case, is what I shall endeavour to show in the principal Instances alledged; and give such particular Answers, as the modern Improvements in natural Knowledge furnish us with; and I shall follow

follow the Order observed in this Chapter.

The unequal division of Day and Night, Light and Darknes, and the Uses thereof, have been already considered.

*The Ob-
jection of
the une-
qual Di-
vision of
Land and
Water
consider-
ed.*

The next thing is the Separation of the Water and the Land, which distinguishes the Globe into two Parts, the one called *Earth*, and the other *Seas*. The Design and End of this is obvious, *viz.* for the Convenience of those several Species of Creatures which were to inhabit each of them. The Earth is accommodated with every thing necessary to maintain Men and Beasts, and the Sea with every thing necessary to preserve Fishes. The Proportion of *these* to each other, is what has been objected against; but without the least foundation of Reason or Experience

perience *; for it appears from Observation, that the Seas are no bigger than is requisite to preserve the present Constitution of the Earth. Water is necessary towards the Support of all Kinds of Plants and Animals: They can neither be produced nor preserved without it, and therefore it ought to be distributed to every Part of the Earth; as it is accordingly done from the Seas, as a Treasure and Magazine. The Sun by its Heat causes the Water, which is impregnated with nutritious Particles, to rise up into Vapours in so great a Quantity, as to form them-

M selves

* *Maria ad constitutionem Terræ hujus omnino requiruntur, idque ut ex iis per calorem Solis vapores copiose satis excitentur, qui vel in nubis coacti decidant in pluviis, & terram omnem ad precreati nem vegetabilium irrigent ac nutriant; vel in frigidis montium verticibus condensati (ut aliqui cum ratione Philosophantur) decurrant in Fontes & Flumina.*
Newt. Princip. Edit. Sec. p. 473.

selves into thick Clouds, which being carried about by the Wind, are dispersed and fall down in Rain, which moistens the Ground and renders it fruitful. Or else these Vapours are condensed by the Cold on the Tops of high Mountains, and by that Means produce Fountains, which gather as they run along, till they become Rivers affording Plenty of Water for all the Uses of Life. And as there is this Reason in Nature for so great a Quantity, so is there also as good a Reason for that particular Quality of it, its *Saltness*. Fresh Water must be in continual and quick Motion to keep it from putrifying and stinking ; But the Channels of the Ocean are so large, as to render them incapable of a swift Current, so that it can have no more Motion than is given it
by

by the Winds, the Reciprocation of the Tides, and the Revolution of the Earth about its own Axis. But these are not sufficient, as appears from hence; that if it be calm but three or four Days, the Water in the Ocean corrupts and breeds Animals, which stink and infect the Air. To compensate this want of Motion therefore the Water was made Salt, which produces the same Effect as violent Motion would do, and is separated from it when it is exhaled into Vapours. By this single Instance we see what a wrong Judgment Men are apt to make when they view Things in one Light only, or make undue Comparisons of them, and thence proceed to find fault with and condemn them. The several *Evils* and *Inconveniencs* which arise from this particular Constitution of Sea and Land, are such only as are

the unavoidable Consequences of those Laws by which each of them is governed, and are the fewest that in the Nature of Things can be, when they are adjusted in the best Manner possible. To take therefore one single Part, and to imagine it might have been better in some Respects than it is, without connecting the Whole, and seeing what Uses it may best serve with Regard to *that*, is a very unfair and partial Way of arguing. To make the Objection good, it ought to be shown, how the original Disposition and Order of the Parts, could have been better in all Respects, to serve that *End* which they are manifestly intended for. But we are so far from being able to do that, that if we try but to alter any one of them in *Quantity*, *Quality*, or *Place*, we immediately see the Absurdity
of

of it. Thus, had the Quantity of Water in the Sea been *less* than it is, it would not have been sufficient to afford Rain for the whole Earth; For there are at present large Tracts of Land, which seem to be barren and desolate for Want of Moisture. And were the Quantity much *greater* than it is, probably there would be as great a Part of the Earth rendered useless on the other Hand through the Abundance of it. And the same may be affirmed of the other Circumstances of it. It was not intended for Drink either for Men or other Animals who live on the Earth, the Rivers being sufficient for that Purpose; and it is very proper Drink for those Creatures that live in the Sea; Its Saltness therefore is no just Objection against it; And the Inundations that are caused by it, if it be con-

sidered how seldom they happen, what a Complication of Causes they are owing to; such as the low Situation of some particular Countries, whose Defenses are only artificial and weak; the incidental high Winds; Spring-Tides, Season of the Year, and many other Circumstances all conspiring together; considering also what Remedies there are in Nature to prevent or provide against them; These will not hinder us from thinking, *That God has established his Decree upon the Sea, and set Bars and Doors, and said, Hitherto shalt thou come, but no further; and here shall thy proud Waves be stayed,* Job 38. ver. 10, 11. &c.

*The Ob-
jection of
the In-
equality of
the
Earth's
Surface,
consider-
ed.*

Of the same Kind is the Ob-
jection drawn from the Inequality
of the Earth's Surface, consisting
of Mountains, Vallies and Plains,
every one of which have their

Incor-

Inconveniencies ; but much greater would follow, if it were otherwise. This Inæquality is in itself very inconsiderable, though it appears to us very great; for the highest Mountains bear but a very small Proportion to the Earth's Diameter, by which they ought to be estimated. And if we suppose this Irregularity removed, and that the Superficies of the Earth were exactly Even and level ; the Consequence would be, that the Water which is lightest, would diffuse itself every where uniformly and cause an universal Deluge. An Inequality therefore was absolutely necessary, to separate the Land from the Water, and to keep the Rivers in perpetual Motion : Besides, the great Use of Mountains was before hinted, *viz.* to collect Vapours and condense them into Springs ; For the Tops of very
M 4 high

high Mountains are observed to be perpetually involved in Clouds, and to be covered very deep with Snow, and to be extreme cold ; All which, cause that great Number of * Springs and Rivulets which are every where found in the Sides of such Mountains. To which

* Et nunc sicca, prius celeberrima fontibus,
Joc. & vid. *Metam. Lib. II. ver. 218.*

may be added, that the choicest Fruits grow on the Sides of Mountains, which being oblique are most exposed to the Heat of the Sun ; And in the Bowels of them are contained the most useful Minerals. Some of these Mountains are indeed very dangerous and destructive, such as the several burning Mountains which many Times overspread the neighbouring Country with Fire and Ashes : The Cause of which is to be ascribed to the forementioned Principle of *Fermentation,*

mentation, and is the natural Result of it. And were this removed, a much greater Evil would unavoidably follow ; for it is observed that those Parts of the Earth abound very much with Sulphur, and Salts, and Minerals, all which are absolutely necessary towards the Fertility of the Earth, and to Vegetation and Life in Plants and Animals ; For These, by mixing together, first grow warm, as we see in Baths ; and in other Places become extreme hot, and at last take Fire ; and by their sudden Expansion in the Caverns of the Earth, either cause Earthquakes by tearing it in Pieces, or else force their way out of one particular Passage, and so form burning Mountains. And this seems to be the Original of them, and That Method by which, in the present Course of Things, such *fermenting* Particles
are

are dissipated throughout the Air and Earth, in Order to produce the Effects designed by them. For most very high Mountains are observed to have Ashes on or near the Top of them; which looks as if they were generated this Way. If therefore we consider of what vast and universal Use the Materials are which spring from this Fountain, we shall be so far from thinking them *evil*, or intended to be *mischievous* to Mankind or other Creatures, that on the contrary, such *Evil* is only partial and accidental, and the least that in the Nature of the Thing can be; and the *Good* and *Benefit* on the other Hand, the greatest and most universal: In the same Manner as Heat and Light, are the most universally beneficial to the World; yet too great a Quantity or Intensity of either of them, is as mischievous

vous and destructive to all Creatures ; Notwithstanding which, it was necessary that such a Quantity or Intensity should be in some Places : So these *fermenting* Materials are very useful : And it is as weak an Objection against this Usefulness, that where a large Supply of them is collected together, they must by the same *Principle* be liable to exert a proportionably violent Force, attended with as violent Effects.

The remaining Part of this Ob-<sup>The Ob-
jection
concern-
ing
Heaths
and De-
serts &c.
consider-
ed.</sup>jection, relates to barren Heaths and large Deserts ; *some* of which are uninhabited, and *others* seem by their Sandiness and Want of Water, to be utterly incapable of any Inhabitants, at least of Men. These seem to arise partly from the voluntarily Neglect of Men, and partly from the Imperfection of the present State of Things.

From

From the Carelessness of Men, in neglecting to cultivate and improve them: For it seldom happens, even in those Places, but that there are different Sorts of Earth, not so far distant from each other, but that by Art and Industry, they may be mixed together in such a Manner as to become fertile; Whereas on the contrary, Men have not only neglected to make such Improvement, but by Luxury and Wars and the like, have depopulated whole Countries, and rendred even *Those* barren and unfruitful which Nature had made rich and plenteous. That part which arises from the *Imperfection* of the present Course of Things is, that originally these very Places, which are now so desolate, might possibly be furnished with all Manner of Plenty, and yet be naturally reduced to their present State. For *Moisture*

is absolutely necessary to the producing and increasing of all Kinds of Vegetables, which, upon their Dissolution, is in great Part converted into dry Earth; (all putrified Liquors affording some Sort of Muddiness.) Whence it follows, that in this whole Globe of Earth, the Moisture must continually decrease, and the dry Ground increase; And unless there be a Supply from some other Cause, it must in Time totally fail. It is not therefore Matter of Wonder, if from all these Causes put together, upon View of the several Countries of the World, compared with each other and with themselves at distant Times; it appears that *one* is so much more fertile and plentiful than *another*; that *that* which was once a Garden, should become a Wilderness; and where formerly a populous and potent Nation

Nation dwelt, we now behold nothing but Sand and Defart. These are such natural *Evils*, as the Constitution of the Surface of the Earth unavoidably renders it subject to.

Objections relating to the Air considered.

And if we proceed from hence to the Air with which the Earth is incompassed; we shall find, that *this* also has its Inconveniencies and Irregularities. From hence come Storms and Tempests, Thundrings and Lightnings, which oftentimes destroy Men and Beasts, and blast the Fruits of the Earth. And from some Corruption or Infection of *this*, arise Pestilences and Famines, by which whole Cities and Countries are depopulated and made desolate. And here also we ought to consider, what is the natural Result of the Constitution of the Air; How universally beneficial it is; Whether such Phænomena

nomena do not proceed from some particular Circumstances of it; Whether They also may not be of some Use; Or whether the preventing them would not be of worse Consequence; And how much of this Inconvenience may be owing to Mens Neglect or Abuse. The general Constitution of the Air, (as appears by numberless Experiments) is such, as arises from a Property or particular Motion of its Particles, directly contrary to that of Gravitation or Cohæſion. For by these latter Powers, they have a Tendency towards each

other; but by that
 * Springiness or Elasticity with which they are endued, they have a Tendency to recede from each other, and to expand themselves into a Space many

* Quæ tam ingens contractio & expansio, animo sane concipi vix potest, si particule aeris fingantur elasticæ & ramosæ, vel viminum lentorum intra se in circulos intortorum instar esse, vel ulla alia ratione, nisi ita si vim repellentem habent, qua a se mutuo fugiant. *Newt. Optic. pag. 403.*

hundred

hundred thousand Times bigger than they possessed when in the Form of a condensed Body. This is very evident to Those who are acquainted with the Method of working by Algebra, where the *negative* Quantities begin as the *positive* ones end ; So here, where the Force of *Attraction* ceases; the contrary Force of *repelling* or *receding* begins. And it may also not unfittly be illustrated by the Motion of the heavenly Bodies about the Sun: For in that Part of their Orb in which the projectile Force conspires with *that* of Gravitation, they tend towards the Sun ; and in the other Part where *These* are contrary to each *other*; they recede from it : And if we suppose their Orbits changed from Ellipses to Hyperbola's, the *Centripetal* will be converted into a *Centrifugal* Force. In like Manner it appears in the
small

Small Particles of Matter, that at *one* Distance they act on one another by the Law of Gravitation; at *another* Distance, by the Law of *Cohesion*, (which may also be called a particular Attraction, when they come to be within each others Spheres;) and by that of *Repulsion* or flying from one another, when by *Fermentation* or Heat such Particles are emitted from solid Bodies. These are no Hypotheses or Fictions, invented to solve the Phænomena of Nature, but they are real Laws of Motion, by which material Bodies are governed; and they are as nicely and exactly observed in the most minute Particles with Regard to each other, as they are in the greater Bodies of the Universe. These Particles compose a System; and approach to, and recede from each other in regular Curves; as is most evident in Experiments

N ments

ments of Rays of Light, which are reflected and inflected by Bodies, and transmitted through them, in as uniform Curves as those in which the Planets move about the Sun. The same be may affirmed also of Air and Vapours; as is clear from the Manner of the Production of them, *viz.* by Heat and

Fermentation: † For the Particles are by this Means forced off from Bodies with great Violence; and consequently as soon as they are beyond the Sphere of Activity of the attractive Body, they fly off, both from

† Nam particulæ e corporibus excussæ per calorem vel fermentationem, simul ac e sphaera attractionis corporis sui evaserint, recedunt deinceps & ab illo & a se invicem magna cum vi, rursusque accedere fugiunt. *Newt. Optic. pag. 402.*

It, and from each other, with a proportionable Velocity. And as all the Irregularities of the greater Bodies of the Universe were either *visual* or *optical*, or else such as were natural

naturally effected by those Powers which were originally impressed on them, or by the Interposition of other Bodies, which a little disturbed them; So here likewise the present Irregularities of the Air arise from the same Principle, and, so far as we have Means of coming to the Knowledge of the particular Circumstances of it, we can account for the Event.

