Thirldly Fiery, which is made of the higher, more fixed parts incorporated with Fire, having sufficient moisture to keep it flowing, and is like a Cauldron of fire; and these last vapours are for the continuance of heat. These three Brooks in a sensitive Creature, arise from three Sources or Fountains, the Heart, the Brain, and the Liver, and are conveighed in three several Channels; the Arteries, Nerves, and Veins, and give unto the Animal, heat, sense, and nourishment.

A Short Censure of the former Concept.

Chapter the Third.

How much this Concept subverts the antique principles of Philosophy, I shall not here undertake to demonstrate: How far it shoulders out Truth itself, and so blows out those indeleble Characters, fixed by the finger of
leaves also and flowers shew as much of variety, as skill in the Workman; every Plant being by them as soon discern'd, as seen. Let us call over likewise the differing numbers of Animals, Insects, and others; and examine all the starting holes, that Fire can breathe forth a stream by; all the casual compressures of cold, or external accidents; and compare them together, we shall see whether such a fruitful stock of variety in colours, shape form, vertue, and many other differing signatures, can be the issue of such accidental, and equivocal parents.

If this formation of Creatures arise from heat extending, and enlarging a small moistened lump, without any other consideration, why are not these Atomes extended circularly; and so all Bodies should be cast into the same Mould with the Heavens; and should, as they seem to us, be all sphericall. But he tells us of some light parts, that, besides the power of the Fire enforcing, naturally

naturally climb upwards: and of others, which by their natural weight, are persuaded to sink into the Earth, to hold the mounting parts steadfast, that they may not be overthrown by Windes. But were there nothing else to give a figure to Plants, but ascending and descending, of light and heavy parts; whence should that variety arise in the fashion of those ascending and descending parts: the weight of the parts should carry them directly downwards, as the lightness doth upwards; and so all roots should descend in one continued round, but long, lump: what then makes some spherical, others stretching out infinite numbers of hairy threads; some directly downwards, others parallel to the superficies. The Author tells us the figures of them, as of the ascending parts, are caused by some external accidents: As when the more hot and moist parts are ascended, and broken from the prison of the Earth, the cold air compresseth and hardeneth the
the external parts, and so enricheth this sprouting upstart, with a hard tough skin; both armour and clothes to protect the interior softer parts. The hardness of the Earth, likewise compriseth the descending parts, into such forms as we finde them of. But may not the truth of this be vehemently suspected? when, if we examine the coat, we shall finde it more penetrable then the Body: and more subject to external injuries, then that inclofed? as in all Trees and Plants, the Bark and Rinde is of a more flexible, tender, and soft composure then the invested Trunk: and the hard solid shell of Walnuts, Almonds, stones of Plumbs, &c, are invironed with a very tender substance. Besides this, there is yet a greater doubt, how this external cold air should in the same place, at the same instant of time, fashion these mounting Atoms into a round stem, with a long, sharp leaf; and close by that, compresse others into a square, hexangular, or triangular shape; with leaves round, jagged, indented, scollop’d, or the like? as may be seen in several Plants, inhabitants of the same piece of ground, under the same Heavens, inviron’d with the same Air, and heavenly influences. These distinct figures cannot sprieng from the cold circumstant Air; for this applying it self alike to all, and every side of these ascending parts, should equally compriseth every part; and so all Plants should sprout up cylindrical, as the Trunks of Trees do.

The Fruit also and Seed, which he calls a Button, or greater quantity of those hot and moist parts collected, and dust or parts dried into the form of dust, by the external heat of the Sun, and innate heat of the Plant; are in a more orderly method framed and repos’d. For not onely in qualities, but in figure, they much vary one from another. One producing a seed inclos’d onely in a husk; another a seed of differing figure inclos’d in a fruit, and hard shell,
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Is cold Air the fruitful Mother of this variety too? Nay, if we but more seriously examine this duft, we shall finde it orderly set, with navel strings, affix'd to some part of their inclosing Matrix, by which nourishment is convey'd for their growth, and subsistence. And if we shall further anatomiiz these dufts, we shall finde laid up in them Plants; the very same Identical Plants, which first grew up, after the seeds are committed to the ground, in which indeed resides the nature of the whole. And this young feminal Plant, we may truly call the extracted tincture, or Magistery of the whole Plant; as shall more largely appear hereafter.