Thus, it is objected against our *Objections concerning the Air.* Air, That it is subject to frequent Storms and Hurricanes of Wind, to Thundrings, and Lightnings, which are often destructive both to Men and other Animals, and by which the Fruits of the Earth are blasted; And it is many Times so infectious and corrupt, as to cause Plagues and Famines, by which whole Cities and Countries are depopulated and laid waste.

The Nature of Air and the Laws it is subject to

In Order to account for the Origin of these Evils and Calamities, it will be necessary here also to enquire into the Nature and Constitution of the Air, so far as we have Means of coming to the Knowledge of it ; that we may be able to judge of its Powers and Effects, and to see how much is owing to the Laws it is subject to, and how much is to be ascribed to the Neglect or Carelessness, of Men. That Air is not by any Means to be rendered visible, is evident from hence; that when it is never so much condensed by artificially thrusting a very great quantity into a small Space, there appears not the least difference in the Transparency. We cannot therefore by Sight come to the knowledge of its Laws, as we do of the great and visible Bodies; But there are numberless Experiments by which the general

ral Nature of it is made manifest, and which will account for the principal Effects of it. The peculiar and distinguishing Property of Air, is its *Elasticity* or *Springiness*, that Power by which the Parts endeavour to recede from one another, and to expand themselves all round, so as to possess any given Space; the Degree of which is found by the force that is required to compress it, Action and Reaction being always equal to each other. This also is a certain and positive Law, by which these minute, and to us invisible Particles of the Air, are as regularly governed as the heavenly Bodies themselves. And by considering what the Consequence of such a particular Motion is, we shall see the vast Use and Benefit of it, and what Imperfections and Disadvantages it must be liable to. Though

this Springiness be the peculiar Quality which belongs to it as *Air*, yet is it also subject to that universal Law of Gravitation, which belongs to all material Things under every Form and Constitution, and 'tis no Way inconsistent with it; this *latter* always respecting the Center of the Earth, and the *other* respecting only the Particles themselves. And to the Composition of these two Motions, is owing that particular Density of the Air here near the Surface of the Earth, which is necessary for the Subsistence of Men and all other Animals. Were its Particles void of Gravitation, they would immediately fly off, with a Velocity equal to their Compression, and be entirely dissipated; And were they void of Elasticity they would subside to the Surface of the Earth; But the Quantity of the Air being exactly
adjusted

adjusted to this *expanding* Force, so that the incumbent Weight might compress it to a due Density, this renders it fit for all the Purposes for which it was intended. That this is the general Constitution of the Air, is confirmed by undeniable Experiments; which accurately measure its particular different Density, in different Places; and demonstrate, that about the height of seven Miles from the Earth, it is four times thinner than upon its Superficies; and at the height of thirty-five Miles, it is above a thousand times more rare than with us. Which plainly discovers the particular *Uses* of this Element.

Thus, by the smallness of its *The par-* Particles and their regular Distance *ticular* from each other, the Air is ren- *Uses of* dred a transparent Medium; which *this Ele-* it was very necessary it should be, *ment.*

that Objects might become visible; Otherwise the Faculty of Seeing in all Kinds of Animals had been wholly lost; They would have been in utter Darkness, and been liable to rush continually against each other, when they moved out of their Places. By the *Elasticity* or *Springiness* of these Particles, whereby they endeavour to recede from each other all Ways; the Air is rendred the most proper Medium for all Creatures to move most freely in: For by this Means it is not only *fluid*, that is, will very easily yield to any Force, and by such yielding, have its Parts freely moved amongst one another; but by its Reaction, the incumbent Weight, (which is very great, sufficient to compress the Bodies and Vessels of all Animals, so as no Juices could circulate in them,) is so far taken

taken off, that they can, with little Resistance, move swift enough for all the Purposes of Life. From the same Principle arises *Sound*, which is nothing else but the Effect of different Vibrations of the Air, striking upon the Organs of Hearing: Which affords not only the pleasure of Musick, but is the great Instrument of conveying Mens Thoughts to each other. To *this* also is owing That other Kind of Motion which we call *Wind*; which is so necessary towards the duly tempering and mixing the Particles interspersed in the Air; also for conveying the Clouds from one place to another, and for cooling the Air in the hotter Climates of the Earth. To which we may add its *artificial* Uses and Improvements by Men; as in the Art of Navigation; by
which

which we are acquainted and traffick with the most distant Nations. Also the several Sorts of *Mills* and the like, which diminish very much that Labour which must otherwise come upon Men and other Animals. But the principal Use of all, is Respiration, which is absolutely necessary to the preservation of Life both *Animal* and *Vegetative*; For the Particles of Air insinuate themselves not only into the Vessels, but also mix with the Juices contained in them, in all living Things; Whence through its equal pressure on every side, the distractile Vessels are capable of being contracted and dilated with great Ease by the *vital* Power, so as to inspire and expire a sufficient Quantity of Air to carry on the Circulation. That this Air is imprægnated with *acid* Particles, or abounds with *acid* Vapours, is evident

dent from experience: The Nature of which Particles, or the Laws they are subject to, we judge by the Effect. Thus that they are the Cause of *Fermentation*, is evident from hence, that some Metals, such as Iron and Copper, when they are exposed in the Air, immediately contract a Rust; and that a common Fire is very much increased by blowing, or mixing a great Quantity of Air with it. From whence it follows that these Particles must be pretty gross, and endued with a very strong attractive Force, when they come near one another; By which Force, when they rush together in any Fluid, they agitate the parts of it, which causes *Heat*; or separate them with great Violence from each other, in which consists *Fermentation*. And thus the Pulse of the Heart, and the Circulation of Juices, is preserved by Respiration;

ration; For, upon dilating the Lungs, a great Quantity of Air is received in, which carries along with it those nitrous acid Particles with which it abounds; which being thus conveyed into the small distended Vessels, mix with the Fluids contained in them, and, by *fermenting* there, cause such a gentle Heat and Motion as is necessary to preserve Life.

The natural Effects of its being subject to these Laws.

These are the principal Laws by which this Medium is governed; which it was necessary to mention particularly, in Order to account for those *Irregularities* which by this Means it must be continually liable to, and which, compared with the general *Usefulness* of it, will be found to be no just Objection against it. That *

* Si eodem tempore consideremus quam multum fit Sulphuris intra Terram, & quam calidæ sint partes interiores

the Air is supplied with nitrous and sulphureous Particles from the internal Parts

Parts of the Earth, is evident, if we consider what a vast Quantity of Them is contained in its Bowels; which discover themselves in the several burning Mountains, in hot and suffocating Exhalations, some of which are easily inflammable, and also in hot Fountains and

Terræ; Fontesque fervidos contemplemur, Montesque ardentés, Mephitesque subter Terram subitaneas, & Vapores inflammabiles, Coruscationes Metallicas, Terræ motus, Exhalationes æstuosas et suffocantes, Ventorum turbines, immanesque Aquæ marinæ in Cælum usque elatos & contortos Vortices; utique intelligere poterimus &c. *Newt. Optic. pag. 384.*

the like. These Caverns are the Magazines of such Particles, as the Sea is of the Water; and they are conveyed from Them all over the Surface of the Earth, much in the same Manner as Water is; For upon their mixing with Minerals, a *Fermentation* is immediately raised, which dissipates them so that they are exhaled along with the watry Vapours, and driven by the
Wind

Wind from one Place to another, till the whole Atmosphere is impregnated, with them. And as in the Instance of the Sea, so great a Quantity of Water, which yet is absolutely necessary to furnish the Earth with Rain and Rivers, must sometimes be subject, by the Laws of it, to overflow its Banks, and so cause Innundations and Deluges, by which particular Countries are injured ; So *here* also, under some Circumstances, these *Fermentations*, which in the general are no more than is requisite to fill the Air sufficiently for the Purposes of Life, must cause great Mischief in certain Places.

The Objections concerning Storms and Earthquakes &c. considered.

Thus, the internal Parts of the Earth being the only proper Place for containing so large a Store of Sulphur and Nitre and Minerals as is required for so many thousand Years as this Earth in its present

sent State has, and may yet continue ; it must necessarily be, that when this *Fermentation* is made in such subterraneous Caverns as are not wide enough for the Particles to expand themselves in, or have no open Passage to rush out at, they will, by the forementioned Law, shake the Earth to a considerable Distance, tear those Caverns to Pieces, and, according to the Depth of such Caverns or Quantity of Materials contained in them, remove large Pieces of the Surface of the Earth from one Place to another ; in the same Manner, though to a much higher Degree, than *artificial* Explosions made underground ; the Effect of which is very sensible to a great Distance. If it happens that these *Fermentations* are in Places under the Sea, the Water mixing with these Materials increases their Force, and is thereby

thereby thrown back with great Violence ; so as to seem to rise up into the Clouds and fall down again, sometimes in very large Drops, and sometimes in whole Spouts, which are sufficient to drown all that is near them. If the *Fermentation* be not so violent, but such only as raises large Vapours or Steam's, which can find their Way through small occult Passages of the Earth ; *These*, near its Surface, by their continual Expirations are at first the Cause of gentle Winds ; And these afterwards by their continual Increase become perhaps Storms and Whirlwinds and Tempests, which many Times destroy the Fruits, tear up the Trees, and overthrow the Houses : But if they be still more gentle, there being always some sulphureous Exhalations, especially if the Earth be dry, they then ascend along with
the

the lighter Vapours into the upper Region of the Air, where when a large Quantity of them is gathered together, they *ferment* with the acid Nitre, and taking Fire, and exploding, cause Thunder and Lightning and other Meteors. This, as far as can be gathered from Experience and Observation of the Works of Nature, is the Origin and Cause of those *Imperfections* and *Evils*, which the present Constitution of the Air, and the Laws of Motion observed by those Particles mixed with it, unavoidably subject it to. They are the natural and genuine Effects, of the *Regulation* it is under; and without altering the primary Laws of it, (that is, making it something else than what it is, or changing it into another Form; the Result of which, would be only to render it liable to *Evils* of another Kind, against which the

O same

same Objections would equally lie;) or in a supernatural Manner hindring it from producing such Effects, it is impossible to prevent them. And if we add to this, that these *Evils* are the fewest that in the Nature of Things could be, without hindring a much greater *Good*; that they are in the most convenient Parts, and the most guarded against doing Mischief, that could be; and that there are also good Uses to be made of them; we shall have no Reason to complain of, or find fault with them. Were the Quantity of Sulphur and Nitre much diminished, there would not be sufficient to fill the Region of the Air for the Purposes of Vegetation and Life; but the Ground would grow barren, and the Plants and Animals would wast and die: And if there were a much greater Quantity, the contrary

trary Effect would happen ; The Earth would be too fat, the Plants would grow too gross, and the Animals would be suffocated and choaked. The Temperature is therefore as exact as it could be, all Circumstances considered ; and the small Inconveniences are nothing, compared with the general *Good*. Those Vapours which cause Thunder and Lightning, are by their Levity conveyed to the highest and most remote Parts of the Atmosphere ; where, their Explosion being capable of Any Direction, it seldom comes *perpendicular* on the Earth, and more seldom reaches it, by Reason of the greater Density of the Air near its Surface : And were these Vapours not to be discharged in this Manner, the Air would be so filled with them, as to be more *pernicious* to Men and all other Creatures :

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They are therefore of very great *Use* towards purging and purifying the Air from noxious Steams and Exhalations, and the like. The same may be said also of Storms and Hurricanes of Wind: The Case of the Air, is much the same as that of the Sea; If the Water stagnates but a few Days, it corrupts and stinks: So likewise if the Air stagnates, it corrupts and becomes unwholesome, in a short Time; So that it was necessary there should be Storms of Wind to agitate its Particles, and to give them a due mixture. So likewise concerning Vulcano's and the like; They are of Use to generate Mountains and Islands, and to enrich the Countries round about them; For we observe them to be generally in the most fertile Places, the Materials with which they abound being proper for this Purpose.

pose. Thus we see that these *Imperfections* and *Evils*, which this Part of the Creation is by the general Laws of Nature subject to, is by no Means inconsistent with what *Moses* pronounces concerning all the Parts of it; *That behold they are very good.* And therefore in Scripture these very Things are often in particular mentioned, not as unworthy of the Perfections of God; but as Manifestations of his Glory and Excellency: According to that of the Royal Psalmist; *Whatsoever the Lord pleased, that did he in Heaven and in the Earth, in the Seas and all deep Places. He causeth the Vapours to ascend from the Ends of the Earth; He maketh Lightnings for the Rain; He bringeth the Wind out of his Treasuries,* Pl. 135. ver. 6, 7. Therefore praise the Lord, for the Lord

is good : Sing Praises unto His Name, for it is pleasant, ver. 3. And again, Pl. 29. ver. 3, 4. It is the Lord that commandeth the Waters ; it is the glorious God that maketh the Thunder ; it is the Lord that ruleth the Sea, the Voice of the Lord is mighty in Operation, the Voice of the Lord is a glorious Voice.

The Ob-
jection
concern-
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Plagues
and Ex-
mines,
consider-
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The remaining Part of the Ob-
jection is, that this Air is many
Times so corrupted and infectious,
as to cause Plagues and Famines,
by which whole Countries have in
great Measure been depopulated
and destroyed. *These* may be
partly ascribed to the natural *Im-
perfections* of Things, and partly
to the voluntary Neglect of Men.
It was before observed, that a due
Temperature of the Air is neces-
sary to the Vegetation of Plants
and Respiration of Animals ;
whence

whence it follows, that if this Temperature be disturbed any Way, some proportionable Inconvenience must arise. If the Air abounds with too many nitrous and sulphurous Particles, the Consequence is, that the *Fermentation* will be also too great, so as to accelerate the Juices and distend the Vessels more than is proper for the Nourishment either of Plants or Animals ; or if it be still more violent, it may break Them in Pieces. Or on the other Hand, the Air may want a sufficient Quantity of such Particles, and then the *Fermentation* may not be great enough to promote a due Circulation of those Juices ; but the Motion may grow languid, or at last the Juices may quite stagnate. In either of which Cases, Diseases and Death will unavoidably follow. And these Evils come to pass naturally, according to the forementioned

Laws: For at the first Eruption of such Vapours, the adjacent Places must needs be too plentifully stored with them, so as by their excessive Heat and Intenseness to destroy the Products of the Earth; and afterwards by continually decreasing, and in the End being wholly spent, the very same Places may become barren and desolate. But this may be ascribed likewise in some Measure to the voluntary Neglect of Men: The Earth being created principally for the Habitation of Man, there is a very strict Connexion and Proportion betwixt Them, in Order to render the Earth the most useful and serviceable: And an Excess on either Hand, *viz.* when there is too many or too few Inhabitants, may produce the Effects here complained of. In barren and desert Countries, where the Ground is uncultivated, and the Waters

ters permitted to stagnate, and where very large Woods which the Wind cannot penetrate, make the Air to stagnate also; the Earth sends forth noxious Steams and corrupted Vapours, which being carried along by the Wind, infect the neighbouring Nations. And in very populous, and close-built Cities, the contrary Effect is produced, for Want of a due Circulation of Air, and for Want of its being proportionably impregnated with *fermenting* Particles. Whence it is observed that such Distempers are for the most Part generated, in one or other of these extremely different Places. These are the principal Causes of the forementioned *Evils*, which this Medium of the Air is subject to; and from the Composition and Variety of them, arise different Sorts and Degrees, which must be accounted for by particular Observation and
Expe-

Experience ; it being impossible for us otherwise to find out the Ingredients of which such Mixtures are compounded, the Cases being almost infinite. But the Uniformity we every where see in Nature, is a sufficient Reason to ascribe the same Kind of Effects, to the same general Cause.

Objections against the Produce of the Earth considered.

Having thus considered the Nature and Effects of the Air, I come now to the next Part of the Creation according to the Division of *Moses, Gen. 1, viz.* the Herbs and Plants with which the Surface of the Earth abounds ; Of these it is said, *ver. 12, That the Earth brought forth Grass and Herb yielding Seed after his Kind, and the Tree yielding Fruit, whose Seed was in itself after his Kind ; and God saw that it was good.* To which it is objected ; that many of *These* are *noxious* and *poisonous*

poisonous to Men and other Creatures, and others of them are said to be a Curse rather than a Blessing, Ch. 3. ver. 17. *Cursed is the Ground for thy Sake; — Thorns and Thistles shall it bring forth unto thee.* That the principal of *These*, such as the different Sorts of Corn and other Grain, were chiefly designed for the Use and Benefit of Men, is evident, in that they are the most agreeable Food for them: But as the All-wise Creator thought fit to make Variety of Other inferior Creatures, it was necessary that *They* also should be supplied with such Kind of Sustenance as was proper for them. Wherefore, as the Royal Psalmist expresses it, *Pf. 104. ver. 14. He causeth the Grass to grow for the Cattle, and Herb for the Service of Men, that He may bring forth Food out of*

of the Earth, and Wine that maketh glad the Heart of Man, and Oyl to make his Face to shine, and Bread which strengthneth Man's Heart. The natural Consequence of which, is ; that as every Species of Creatures has its proper Food, is endued with peculiar Degrees of Sight or Taste or Smell, in Order to distinguish it from all others ; as they have their Mouths and Teeth framed so as most easily to take the Food and render it fit for the Stomach, and such Juices in the Stomach as will best digest it into Nourishment ; It must, I say, from hence follow in the Course of Things, that any Defect, or Misapplication, or Superabundance of *These*, must be injurious or noxious, whenever it happens ; which yet casts no Reflexion upon the general *Good*. And hence it is, that what is Food
and

and preserves Life in one Animal, may be Poison and Death to another; because its Stomach may not be at all able to digest it; or it may do it in such a Manner, as to cause a Fermentation too strong or too weak for the Vessels in which the Juices are contained; The several Degrees, or different Varieties of which, cause greater or less Disorders and Irregularities. There is no Fault or Defect in the Things themselves; They are the most useful that they were capable of being made; And 'tis merely the Names we give to them, on the Account of those disagreeable Effects they produce when out of their natural State, that makes them seem to be *evil*, when the contrary ought to be affirmed of them, and often is so in another View. Thus the same Plant which in some Respects and under some

Circum-

205

Circumstances is stiled *poisonous*, is in other Respects and under other Circumstances very excellent and useful: It is perhaps a Remedy for many Distempers, or, according as the Body is disposed, perhaps a proper Diet. Before we peremptorily pronounce concerning the *good* or *evil* of such Products of the Earth, we ought to find what are the Ends and Uses of them; for till this be done, we cannot truly determine about them. Now in those that we do know, they appear sufficiently to answer the Design of the great Creatour, and are therefore *good*. And as the *other* may do so too, for ought we know; nay from the Analogy of Things and their proceeding from the same Original, they cannot but do so; they are not only, not *Evil*, but *Good* likewise. And what is
said

said of the Grounds being cursed and bringing forth Thorns and Thistles, is no Objection against this general Truth: For those Words seem only to be comparatively spoken; and relate to the Garden of *Eden*, out of which our first Parents were removed for their Transgression, and on whose Account that pleasant Place was levelled with the common Earth, and brought forth Thorns and Thistles, instead of those choice Fruits it was replenished with before; And therefore with Regard to Them it is said to be *cursed*, that is, *less blessed*; for Thorns and Thistles have their Uses in bringing forth Food for Birds and the like. And in this Sense *blesting* and *cursing*, *loving* and *hating* are frequently used in Scripture.

'Cursed'
in Gen. 3.

Thus we have gone through the *inanimate* Part of the Creation, The general Application of the foregoing Particulars.

on, and have distinctly considered the principal Instances which have been thought most liable to Objection ; and have given such Answers to Them, as the Nature of the Things afforded. It is impossible to take in every Particular under all its Variety of Circumstances, because they are innumerable ; But as the same Reason holds for all, it is easy to apply the general Rule. That every Thing which exists, was created for some *End* and *Purpose* ; That it is regulated by some *Law* or endued with some *Faculty* in its own Nature most proper and conducive to attain That particular *End* and *Purpose* ; This we come to the Knowledge of, by Experience and Observation and by an Induction of Particulars : For this is the only Way we can arrive at any Knowledge of this Kind, *viz.* to make Observation

vation in all the Instances where we have Means of doing it, and, where the Analogy is the same, to apply it to those Things that we cannot come at; and then by abstracting, form a general Rule *a priori*, from which we may safely argue afterwards. Thus, that all Bodies *gravitate* towards each other, we find by Experience, in all Instances that we have had any Opportunity of trying; From whence we make no Scruple to affirm, that if any different Sorts of Bodies which we had never seen, were brought from other Countries or out of the Bowels of the Earth; I say, we should not scruple to affirm, that *These* also were *heavy* in Proportion to the Quantity of Matter contained in them: And so we may proceed till we have made it a general Law of Nature; after which we may argue *a priori*, and

P venture

venture to determine what particular Effects will be produced by a System of Bodies acting upon one another in this Manner. So likewise, that those Things which we are more immediately conversant with, and have Opportunities of knowing the Circumstances and Condition of, have their peculiar *Ends* and *Uses*; is too obvious to be doubted by any serious Person. As, that the Eye was made to see with, and the Ear to hear with; That Corn was made to grow for the Service of Man in furnishing him with Bread the Staff of Life, and Grass in the same Manner for Food for the Cattle: That *other* Things which at first were thought to be wholly useless, have by Experience been found, upon removing them out of their Places, to be very necessary; and those with which they were
invisibly

invifibly connected, to fuffer by it ; and others which were thought really injurious, have upon more ftrict Obfervation and Inquiry, been found to be very beneficial and ferviceable ; as Seas, Mountains, Vulcanoes and the like. We may reasonably from hence conclude alfo that *every* Thing has its proper Ufe, and is therefore *good* in the Place originally intended for it. Wherefore fince we can find no Instance to the contrary, in thofe Things that we have Means of coming to the Knowledge of, which appear to be the *best* that it is poffible for us to conceive, in their feveral Degrees and Orders ; And fince, where we have not fuch Opportunities of Knowledge, we may juftly infer the fame, becaufe the whole System of Nature is uniform, and the further we enquire into it, the Beauty and Order of

it appears more and more ; This ought to be satisfactory, unless it could be made appear that any Part of the Creation is in every Respect *useless* ; which it is impossible to do, because we cannot tell all the Ways that it may be applyed, and such Ignorance is no Argument against the Excellency of the Thing. And this is the only Way we can have of judging of the Works of the Creation, which are so numerous, have so strict a Connexion with each other, and are capable of so much Variation. And as we have just Reason to think, that every even the most minute *Thing* in the Creation, was made for some *End* or *Use*, tho' very different in Degree, which renders them *better* or *worse* relatively, but upon the whole, and in their proper Places, they are all *equally good* ; So is it likewise

wise evident that they are subject to such *Laws*, or endued with such *Powers* and *Properties*, as are most conducive to attain those *Ends*. This is demonstrable not only of the greater Bodies of the Universe, but also of Those which seem to us the most inconsiderable: The meanest *Weed* that grows in the most barren Field, if viewed in a Microscope, affords sufficient Matter of Admiration; to see the Texture of its smallest Particles, and the nice Adjustment of all its Fibres and Vessels, in Order to bring it to a State of Maturity. And the same may be affirmed of the least Grain of Sand; and of the still smaller Particles of Matter which are to us utterly invisible; as is evident from the Effects. The different Rays of Light, could not excite in us different Colours; nor the different Vibrations of Air,

raise in us as different Sounds, in the most exact Proportion ; if the component Particles of the Bodies from whence they proceed, and the Medium through which they pass, and the Organ of Sensation which receives them, were not all regulated and connected, in the most exact Manner possible. So that what our Saviour says in this Case, is literally true, *Luke 12. ver. 28. That God cloaths the Grass of the Field ; that a Bird falls not to the Ground without Him ; and that the very Hairs of our Head are all numbred ;* That is, They are all of them under the Direction of Him, who governs them by the wisest and best Laws which the Nature of the Things are capable of. And this leads us to the *Cause and Origin* of all those natural *Evils* which have been before mentioned, *viz.*
that

that *Things* are not under an unavoidable *Necessity*, but are directed by certain *Laws*; the natural Consequence of which is, that as different Sorts of Bodies are subject to different *Laws*, are endued with different Powers and Qualities, some of which are much superior to and stronger than others; so they must sometimes interfere with each other, and produce many *Irregularities*, which are the natural Effects of such different Compositions. Were all Things under a fatal *Necessity*, and unalterably determined in their Course; there would then be no such Thing as *Good* or *Evil*, *Perfection* or *Imperfection*: But the infinite Variety we observe in the Universe, is a Demonstration against such *Necessity*; which vanishes upon the very Supposition of any *Change* or *Alteration*. But every Thing

subject to different *Laws* or *Rules* ; this is the Foundation of all those Inconveniencies complained of : And this was not possible in the Nature of Things to be prevented : There could have been no Degrees or Ranks of Creatures ; There could have been no Order or Harmony in the World, without such Differences. The whole therefore is reduced to This ; either that there must be no created Beings at all, or they must be liable to some *Evils* or other of this Kind. Let the Supposition be what it will, it amounts to the same. Whatever is created, is *finite*, and therefore if compared with any other created Thing of a different Kind, is relatively *better* or *worse* ; and if they have any Connexion with each other, they cannot but produce Changes and Alterations, which are what we call

good

good or *evil*. All that is reasonably to be expected, or agreeable to the Notions we have of Wisdom, is, That there should be Variety in the Works of the Creation ; That every Part should be as perfect as it can be in its Place ; That they should all be subservient to one another, and promote the Good of the whole. And if the unavoidable Consequence of this be, that some small Defects and seeming Irregularities will arise, *These* when compared with the general Use, will be found scarce worth taking Notice of. This is evidently the Case in all the foregoing Instances: They are such only as are the natural Result of being governed by particular stated Laws, which in themselves are originally perfectly indifferent, and are accommodated to serve the Business of this System in the best

best Manner possible. And to suppose the entire Absence of such Evils or Imperfections, is wholly inconsistent with the Notion of any created Beings at all, is introducing Fate or Necessity, is to suppose the same Cause sometimes producing its genuine Effects, and sometimes not, without any Thing to hinder it; or else to imagine the uniform Laws of the Creation should be perpetually altered or suspended without any sufficient Reason. It is much more agreeable to the Notions we have of Wisdom in general, and to what we know of the present Circumstances of the Creation from Observation and Fact; to think, that every the most minute Part of the Universe is governed by a certain Law which tends to the good of the whole, and that every *Evil or Irregularity* is the natural
Result

Result of this under particular Circumstances, and is of small Moment compared with the general Good, and consequently no reasonable Objection. Thus in the greater Bodies of the Universe, the Law of Gravitation is absolutely necessary in Order to their revolving in their several Orbits; the natural Consequence of which is, that by their mutual Acting upon each other, some small Irregularities must happen, by accelerating or retarding their Motions, altering the Figure of their Orbits, and the like; Which perhaps in very long Time may come to be so considerable, as to want putting into better Order. But this is of no Weight against the present State of them: They now serve the Purposes for which they were originally intended, in the best Manner possible; These Irregularities

gularities are scarce worth taking any Notice of ; It will a be very long Time before they can make any great Change ; Which when it does come to pass, they will have endured as long as the Creator and Governour of them thought fit, to answer the End He designed. And as they were not

* Quæ si vera rerum Origo fuit ; jam indignum erit Philosopho, alias Mundi condendi rationes exquirere, vel comminisci quemadmodum e Chao per meras leges Naturæ mundus universus oriri potuerit ; quamvis, formatus cum sit, possit is jam per istas Leges in multa quidem secula perdurare. *Newt. Opt. pag. 410.*

* at first created by the Laws by which they are now preserved (for we know none of the mere Laws of Nature, no mechanick Principles, that could put the Planets all pretty near in the same Plain, that could incline their Axes to that Plain, or that could revolve them about such Axes ;) So the same Being who at first

first disposed and ordered them in this Manner, may again restore them to the same State, or make Use of them to other Purposes, according to his own Will and Pleasure. So likewise with Respect to this Earth in particular; and its Attendant the Moon; the natural Consequence of the present Inclinations of their Orbs to each other, is, that there must sometimes happen Eclipses both of the Sun and Moon, which now and then deprive us of their whole Light; Yet no considerate Person can think it reasonable to expect, that the Course of Things should be altered, or a Miracle worked, to prevent the Interposition of those Luminaries, on Account of some Inconveniencies that may befall some Part of Mankind, through Fear, Ignorance or Superstition. And if we go yet further, to the
Materials

Materials of which the Earth is composed, and take any *One* of them, suppose that useful Metal Iron, to which single Thing is owing the Improvement of all Arts and Sciences ; it is no real Objection against it, that it will make *Swords* as well as *Plowshares*, and *Spears* as well as *pruning Hooks*, and consequently that Men may convert *that* which was intended for their greatest Benefit, to the Destruction of each other. And the same will hold in Proportion, in every Instance throughout the whole Creation. If there be any *Ends* proposed in the several Parts of it, if there be any *Means* proper to obtain those *Ends*, if there be any particular *Circumstances* and *Condition*, more conducive thereto than others ; it must from thence unavoidably follow, from the Nature
of

of material Things, and the Laws which they are capable of, that they are liable to be disturbed and interrupted ; The Circumstances they are under, may be altered by the Interposition of other Beings ; and their regular Effects thereby hindred. And hence it is, that the more *useful* any Thing is, that is, the more Purposes it can be applied to ; the more capable is it of being abused : Because in every Instance in which it can be applied, it can be also misapplied. The true Notion of *Good* therefore in the natural World is, not that the Parts of it should be so made as to be incapable of any Change or Alteration, for this the Nature of Things will not permit ; but that every Part should serve some End, and consequently should be endued with such particular Powers, and in such a certain Degree

gree, as is most proper to attain that End. And in this Sense it is, that every Thing which God has made, is *good*; that the most minute and inconsiderable Part of the Creation, serves the Purpose for which it was intended, as well as the greatest and most magnificent One does in its Place. And whenever the word *Evil* is applyed to any of Them, it is only comparatively; which means nothing else, but that they are more or less *perfect*, which is not any real Fault: Or else it arises from our Ignorance or wrong Notions concerning the Things themselves; when we imagine they should have been endued with other Powers or Qualities than those we find in them, or think they were made for one Purpose, when they were really intended for another very different. Upon
the

the whole, the State of the Matter seems to be reducible to this: There is great *Variety* in the material World, which is the natural Result of the different Figure and Texture and Motion of the original Particles of which it is constituted: Thus Air, Water, Earth, Stones, Minerals and the like, are only different Compositions and Modifications of the same Matter. There is also a manifest *Fitness* in every one of *These*, to their proper and Respective *Ends*: The necessary Consequence of which is, that where they are rightly and duly adjusted, there is Order and Beauty and Harmony; and where they are unconnected or misapplied, there Disorder and Confusion and Deformity immediately ensues. If the Air were put where the Water is, all the Creatures which live in that Element would be de-

Q stroyed;

stroyed ; and if the Water took the Place of the Air, all the Plants and Animals on the Earth would be destroyed : And the same holds true of every Particular contained in them. To suppose therefore that there should be no *Possibility* of *natural Evil*, is also to take away all *Possibility* of *natural Good*, and to overthrow the essential Differences of Things : And to suppose that there should be no natural Evil *actually* existing, is to take away all *Liberty* and *Intelligence*, or, which amounts to the same Thing, to suppose that there are no certain Laws by which any Thing is governed, but the whole left to Chance or Fate. The contrary to all which, is most apparent in every Instance throughout the whole Creation. There are all the Tokens that can be conceived, of every Thing's being adapted to a
peculiar

peculiar Use and Purpose ; which if they do not attain, it is manifestly owing to the Interposition of some other Thing of superiour Force ; or to the Actions of Men, or inferiour Animals. This is the present State of Things, and the genuine Effect of that Connexion and Dependance which they have upon each other. How long they have continued, or may yet continue in this State, we have no natural Means of knowing, nor of what may arise from any new Laws given to them ; They are resolvable into their original Principles, and then capable of an infinite Variety of new Forms. Thus the Earth was at first formed out of a Chaos, and may be reduced to a Chaos again, out of which a new and very different *one* may arise.

Q 2 Thus

The true
Ground
of all
these
Kind of
Objections.

Thus we see the Folly and Weakness of condemning the Works of the Creation ; even the meanest and most inferiour Parts of it. The Ground of which, seems principally to be this ; That we are apt to consider Things *separately* without taking in the Relation or Connexion they have with other Things of which they are truly Parts, and then to imagine that they might have been *better*, because, taken abstractly, they are capable of other Powers or Qualities : Whereas the true Way for us to gain a right Notion of them, is to examine and find out what End or Purpose they were designed for, and see if they are not adapted in the best Manner possible to attain it. Or else, which is still worse, we are apt to take the wrong side ; to magnify what we think to be Faults or Irregularities, without

without considering how much *Good* or *Benefit* is so closely connected with them, that upon taking away the *one*, the *other* would immediately cease too: Whereas they ought to be weighed in a just Balance, and then the *Good* will be found vastly to outweigh the *Evil*. To these we may add, that of those Parts of the Creation which were made for the Use and Service of Man, there is a great deal *designedly* left to exercise his Understanding and Industry. They are only Materials, which He is to find what they will best serve for, and to apply accordingly; And were it otherwise, there would be no Room for the Improvement of Arts and Sciences. Were every thing of this Kind brought into perfect Order, Man would be deprived of a great Part of the Pleasure of Life, which consists in

Q 3 perpetual

perpetual Invention and Application; and he would quickly find the ill Effects of Indolence upon that *Body*, which was originally framed for Exercise and Labour. And as to those Parts of the Creation which are *noxious* either on the Account of the *Degree* or *Misapplication* of them, there is as much *Provision* made against them, and as many *Remedies* for them, as in the present State of Things they are capable of: Whence most of the forementioned natural *Evils* are pretty well secured against, in those Places where they often happen; and obtain their Effects chiefly where they are very *rare*, and depend upon a Number of Circumstances not easily to be foreseen. In a Word; we may here use *St. Paul's* Comparison of a humane Body, and apply it to the whole System
of

of Nature, 1 Cor. 12. ver. 12. *For as the Body is one and hath many Members, and all the Members of that one Body, being many, are one Body, so is it here; all the different Parts of the Creation, make but one System: And as God has set the Members every one of them in the Body, as it has pleased him, ver. 18; So has He also ordered and disposed every Thing in the whole Universe as He thought fit. And if they were all one Member, where were the Body?* It was necessary, in Order to compose a humane Body, that there should be different Members, to which different Offices are allotted; the natural Consequence of which is, that *some* will be more, and *some* less honourable, some more and some less comely, and therefore that more abundant Honour should be given,

in Proportion, to them. And the same Reason holds for the whole Frame of Nature. Were it one uniform Mass of Matter, there would be no Harmony, Order or Beauty in it. It was therefore necessary that it should consist of very different Parts, appointed to serve very different Ends. The unavoidable Consequence of which is, that there should be Degrees of Perfection, and more Care and Pains requisite in one thing than in another. And it is altogether as unreasonable to complain of such Diversity, and to condemn the meanest and least useful Parts (which are as necessary to the Good of the Whole, as the most excellent Ones,) as it is for the Foot to complain because it was not the Eye, or the Ear that it was not the Nose. By this Rule the whole Body should have been Eye or Ear, and
by

by the same Rule the Universe should have been but *one* Thing. Such Objections therefore are very absurd, and tend directly to overturn the Beauty and Order of the whole Creation.

III. Let us now come to the *Animal* Objecti-
Part of the Creation, and see if ons a-
the Objections against That, be gainst the
any stronger than the other. And Animal
under this Head, come in all Part of
Creatures endued with animal the Crea-
Life ; not only Men, but all tion, con-
the Variety of Birds and Beasts sidered.
and creeping Things ; Because in
this Respect they are all upon the
Level, and the Objections against
them affect them allequally, *viz.*
that they are subject to *Pain, Mi-*
sery and *Death*. In Order to ac-
count for these *Evils*, it is necessa-
ry to consider the Materials of
which the Bodies of such Crea-
tures are originally composed, the
Frame

Frame and Structure of them, the Powers and Qualities they are endued with, and the like; that we may be able to form a true Judgment of them, and see what is reasonable to be expected from such a Constitution, either as to its Duration, or the Effects which may be produced in it from Things without or within itself: In the same Manner as we have done in the great Machine of the World, the Excellency and wonderful Contrivance of which appears in the most exact Connexion and Adjustment of all its Parts, so as to be the most useful to each other. All that was here required in Order to preserve this System, is only some few general Laws of Motion; which when once impressed on Matter, it is capable of retaining them for many Ages. But though this be sufficient to produce
all

all those Effects which we observe in the material World; yet something more than this is necessary in the *Animal* World. The Principle of Life is vastly superiour to that of mere Motion; nay even *Vegetative Life*, such as all Plants are endued with. There is no such thing as *equivocal* Generation even in *These*; something further is requisite to the Production of Them, than the bare Heat of the Sun, or Moisture of the Earth, or any other mere natural Power. And therefore some of the antient Philosophers thought there was an * universal *Plastick*

Nature, by which every one of Them was thus formed. But modern Improvements in Philosophy, have sufficiently confirmed St. *Paul's* Assertion,

* Alii Naturam censent esse Vim quandam sine Ratione, cientem motus in corporibus necessarios; Alii autem Vim participem Ordinis, tanquam viâ progredientem. Cujus Solertiam, nulla Ars, nulla Manus, nemo Opi-

I Cor.

sex, consequi potest imitando; Seminis enim Vim esse tantam, ut id quanquam perexiguum, nactumque sit Materiam qua ali augerique possit, ita fingat et efficiat, in suo quidque genere, partim ut per stirpes alantur suas, partim ut movere etiam possint, & ex se similia sui generare. *Tull. de Nat. Deor. Lib. II.*

1 Cor. 15. 38. *That God giveth them Bodies as it hath pleased him, and to every Seed its own Body.* Every Plant has its peculiar Seed, which in some is so small as scarce to be discerned by the Senses; Yet in so minute an

Origin are contained the whole Stamina of the Vegetable; all its Vessels, Fibres and Fruit folded up in the most artful and exquisite Manner: In Order to the Production of which, it is necessary they should be put into a proper Soil, where in due Season, the Rarefaction and Fermentation caused by the gentle Heat of the Sun, so agitates the Parts as to break the *Capsula* in which they are contained; by which Means the Water, watery Tinctures

Tinctures, and Salts, have an Opportunity of penetrating the spongy and porous Fibres, and, insinuating themselves into the small Vessels, swell and distend them till a Circulation of Juices is performed thro' them all. In these Juices is conveyed proper Nourishment for the several different Parts, as the Bark, Leaves, Fruit and the like; which after it is separated by the proper Channels, is conveyed to every one of those Parts, and easily converted into the same Form, or assimilated to Them: For this Nourishment being moist or liquid, the Texture of it is quickly changed by a gentle Heat and Motion, till it be rendred *like* those dense, hard and durable Particles, of which the solid Parts of the Plant are composed; and then it unites with them. This is the Method of Accretion; and in this Manner do all Sorts of Herbs and
Trees,

Trees, the Parts of which are so various and different from each other, unfold and extend themselves to such a Magnitude. And much after the same Manner, are Animals likewise generated; as is evident in all Kinds of Birds, Beasts, Fishes and Insects, which are produced out of the forementioned

* Ova ex corporibus minoribus, quam ut sensu percipi queant, explicant se paulatim in magnitudinem, & in Animalia convertuntur: Gyrini, in Ranas; vermiculi in Muscas. *Newt. Opt. pag. 379.*

Fluids; * and particularly in those Animals which arise from Eggs so small as scarce to be a visible to the naked Eye, and yet gradually explicate themselves to a considerable Bigness, and

at length become living Creatures. Analogous to which, is the Transformation of some Animals from one Species to another, as the Conversion of Tadpoles into Froggs, and Maggots into Flies. And

And as to the Formation of Man, which, with Respect to his animal Part, is not much different from that of inferiour Creatures; we have in the 2d Chap. of Gen. ver. 7. a short Account of the Original of it, viz. *That the Lord God formed Man of the Dust of the Ground, and breathed into his Nostrils the Breath of Life, and Man became a living Soul.* In this Description, it is evident that Man is considered only as an animated Body, a Creature endued with Life and Sensation; And so St Paul explains it, 1 Cor. 15. 45. *The first Man Adam was made a living Soul, the last Adam was made a quickning Spirit.* Where, by the Opposition of *living Soul* to *quicken- ing Spirit*, it is manifest that the former signifies only the present State of Life; depending upon the Laws of the Creation. Now,
in

in Order to judge of the *Perfection* of such a Creature, and what *Evils* or *Inconveniencies* He must be obnoxious to ; we must distinctly consider the constituent Parts of Him, what Powers or Qualities they are each of them endued with, and what Connexion and Dependance they have on one another. The Body, though it be formed out of the Dust of the Earth, yet, as the Royal Psalmist expresses it, *Psalm 139. ver. 14. it is fearfully and wonderfully made*; Every Member hath its proper Use and Office, and is most admirably contrived both for Beauty, Position and Constitution of its Parts, so as with the greatest Ease they execute their respective Functions. This is obvious to the meanest Capacity, in the Eye and Ear and other Organs of Sensation ; And to Those who are more curious

rious in enquiring into the animal Œconomy, the late Improvements in Anatomy have sufficiently discovered the *Use* of all the Arteries, Veins, Muscles, Nerves, &c. in Order to preserve and maintain the Structure of the Whole. Now the Case is exactly the same here, as it is in the natural World. All finite Powers and Qualities can exert themselves but to a certain Degree ; And as They are very different, so they must unavoidably in the present Circumstances of Things, sometimes interfere with and disturb each other. This could not possibly be prevented, if they be subject to any Laws at all. And to *this* must be ascribed all the natural *Evils* that the Bodies of Men are incident to, such as *Diseases, Pains and Death.*

*Whence
it is that
Men and
all other
Animals
are sub-
ject to
Death.*

The *Matter*, of which the Body is formed, is the Dust of the Earth ; Wherefore such as the *Materials* are, such of Necessity must the Fabrick be : In general it must be capable of Dissolution, or of being resolv'd into its original constituent Particles ; Because whatever the Composition be, it can be only the Result of the different Texture of such Particles, which Texture may be destroyed by any Power superior to those Laws by which it is regulated. Man therefore was originally made *mortal*. It is the Condition of humane Nature, or, as the Author to the *Hebrews* expresses it, *ch. 19. ver. 27. It is appointed unto Men once to dye.* God Almighty did not intend that they should continue in this State for ever, and therefore made their Bodies proportionable to that Duration which he thought proper for them. And this is very consistent
with

with the Sanction of the Law given to our first Parents, *Gen. 2, ver. 17. But of the Tree of Knowledge of good and evil, thou shalt not eat of it; for in the Day that thou eatest thereof, thou shalt surely die.* This Threatning does not at all imply, but that in their State of Innocence they might have been mortal. Whether they should *actually* have died or no, if they had forborn to eat of this Tree; how long their Lives might have been here preserved by the Use of the Tree of Life, which seems to have been planted for that Purpose; Or whether they might not have been removed to another State some other Way than by Death (of all which the scripture is silent, and we have no natural Means of knowing;) which soever of these, I say, might have been, thus much is certain; that as They

were taken out of the Ground, so into the Ground they were capable of returning ; and as they were made of Dust, so into Dust they were capable of being dissolved also. But whatever the particular *Circumstances* of our first Parents were, 'tis evident what *those* are in which Mankind are at present. What the Royal Psalmist observed in His time, We likewise Experience to be the same, *Pf. 90. ver. 10. that the Days of our Years are threescore Years and ten* ; that this is the general Period of humane Life, and all that can be expected from the Frame and Constitution of the Body, as it now is. For if we observe the Course and Order of Nature, we shall find that throughout the whole Creation this is the Method in which every Thing goes, from the lowest to the highest ; They are
 convert-

converted and transformed from one Species to another, and then return to their Original again.

Thus in the inanimate

Part, * dense Bodies by Rarefaction are turned into Air; and this Air by Fermentation, returns back again into dense Bodies. In the vegetative Part, All Kinds of Plants and Herbs grow out of watry Juices, and by Putrefaction return into those watry Juices again. And the same

may be applied to Animals, and particularly to the Bodies of Men. Humane Bodies, as well as Those of all other Animals, and of Plants, are compounded of very different Materials,

* Corpora densa, fermentescendo rarefiunt in varia genera Aeris; & Aer iste fermentatione, nonnunquam etiam sine fermentatione, revertitur in corpora densa. — Aves omnes, Bestiæ, Pisces, Insecta, Arbores, & universum Herbarum genus, cum singulis suis inter se valde diversis partibus, accrescunt ex Aqua, & Tincturis aquosis & Salibus; eademque omnia putrescendo, revertuntur in Humores aquosos. *Newt. Optic. p. 379.*

fixed and volatile, fluid and solid; as appears by the Resolution of them into their constituent Parts; and they are nourished in the same Manner, *viz.* by Attraction.

† *Pari de causa, Spongia aquam suctu attrahit; & in Animalium corporibus Glandes, pro sua cujusque Natura ac Constitutione. Succos diversos sibi e Sanguine attrahunt.*
Newt. Optic. pag. 398.

† For as a Sponge by Suction draws in Water; so the Glands in the Bodies of all Animals, draw different Juices out of the Blood, according to the particular Nature and

Constitution of each of them. So long therefore as the Nourishment is proper to assimilate it self to the several Parts of the Body, as it approaches them in its several Channels; or so long as the solid

* *Sir Isaac Newton compares a Particle of Salt to a Chaos, viz. as being dense, hard, dry and*

Particles (suppose of * Salts, which are absolutely necessary to the Preservation of all Creatures

Creatures,) retain their Form and Texture; so long, Life is preserved and maintained. And when the Nourishment becomes unfit to assimilate; or the saline Particles (which towards the Center are very dense, and therefore capable of strongly attracting the Fluids to them,) lose their Power of Attraction, either by being divided into still less Particles, (as they may be by their watry Parts insinuating themselves into their Pores with a gentle Heat;) or else by having those watry Parts violently separated from them: in either of these Cases all their Motion will cease, and end in Corruption, Confusion and Death. And this is abundantly confirmed by Experience; in

R. 4

that

earthly towards the Center; and rare, soft, moist and watry towards the Superficies. Whence it is, that such Particles are so durable and require very great Force to dissolve them. Adeo ut Particula Salis, comparari queat quadrantenus ad Chaos &c. Ibid. pag. 392.

that every thing which is corrupted or putrified, is of a black Colour ; which shows that the component Particles are broken to Pieces, and reduced so small, as to be unable even to reflect the Rays of Light. Thus we see that *Death* or the Dissolution of the Body, is the necessary Consequence of those Laws by which it is framed and generated ; and therefore is not in itself properly an *Evil*, any more than That Fabrick can be styled *ill*, the Materials or Manner of building of which, would not permit it to last a thousand Years, nor was originally intended to continue half so long.

Whence it is that They are liable to so many Diseases. And to the same Origin are to be ascribed all the *Diseases* and *Distempers* which Mankind, and all inferior Animals, are incident to. For if the *whole* be liable to Corruption

ruption and Dissolution ; these several Parts, of which it is composed, must necessarily be so too. And if a particular Order or Disposition of those Parts, be requisite to preserve Health ; whatever disturbs That Order and Disposition, immediately creates a Distemper ; which if it be so violent as to destroy the Texture of any one of those Parts, it then becomes irrecoverable, and is a partial Death. Now there needs but a very small Observation of the several Members of the Body, to see how nicely they are framed and adjusted, so as most easily to perform their respective Offices ; and how many Ways there are of disturbing that Frame and Adjustment. We may take, for Instance, the Eye or the Ear ; the former fitted to receive the Impression of External Objects by
Means

Means of the Rays of Light, and the latter by Means of the Air; from whence arise those agreeable and useful Sensations of Light and Sound. With Regard to each of These, nothing can be more surprizing than the curious Contrivance of them to effect what they were designed for. The Seat of Sensation is in the Brain: In Order therefore to Perception, it is necessary that the particular Motions excited by external Objects, should be conveyed thither; which make different Impressions, or raise different Ideas in the Mind, as they are propagated by a different Medium, or through different Senses. Thus, to produce Vision, it is necessary that the Object be capable of reflecting Rays of Light, and that those Rays also should be capable of being reflected, that they may be thrown upon the Eye: And the same may be said of Refraction

on

on likewise, that they may meet to form the Image at the Bottom of the Eye. Hence it is that the Eye is composed of different Humours, having different Degrees of this Power proportioned to the Distance. It is also necessary that the Rays of Light should be very small, that they may freely pass through those Humours; yet that they should be of different Bigness and Shape, to excite different Sorts of Colours by their Vibrations. After this Manner the Images of external Objects are conveyed to the Bottom of the Eye, from whence they are carried along through the optick Nerve to the Sensorium, and are there taken Notice of by the Mind; In Order to effect which, it is requisite also that these Vibrations should be continued along those Nerves, which are therefore compounded of solid, uniform,

uniform and transparent Capillaments, containing a Medium proper for that Purpose. In the same Manner are Sounds likewise excited by the different Vibrations of the Air, in the same Proportion as those of Light; and carried to the Sensorium by the auditory Nerves. These are all subject to particular Laws; the least Alteration or Disturbance of which, immediately creates a proportionable Disorder and Confusion. They must therefore in the Nature of Things be liable to as many *Diseases*, as there are Means of preventing or disturbing their regular Course. Thus too great a Quantity of Light, shakes the Nerves so much as to hinder all Distinction; and too small a Quantity does not reflect enough, to take Notice of Objects. If any foreign Juices be mixed with the Humours of the Eye, or if their
Shape

Shape be by any Means altered, so that the *Refraction* be too great or too little ; then a Dimness immediately ensues ; And if there be a total Obstruction in Them or in the Nerves, then follows Blindness. And the same may be applyed to all other Parts of the Body, according to whole different *Powers*, or the different *Laws* of Motion they are subject to ; they are incident to various Sorts of Distempers.

Under this Head may be included Monsters or deformed Creatures. It appears, so far as Observation goes in Things so minute ; that, in their Origin, all Animals are perfect, and the Individuals of every Species *folded up* exactly in the same Manner ; So that if in the *Explication* of them, any of the Parts be, by a superior Force, hindered from extending
Themselves

*Whence
Monsters
and de-
formed
Creatures
proceed.*

Themselves to a due Shape, or if they be any way blended or confounded with each other; then of Consequence, they must either want or abound in some Part or other. But this happens as seldom as in the Nature of Things is possible; and there is all the Provision made against it, that the Composition of Animal Bodies would allow. It is therefore no just Objection against Them, any more than it is against Trees or Plants; that one Branch of them may by Violence be hindred from growing at all, or very imperfectly; or that by Art, too different Trees may be nourished by the same Stock. Such things never come to pass, but by some præternatural Impediment or Obstruction.

Whence it is that they are liable to Pains, &c.

But the Aggravation of all these natural Evils, such as the forementioned Diseases, and even Death

it

it self, is, that they are for the most part attended with violent Pain and Uneasiness. This,

* (the Objector saith) is that which renders *Man*, and, in Proportion, other Animals, *miserable* and *wretched*.

What the Cause of this in general is, is very obvious; *viz.* because, as the Scripture says of Man,

he was made a *living Soul*, endued with Sensation or the Power of Feeling. Which were He wholly void of, like all mere material things; as He would be free from all Possibility of Pain or Misery, so also would he be utterly incapable of any Pleasure or Happiness. That Sort of Life which Man was intended to lead here on Earth, manifestly requires that He should

be

* Si l'homme est l'ouvrage d'un seul Principe souverainement bon, souverainement saint, souverainement puissant, peut-il être exposé aux Maladies, au Froid, au Chaud, à la Faim, à la Soif, à la Douleur, au Chagrin. *Bayle Dict. Under the word Manicheens.*

be endued with a Body proper to perform the respective Offices of it. Now whatever Materials we suppose this Body composed of, or whatever the particular Form and Structure of it be ; it must be liable to the common Laws which the whole material Part of the Creation is subject to ; and consequently will stand in need of continual Repair, in Proportion to the Variety of its different Parts, and to those Decays and Interruptions, both in the Solids and Fluids, which they must perpetually meet with. *These* it is necessary should be signified by some Means or other, in order to a continual Supply for them ; And we cannot conceive how this could be better done, than by those different Kinds of Pain or Uneasiness, which are excited by the Disorders that the several Parts of the Body are
subject

subject to. *Reason* alone would go but a short Way in this Matter: We have but a very little Knowledge of the Constitution of the various minute Parts of which the Body is composed; so that it would be impossible to find out their Defects and Disorders, and to apply proper Remedies to them; nor would mere abstract Reason afford Men any Inclination after such Enquiries or Observations. Wherefore it is absolutely necessary towards the preserving of the Animal Life, that the Dangers which the several Parts of the Body may be exposed to, should be signified by some immediate Uneasiness, which should excite the *Reason* to endeavour to avoid or provide against them*. This is the Foundation of all those Affections and Passions usually ascribed to the Body, which are but so many different Sorts

* Read Norris, *Sermons on the Love of God*; *App't*, 295-302.. London, 1695. of

of Pain: Thus Hunger and Weariness put Men upon seeking after Food or Rest, without which they could continue but a very little while; and which they would have no Disposition to, if They were not signified to them in some such Manner as this. And the same holds true of all other bodily Appetites and Desires. And hence I suppose it is, that the external and superficial Parts of the Body are the most sensible, and create the greatest Pain, when they are any Ways affected; because *These* are continually exposed to the various external Objects; and as soon as they are affected by Them, give us immediate Notice of it: Whereas the internal Parts, being more remote, cannot be so easily come at, and consequently are not liable to so many Interruptions from the Things without, and therefore
need

need not such quick Sensation. Thus we experience that the Arteries, Bones and the like, have little or no Sensation at all. This therefore is a very weak Objection against the present State and Condition of Mankind and other Animals, that they are liable to Pains and Uneasiness : By the same Argument there should be nothing in the Universe but Stocks and Stones ; for upon the Supposition of any Degree of Sensation, a proportionable Degree of Pain follows upon any Excess or Defect whatsoever. The Fault therefore lies not in the Nature and Constitution of Animal Bodies ; They are in their respective Kinds the most *perfect* that can be ; The Degrees of Sensation they are endued with, are exactly proportioned to that Sort of Life which they were intended to lead, and to the Duration

of it ; and the best Provision that could be under such Circumstances, is made against all Accidents. And we may venture to affirm upon the Whole, that a greater or a less Degree would have produced much worse Inconveniencies, as sufficiently appears by what the Effect of Art or Abuse is. Neither is it any just Ground of Complaint, that there may be some particular Instances, which, considered by themselves, may seem very extreme and difficult. It is not reasonable to think the established Laws of the Creation, should be altered or suspended, for the Sake of such small Irregularities compared with the Whole. We ought to form our Judgment not from such single Instances which are very complex, but from a general View of the Whole ; and then the Wisdom and
Good-

Goodness is plain and perspicuous in This and all other Respects.

Thus it appears from a particular Examination of the constituent Parts of animal Bodies, the Powers or Qualities they are each of them endued with, and the Connexion and Dependance they have upon each other ; what the natural and genuine Effects of such Powers and Qualities are, and what Misapplications and Disorders they must in the Course of Things be incident to. With this View it was proper to consider Man, only as an animated Body, as a Creature endued only with Life and Sensation, which He has in common with all other inferiour Creatures ; leaving the Consideration of Him as an intelligent and voluntary Agent, as a Subject afterwards to be treated of. Whence it appears, that as the *Matter* of which hu-

mane and all other animated Bodies are composed, is, as the Scripture expresses it, the Dust of the Ground, part of that common Mass, of which the whole visible World is framed; so it is governed by the common Laws of Gravitation, Cohæſion, Fermentation and the like, which the inanimate Part of the Creation is subject to; and consequently it must be liable to all those Irregularities and Disorders which arise from the different Degrees, and diverse Applications of such Powers or Qualities. / But besides *these*, such animated Bodies are also subject to the Laws of Vegetation, which they have in common with all organized Bodies, such as Plants, Herbs and the like; And hence they are obnoxious to such *Evils* and *Disorders*, as arise from the Motions of Fluids contained in Vessels; the Effects of
which

which are different according to the Degree of Velocity of those Fluids, or the Distractileness in the Vessels, *viz.* by too much Nourishment they produce Excreescencies, or by too little they wither and die. But That which is peculiar to Them as animated Bodies, is the Power of Sensation or Feeling, which is superior to that of Vegetation, and was evidently designed to signify the *good* or *evil* State and Disposition of the Body; such Sensations being very agreeable and pleasing when the several Parts of it are in their true and proper Order, and very disagreeable when they are otherwise; And These render the Beings that are subject to them, necessarily liable to *Pain*, *Misery* and *Death*. So very compounded a Creature is Man, and also other Animals; and so much depends upon the mutual

Influence of the different Parts of which they are composed; The Powers of which, and the Degrees of those Powers, are so various, that the least interfering of them with one another, or Misapplication from any superiour external Force, creates a proportionable Disorder and Confusion.

The State of Animal Creatures with Respect to each other; with the Objections against it.

Having thus examined the Imperfections and Evils that arise to such Creatures from their own internal Frame and Composition, and the Application of such Means as are necessary for their Preservation and Sustainance; I come now to consider them *relatively*, their Dispositions and Affections towards each other, and what the Result of them are. For against *These* it is objected, That several Species of Creatures live upon each other. That a great Part
of

of the Food even of Man, * is the Flesh of Animals ; nay sometimes that Individuals of the same Species devour their own Kind, as we see in Fishes ; and this not accidentally upon great Provocation, or in Cases of extreme Hunger or the like, but that they were † originally intended to do so, and therefore are naturally provided with Weapons for that Purpose ; or else have a peculiar Disposition and Sagacity to watch after and ensnare their Prey, as is the Case betwixt Spiders and Flies. I shall endeavour to account for this Difficulty, as far as we have Means of coming to the Knowledge of the particular

* Heu quantum Scelus est, in viscera viscera condi, Congestoque avidum pinguescere corpore corpus ; Alteriusque animantem animantis vivere leto !
Ovid. Metam. Lib. XV. v. 88.

† Ἰχθύσι μὲν καὶ θηροῖς καὶ
διανοῖς πετεινοῖς
* Ἐθεῖν ἀλλήλους, ἐπεὶ ἐ
δίκη ἐστὶ μὲν αὐτοῖς. *Hesiod.*

particular Circumstances relating to it.

*What
Right
Man has
over in-
feriour
Crea-
tures.*

And *First* with Respect to Man, and the Right He has of killing and eating such Creatures as afford Food and Nourishment to Him; for some Creatures, are found by Experience, to be not only nauseous, but unwholesome likewise. That *Man* is superior in Rank and Dignity to all other Creatures of the Earth, is evident from the peculiar Faculties of his Mind, the Degree of Reason, Knowledge and Liberty, which He is eminently capable of above them. This seems to be a Foundation in Nature for some Sort of Authority and Dominion over them, *viz.* to make Use of Them to such Purposes, as by their Frames and Make they seem particularly to be calculated for. Thus some are evidently

dently designed for Diversion, others for hard Labour, others for Swiftnefs and the like. Thus much the Constitution and Relation they bear to each other, plainly dictates; for Man's bodily Strength is comparatively very small, and the State of Things is such as requires much Labour and Pains to procure the Necessaries and Conveniences of Life, and the Faculties of his Mind were given Him on Purpose to seek out for Help and Assistance, And this is confirmed by Scripture, in the Account of the Creation, *Gen. ch. 1. v. 28. And God blessed Them* (that is, the Man and the Woman) *and God said unto them, Be fruitful and multiply and replenish the Earth, and subdue it, and have Dominion over the Fish of the Sea, and over the Fowls of the Air, and o-*
ver,

ver every living Thing that moveth upon the Earth. This Grant being in general Terms, it is not absolutely certain how far the Words *Subduing* and *Dominion* are to be extended, Whether to the Life of the Creature or no: Though it is not easy to see how they can otherwise be applyed to the Fish of the Sea and the Fowls of the Air, which are of little Use to Men while alive. But the following Words expressly mentioning Food, it seems as if That had been excluded, at least not commanded, in the former; *ver. 29, And God said, Behold I have given you every Herb bearing Seed, which is upon the Face of all the Earth; and every Tree, in which is the Fruit of a Tree yielding Seed, to you it shall be for Meat.* All Other Uses are manifestly implied; with that Limitation

of

of the wise Man's, *Prov. 12. ver. 10,* that a righteous, or a merciful Man, regardeth the Life of his Beast; that is, will not use him with Severity or Cruelty, but with Gentleness and Moderation. But however this was at the Beginning of the Creation, the Circumstances and State of Things is liable to perpetual Change and Alteration; and consequently *That* which was a Duty at one Time may cease to be so at another, and *That* may be allowed in some Cases which was prohibited in others. And so we find it to be here. In the Blessing which God gave to *Noah* after the Flood, the Power of killing and eating living Creatures is given to him much in the same Form, as that of eating Plants and Fruit was granted to our first Parents before: *Gen. 9. ver. 1, 2, 3, And God blessed Noah and his Sons, and said*

said unto them, be fruitful and multiply and replenish the Earth; and the Fear of you, and the Dread of you, shall be upon every Beast of the Earth, and upon every Fowl of the Air, upon all that moveth upon the Earth, and upon all the Fishes of the Sea; into your Hand are they delivered; every moving Thing that liveth shall be Meat for You, even as the green Herb have I given you all Things. This Commission is very full and exprefs; only with the Limitation of the following Words, *But Flesh with the Life thereof, which is the Blood thereof, you shall not eat.* Which Words being often repeated, and great Strefs laid upon them, shew that they are very material, and, if rightly understood, will help to resolve the forementioned Difficulty

The Flesh of Some Animals, is in it self proper Food for Others.

In general, that the Flesh of some Animals is proper Food for Others,

Others, that is, agreeable to their Taste, and fit for Nutriment ; is evident by continual Experience. And irrational Creatures falling into it by mere natural Instinct ; and the universal Practice of Mankind in every Age and Place, even where there are no Footsteps of divine Revelation, recommending it ; shows that in the Nature of Things there is no Contrariety in such Application. Whatever Objection therefore lies against it, must relate to the Manner and Circumstances of doing it. And the Principal of these are, the depriving the Creature of Life, and of all that Pleasure it was capable of enjoying in the right Use of its Faculties and Senses ; and also the putting it to all that Pain and Misery ; which a violent and unnatural Death is unavoidably attended with. In Order to a satisfactory
Answer

Answer in these Particulars, it will be necessary to consider the following Things.

The Right which Man has over inferior Animals, extends not to any Abuse.

First, That whatever Right Man is supposed to have over inferior Creatures, either by the Laws of Nature or Revelation, to apply them to his own Use or Service; it is very certain that He can have no Right at all to misapply or any Ways to abuse them. All Kind of Violence or Cruelty therefore exercised towards brute Animals, is both unnatural and unjust. This concerns only Men; For when such Creatures kill and eat each another, they seem not to do it out of Malice, nor to take any Delight in putting one another to Pain, but only follow their mere natural Appetite in the same Manner as they do in Vegetables; They procure them any way wherein they are able to satisfy their Hunger.

And

And this very much abates the Malignity of this Evil; For it is the Notion of Malice or

* Cruelty going along with killing the Creature, which renders it disagreeable

and odious; For mere dying raises no such terrible Image in our Minds. Irrational Animals therefore are only Instruments of Death to each Other; They are void of all evil Design and Intention, and consequently no more culpable than a Stone falling upon them, and by the mere Law of Gravity crushing them to Death. And to prevent any Cruelty in Men who are allowed to feed upon proper Animals, I take the Caution added in the forecited Words; *but the Flesh with the Life thereof, which is the Blood thereof, shall you not eat*; which is afterwards repeated in

* *Εἶναι μὲν οὖν καὶ φύσιν ἀνθρώπου τὸ σαρκοφαγεῖν· παρὰ φύσιν δὲ τὸ ἀποφαγεῖν.*
Porphyrus de Abſtinentia, Lib.
I. §. 13.

T Regard

regard to the Sacrifices appointed by the Jewish Law, *Deut. 9. 16.* *Only ye shall not eat the Blood; ye shall pour it upon the Earth as Water.* In the former Words the plain Reason is given why they were not to eat the Flesh with the Blood, *viz. because the Blood is the Life thereof.* In whatever Sense therefore we understand these Words, it is manifest that *Blood* has a strict Relation to *Life*. Whether therefore the Meaning be, that we are not to eat the Flesh of any Creature *raw*, while there is any *Blood*, any natural Warmth, or Possibility of *Life* in it, as seems to be limited in *1 Sam. 14. ver. 32*; where it is said that the People of *Israel* when they returned from the Slaughter of the *Philistines*, *being very faint, slew upon the Spoil, and took Sheep and Oxen and Calves, and slew them*

them on the Ground, and the People did eat them with the Blood; Which we find in the following Verse was told to *Saul, as a Sin against the Lord, in that they eat with the Blood*: (Whence it seems highly probable, that being in great haste to satisfy their Hunger after so long fasting, the People fell to eating the Creatures while there were some Remains of Life in them, or at least before the Blood was sufficiently drained from them, so as to be assured that they were quite dead:). Or whether the Meaning of the Words be, that God had appointed this Token, as a Signal that the Creature was really dead; as seems to follow from the Addition of *Moses, Ye shall pour it on the Earth like Water*; that is, when you eat the Flesh of any Animal, after

you have killed it, you must be sure to pour the Blood on the Ground as a Testimony that the Life is entirely spent, and then you may prepare and make it ready :

3. Or whether they might not have some other figurative and typical Meaning to the People of the Jews, signifying that the Right of killing such Creatures was not a natural Right, but only by positive Allowance from God ; of which their reserving the Blood was to be a Token and Memorial : 4. Or they might have Regard to the Sacrifice of the *Messiah*, whose Blood was to be poured out for the Sins of Men : Whichsoever (I say) of These or any other, be the original Sense of the Words, it is obvious that they were intended to prevent all Cruelty towards brute Creatures ; and that in *This*, as well as all other Uses of them, they should be

beput to the least Pain that is possible, and *Men* be but mere Instruments of their Death. In this View, Men's killing living Creatures for Food, or such Creatures killing one another for the same Purpose, carries no Malignity or moral Turpitude in it: It is of the same Kind with all other *natural* Evils, the Effect of the present State and Circumstances of Things; and no Way to be prevented, but by over-ruling or putting a Stop to the universal Laws of the Creation.

Thus They were at first made *Such mortal*: Their Frame and Com-^{*Creatures originally made*}position show, that They were in-^{*subject to Death.*}tended to continue but for a few Years, and some of them not near so long; The *Materials* also, of which their Bodies are framed, and the *Manner* of their Structure, render them liable to many Discaf-

es from within, and Dangers from without, which may bring them to their End much sooner than the common Period of their Lives. Since therefore they must die, and since this particular Manner of dying is not attended with any greater Evil, nay generally not with so great, as dying by any Distemper or Accident; it may very well be reckoned amongst the common Diteates which they are incident to: And there is no more Reason to complain of the one than of the other; For as to the Effect, which is all that we now consider, there is no Difference to the Creature killed, whether He dyes by the Weapons of his Fellow-Creatures, or by the Violence of a Disease. The Conditions of Life, we may observe to be very various; and the Terms on which it depends, are very different to different

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rent Sorts of Creatures, according to the Climate or Element which they inhabit, or the Food on which they subsist; so that, compared with each other, the Degrees both of Enjoyment and Duration are also very different. And herein consists the Harmony of the *Animal*, as well as of the *Material* World. If we suppose the Existence of any one Individual, or any Species of Animals, the same Reason will hold for the Existence of any other Individual or Species. For, abstractly considered, in the Nature of Things, there is no Preference of one above another. This is Matter of mere Choice and Liberty; and *good* or *evil*, *perfect* or *imperfect*, are here only bare relative Terms: In the same Manner as in the planetary System, the different Bodies of it, such as the Sun, Moon or Earth, are ar-

bitrarily formed out of the same common Mass, and are comparatively *better* or *worse* according to the *Respects* in which they are considered. The original Existence of any Matter at all, the particular Quantity, the Division of it into small Particles, the Powers they are subject to, and the Texture of them, are in themselves all indifferent, and depend upon the Will of an intelligent Agent to determine the Particulars of them, so as will best serve the End proposed. So likewise the Animal Powers and Dispositions, and the Connexion and Dependance which they have upon the Structure of the Body, are infinitely various both as to their Degree and Duration, and depend in the same Manner upon Intelligence and Will. Wherefore all Objections drawn from what is the natural
Result

Result of being finite and limited, if they hold good against any one Particular's existing, they hold as strong against any other Particular that can be supposed to exist. Thus in the Instance before us: That one Animal should be Food for another, is the natural Result of their present Constitution and of those Affections and Powers they are endued with, and in itself no greater an *Evil* than any other *Imperfection* which they are subject to, or than other Means or Ways of dying. So that either we must say, that it is inconsistent with the Notion we have of *Goodness*, that such Animals should be at all subject to Death or any other natural *Infirmities*; or that, of the many *Ways* by which Death is naturally effected, some ought to be permitted to produce this Effect, and others not; and consequently that there is something particular in *This*,
why

why it should be prevented. Which that there is not, will appear if we consider

That 'tis the Circumstances of Death, that aggravate the Evil of it.

Secondly, That 'tis the Circumstances of dying, that aggravate the Evil of it. Abstracted from These, there is no more in it, than in any other natural Imperfection; or than in being deprived of any other natural Benefit, which is not of Right, and which originally depended upon certain Terms and Conditions. That which seems to prejudice us here, is, that we are apt to think such Creatures have the same Notions of Death as we our selves have, and consequently that it is as terrible to Them: Whereas That which St. *Paul* justly calls the Sting of Death, is peculiar to rational and intelligent Beings, such as Men are; *viz.* Sin. 'Tis the Consciousness of not having acted according to the

the Laws of Justice and Truth, and the Sense of a superiour Power who may call them to an Account and punish them for their Neglect or Abuse in a future State; 'tis This which excites the Fears of Death in Men. But there is no Room for These in inferior Animals: As they are void of such Kind of Reason and Conscience, so properly speaking there is no moral Justice or Injustice, Right or Wrong amongst them; neither can they be rewarded or punished for their Actions in these Respects. Wherefore, as they seem not to have any Apprehensions but what are raised by present Objects, nor any Conscioufness of what is past, or Expectation of what is to come; the Foundation of all the forementioned Aggravations of Death is hereby taken away, and there remains no more *Evil* in it than the bare Pain,

Pain, which for the most Part is much less than in any common Distemper.

*The State
of such
Animals
is upon
the Whole
bettered,
by being
Food for
Men.*

To this we may add, *Thirdly*, that of those Creatures which are Food for Men, their State upon the Whole is much bettered by it. For not only a greater Number of such Animals are preserved for this Purpose, but also greater Care is taken of them, and more Pains employed about them. Were such Creatures left wholly to themselves, there are innumerable Accidents by which many of them would be destroyed; and those which remained, would go through much Hardship and Difficulty: Whereas in the present Circumstances, all the Art and Industry of Man is made Use of, to improve the Ground for their Sustenance, to give them Meat in due Season, and to secure them against all those
Dangers

Dangers which they would otherwise be exposed to. The Lives therefore of such Creatures are hereby rendred the most easy to them that is possible: They enjoy all the Pleasure and Satisfaction of Life which they are capable of; And were they permitted to continue on till the natural Period of their Lives were finished, it would be but a short Addition of Time; and by Experience we find that their Senses would grow dull, their Appetites fail them, so that they would have but very little Enjoyment left. Wherefore if we put the *Good* they are deprived of, into the Ballance with *That* which is voluntarily conferred upon them, we shall see that this latter very much outweighs it: So that upon the whole there is no Injury done; not to the Species, because *That*
is

is very much enlarged hereby ; nor to the Individuals, because they enjoy more of the Pleasure of Life than they would otherwise do, and they have no Right to the Labour of Men, if they afford them no Advantage by it.

The State of such Animals at the worst, better than that of many other Creatures.

And if we view the Circumstances of these Creatures in their worst Light, and compare them with other still inferior Animals ; they are in a much better State than many of them. The two chief Properties of Life are the Degree of Enjoyment and the Length of Duration, each of which are very different in the diverse Species of Animals. Some are by their Frame and Constitution made to continue many Years ; The utmost Period of the Life of others, is comprehended in a few Days, nay we may say, a few Hours. The highest Enjoyment also of some, seems
to

to be but one Degree above Vegetables ; whereas in others there are Marks of great Pleasure and Satisfaction. Compared therefore with *These*, the Life of the forementioned Animals is much preferable ; and the *Evil* of that particular Manner of dying, is abundantly compensated, by the greater *Good* they are upon the whole possessed of. *Their* Lives might in the natural Course of Things have terminated as soon as the other ; they might originally have had fewer Senses, or those which they have, much less acute. There is no prescribing Bounds to the infinite Diversity of things which are equally the Object of Omnipotence. As They had no Right at all to Existence, so there is no just Foundation of Complaint because *one* possesses more, or in a higher Degree, of *that* which none originally had any
Title

Title to. According to this Rule, there could have been no *Diversity* of Animal Creatures, because, when compared together, the State of some must be *better* than that of others : Which Objection overthrows not only the present Creation, but all Possibility of creating any finite Beings whatsoever; because they will all, in their Proportion, have their Defects and Infirmities when compared with that which is infinitely perfect. It is therefore much more agreeable to the Notion we have of Wisdom, that as in the *Material*, so in the *Animal* World, there should be all possible Kinds and Degrees; which are superiour to Non-Existence. And so Experience and Matter of Fact plainly shows that there Are.

If we consider *Fourthly*, the Effect of Animal Creatures being thus made Food for each other, we shall find that by this Means there is the more Good upon the Whole ; For under the present Circumstances of the Creation, Animals living in this Manner one upon another could not have been prevented, but a much greater *Evil* would have followed. For then there could not have been so great a Number, nor so great a Variety of Animals, as there are at present ; Some of which are so very minute, and the Quantity of them such, that mixing themselves with Herbs and Plants and Grain on which themselves feed, and with the Water and Liquids which they drink, they must necessarily be devoured by other larger Animals who live upon the same Food, without so much as

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By Animals living upon one another, there is the more Good upon the whole.

being seen or any Way perceived by them. It is therefore much better upon the Whole, that They should live upon one another in the Manner they now do, than that they should not live at all. For if such animal Life is to be esteemed Superior to not existing at all, or to a vegetable Life; and the more there is of such animal Life, the more of *Good* there is in the World; it is evident that by this Means there is Room for more whole Species of Creatures, at least for many more Individuals of each Species, than there would otherwise be; and that the Variety of the Creation is hereby much enlarged, and the Goodness of its Author displayed. For the Constitution of animal Bodies is such, as requires that They should be maintained by Food: Now if this Food can be made capable of animal

mal Life also, it is a very great Improvement of it. A certain Quantity of Food is necessary for the Preservation of a determinate Number of Animals. Which Food, were it mere *vegetable*, would perhaps serve for That Purpose only : But by being so formed as to become *animal*, though it be in a lower Degree, and the Enjoyment of Life in such Creatures less, yet is it more perfect than unformed Clay, or even than the most curious Plant. Thus the animal Part of the Creation has its several Degrees of Life, and as much Variety in it, as is to be found in the inanimate and vegetable Part ; so that in this Respect, there is so far from being any just Ground of Complaint, that the Wisdom and Contrivance of the animal World is admirable, and plainly shows the Excellency of the Whole, and the

Subserviency of all the Particulars in order to obtain the greatest Good that they are capable of.

The per-
mitting
such
Creatures
to in-
crease,
would be
of very
ill Con-
sequence.

I shall mention but one thing more upon this Head ; and that is, to consider what the Consequence would be, of permitting such Creatures to multiply and increase as much as they could, and to die of such Diseases as they are incident to, or even of old Age. This cannot certainly be determined any otherwise than by Experience ; but there is just Reason to think that Mankind would

13.

be the greatest Sufferers hereby. * We should quickly be over-stocked with them. Those which are now tame, would grow wild, and be very mischievous ; and the Plants and Fruits

* Καὶ γὰρ πρόβατον ἢ βῆς ἢ πᾶν τὸ τοιοῦτο μετρίῳ ἴσθι, φέρει πᾶσι πρὸς πλὴν ἀναγκαίαν ἡμῶν διαγωγὴν ὄφελους εἰς πᾶσαν ὃ ἐκπεσόν ἐκφίλειαν ἢ μακρὰν ὑπόχλην ἔχουσαν τῆς κερδαλέτης, λυμαιοῖτ' ἂν τὴν βίον ἡμῶν. τὸ μὲν ἢ πρὸς ἀλλήν τετραβῆρον, ἂν αὐτῶς ἐν ἑαυτοῖς εἰς

Fruits of the Earth would be all destroyed by them: The Air probably † would be infected by them, at least by the Corruption of their dead Carcasses, and perhaps some violent Distempers produced by them. The Plagues brought upon the Land of *Egypt* in this Manner, and the Unwholesomeness of Wilderesses and desert Places, *where*, as the Scripture describes them, *Deut. 8. ver. 15. are fiery Serpents and Scorpions and Drought where there is no Water*, for Want of the Arts and Improvements of Men; *these* give sufficient Ground for the forementioned Conjectures. There are perhaps many other Particulars which escape our Notice for Want of

τῆτο μετέχον· τὸ δὲ μόνον
τὴν ἀνεδείσαν ἡμῶν ἐκ γῆς
τεσθῶ κατὰ τὸ αἰσκον· Por-
phy. de Abstinentia, &c. Lib.
I. § 11.

† Ἡ γῆ τε το πλῆθος
ἐκ ὕστερ ἢ (ἀων, τὰ τε
δνήσκοντα, ἐκ τῆς σιπηδ-
ιθ φθορῶν ἐμπεύεται. Porph.
ibid. § 16.

knowing all the minute Circumstances of such Creatures ; the Relation they stand in to each other, and to the Things about them. Those already mentioned seem to be the principal, and, if not wholly to take off, yet very much to diminish the Weight of the Objection before us.

I have now gone through what I proposed under the first Head of this Discourse, *viz.* to examine into the Nature of those Laws, by which both the *Material* and *Animate* Parts of the World are at present governed ; and to compare them with such other Laws, as they were originally equally capable of being governed by : That from hence it might appear, that all those natural *Evils* which are observed in the Creation, and by many thought to reflect upon, or detract from the
Wisdom

Wisdom of its Author ; are strictly and properly speaking, no *Evils* at all ; but only the genuine Result of that Want or Imperfection, which finite and created Things, endued with various Powers and Qualities, and with different Degrees of them, and regulated by such general Laws as we observe, must unavoidably be liable to.

And this, I think, does most apparently display the Excellency ^{*The general*} and Goodness of the Works of ^{*Application*} the Creation, and as evidently ma- ^{*of the*} nifest the Wisdom and Power of ^{*Whole.*} Him who made Heaven and Earth. For from hence it clearly follows, that no one Part of the Creation being *necessary*, but such as might equally either originally not have existed at all, or have existed in a quite different Manner from what it does now ; hence I say it fol-

lows that their *Beings, Powers, Faculties* and *Perfections*, every Thing which they possess or enjoy, is the free Gift of God, and depends wholly upon his Will for their Continuance or Duration. He is infinitely happy in the Enjoyment of his own Perfections, and the whole Creation can make no Addition to his Happiness. He could therefore propose no other End in the Creation, but to manifest his Power and Wisdom in the *material* World, by the wonderful Order, Harmony and Adjustment of all its Parts so as to be most conducive and subservient to the Beauty and Excellency of the Whole; and to communicate some Share of Happiness to the *animal* World, proportionably to the several Capacities and Degrees of such Creatures: And therefore He appointed all the particular
Circum-

Circumstances and Conditions of them, so as He thought most proper to procure such Happiness. Every Thing whose Existence is possible, is the Object of Creation to infinite Power; and it belongs only to the Wisdom of the same infinite Being, to determine which of them shall actually exist. Thus whether any *material* things should have existed at all, depended entirely on the Will of the supreme Being. And the same may be affirmed of their Powers and Qualities, and the Laws which they are subject to. Upon Supposition that they do exist, there are in the Nature of Things some Powers and Qualities they are capable of receiving, and others not; As, in the Instance of *Matter*, there are vast Variety of Laws of Motion which it may be subject to, and which produce very different Effects; but

but *Understanding, Liberty* and the like, it is in its own Nature uncapable of: And of those Laws by which *it* may be governed, there is no other Rule of judging, but from the End to which they are appropriated. The whole Scheme of the material World was at first laid in the divine Mind; in Order to effect which, it appears by manifold Experience, that the original Particles of Mat-

ter have * certain Forces impressed upon them, which, according to their different Circumstances of acting, either *impell* them towards each other, and cause them to cohere in regular Figures; or else separate them, and cause them to recede from
one

* Nam multa me movent ut nonnihil suspicer ea omnia ex viribus quibusdam pendere posse, quibus corporum particulae per Causas nondum cognitae vel in se mutuo impelluntur & secundam figuras regulares coherent, vel ab invicem fugantur & recedunt. *Præf. Newt. ad Princip.*

one another, thereby to dissolve such Cohæſion; which *Forces* are in themſelves purely indifferent, and choſen only becauſe moſt adapted to obtain the End propoſed. Every Revolution and Error therefore is regular and deſigned, being only the Effect of a Cauſe acting uniformly and by a ſtated general Rule; which is much more agreeable to the Notion we have of Wiſdom, than to imagine the Courſe of Things ſhould be perpetually interrupted and confounded. The ſame is true alſo of the *animal* Part of the Creation, the ſeveral Species of living Creatures which move upon the Earth: They had no Right to exiſt at all, much leſs had they any Right to be of any particular Rank or Order, in the infinite Variety that in the Nature of Things were poſſible to exiſt. So that their animal Powers, the Faculties

culties and Abilities they have, and the respective Degrees of them, are of mere voluntary Donation ; And to have them depend upon certain Terms and Conditions, and in many Cases to be liable wholly to be deprived of them, is no more a real *Evil*, than not to have existed at all : Their Existence being manifestly a free Gift, the Continuance or other Circumstances of which, are entirely in the Power of the Donour. This cannot be better illustrated, than by the Prophets Similitude as quoted by *St. Paul, Rom. 9. ver. 20. Shall the Thing formed say to him that formed it, Why hast thou made me thus ? Hath not the Potter power over the Clay, of the same Lump, to make one Vessel unto Honour and another to Dishonour ?* So has the infinitely powerful and allwise Being, an absolute Right to make several

Ranks

Ranks and Degrees of Creatures, which comparatively speaking are more or less *perfect*, but every one of them in their proper Place most conducive towards attaining the End designed in them all. And it is altogether as unjust and unreasonable to complain of any one of them because it is of an inferiour Nature or Degree than another, as it would be to reflect on the Skill of an Artificer because He fashioneth several Kinds of Vessels for different Uses, some of which are more beautiful and serviceable than others. The Ground of all such Complaints as these, seems to be this ; that we are apt to form our Judgment of the Creation, from considering only some of the most inferiour Parts of it, independent of the rest : Which is just as if, to use the forementioned Similitude,

militude, a Man should pick out of the Potters Shop the meanest Vessel, or view only the unformed Clay, the Uses of which he was in a great Measure ignorant of, and hereupon immediately condemn both the Materials and the Skill of the Potter. The whole Creation is indeed but one *Work*, one *Building*, the several Parts and Inhabitants of which, have a strict Connexion with and Relation to each other. In Order therefore to form a true Judgement of it, it would be necessary to comprehend the Whole of it in one View; to have an exact Plan of all that is past, present and to come; and see the mutual Dependence of all the the Parts. But this is impossible for our narrow Capacities to do; It is a Defect in the Nature of Things, which is impossible to be remedied. Their Proportions are unalterable;

alterable ; and we might as well expect our Eye should take in the whole Compass of the fixed Stars, and distinctly see every individual Thing contained in them, as that our Understanding should comprehend the Uses and Ends of all the Works of Nature and Providence. All Objections of this Kind therefore are wholly beside the Question. That which truly follows from a just Examination of the present State of Things, even in the worst Light, is no more than this : That as, in the Nature of them, they must be liable to perpetual Mutations and Revolutions ; and when they are at the worst, and have ended one Scene, they are yet capable of affording Materials for another ; in the same Manner as out of a Chaos the present Earth was formed, and from This again, as St.

Peter

Peter says, will at the Consummation arise a new and different one : So likewise with Respect to Animated Creatures, we see the same Individual living under different Forms and in different Elements here. *Life* therefore does not wholly depend upon the Body, but only the *Manner* of living : And what may come hereafter, as we do not particularly know, so we ought not to give our Judgment. That which remains farther to be considered upon this Subject, is the Cause and Origin of *moral Evil* ; whence Sin has its Rise and abounds so universally in the World. But This, as it is of great Moment to be known, so it ought to be treated of particularly by it self.

Continued .

F I N I S.