Neither doth his 25 Chapter (where he endeavours to shew how this wonderful effect, as he calls it, is performed) how a Plant or Animal comes by that figure it hath) afford us any greater satisfaction. For if we examine his first principle, viz. That the several figures of Bodies, proceed from a defect in one of the three dimensions; caused by the concurrence of accidental causes; we shall finde it extremly straightening the most delightful variety of the Creation, and the infinite power of the Creator. For upon these grounds it must be suppos'd, that the most perfect figure is to be cubical, and all Bodies should have been cast into that mould, but that some external causes stepping in, hinder almost all from obtaining that perfection: the Creator not being able to withstand their prevalency; or by patching up that defect, could not give perfection to all that, which his own mouth assures us was good. The examples also which he produceth, teach us there is but little truth in this position; for how can we conceive the watry drops of rain falling, should suffer violence (as to be pared round) by the softer Air, which is not able so much as to hinder it from falling? The fashioning of Salts...
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why should it not arise still in height,
by the continual addition of descending parts, as long as there are any
Atoms to fall, by which means it should not become cubical, but a long
square. But we finde the contrary, while
it most exactly casts it self into cubes;
the angles sometimes looking upwards,
sometimes transversely; which were im-
possible, if those squares were made,
by long and broad Bodies falling one
upon another. And vitriol, though
calcined to perfect redness, if dissolved
and fixt again, not onely recovers his
bright shining greenness, but is squared
out into various angles, looking every
way, as if it had been fashioned by the
hand of the Artificer.

The figure of Saltpeeter is almost
neglected by him: onely he tells us,
that by reason of its drinelle, it is more
difficultly figured, and therefore is not
equally increased. But if we examine
it well, we shall finde it more unctu-
ous, then the other two, and is more
readily

(as he relates) doth as little satisfy.
As for Alume, it is not of such unctu-
ous parts as he reports; for how then
could it so indiscernably be dissolved
in Water, and so much reft Fire, which
is not proper to unctuous Bodies? Pe-
sides, being dissolved and falling again,
what should hinder the parts from
meeting all in a lump, and conform-
ing themselves to the fashion of the
bottom of the Vessel, in which they are
contained; as we fee all unctuous Bo-
dies do? As for Salt, if that should
acquire his figure on the superficies of
the Water as he informs us, it should
be only long and broad, without thick-
neffe: whence then come those exact
cubical forms in Salts, which are suf-
fered to coagulate of themselvs, Where
you shall finde the most exact Mathem-
atician out-gone by this natural Art.
Neither is this caufed by the falling
of parts one upon another, (as hee
speaks before of Alume) ere the for-
mer are throughly hardned: for then
readily cast into that figure, then the other. For it doth not oncely shooth forth presently almost in water, after it is removed from the heat; but we shall finde it oftentimes upon new Walssho1th forth to a great length, without the help of Water to fashioin it in. So that there seems to be some more particular agent to be found out, that immediately imprints these determinable figures; which should rather work by a conceived designe of producing such a figure, in such a Body. How else could such effects continually be wrought, (accidental causes working not still alike) and therefore it were impossible to expect scarce a similitude in the works.

The formation of Animals affords us little less perplexity. How heat sending forth, or how those vapours emitted should settle themselves in such and such method and form; such variety of parts without some other director cannot appear. That there are in all Animals three sorts of channels, is an unquestionable truth; but that there are distinct Bodies conveyed by them, though taught us by our Masters, is not granted, nor by him received for a truth. For in the next Chapter we shall finde him applauding the circulation of the blood; and describing its motion through, and from the Arteries to the Veins, and from them to the Arteries again. Both of these channels then must be filled with the same liquor; only perhaps in the Veins it may be something cooler, and thicker; as our Bath waters are less hot in the gutters, then in the spring. That which is conveyed in the other channel, the Nerves, we can scarce afford it the distinction of another Body; it being only the pure, and most subtle selected parts of the blood, which was conveyed in the other two channels. Neither, if it were granted that three distinct Bodies, were continually traversing those three several...
veral channels into the Bodies of all Animals; doth he shew us, how they put themselves into such various shapes and figures, (when they have escaped this conquering expelling heat) as we finde them wonderfully express’d in every creature.

All things arising in fumes & steams, as moist Bodies wrought on by heat will do, when they are freed from that which rarified them, return to their own nature and forms again. As water rarified, (when those minute particles of heat that divides it into such small Atomes, and mixed themselves with it, are either lost or overcome by the watery Atomes,) returns again to water. Or if those particles remain still active, they do but further divide it; and so it becomes more like Fire, by having a greater number of fiery Atomes mixed with it, yet is not made another thing, either in substance or figure. But in the generation of Creatures, it is far otherwise; where the product

The History of Generation, product or effect is much differing from what the matter or the agent were. Now how this difference doth arise, and how this change is wrought, we must enquire a little further, then what heat and moisture will lead us unto.

The true way of Generation set down in general, with the examination of some repugning Arguments, of several Authors.

Chapter the Fourth.

Having thus far wandered in the search of a truth, examining those opinions which have endeavoured its discovery; and finding them much failing in their labours; I shall the more boldly attempt the same enterprise; hoping if I fail in so great a business, to pall along in the crowd, though not undiscern’d, yet favourably centred.
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The production of all Creatures, after the first Omnipotent Fiat was executed; is by Philosophers called Generation. Which is performed by parts selected from the generators, retaining in them the substance, forms, properties, and operations of the parts of the generators, from whence they were extracted: and this Quintessence or Magistracy is called the Seed. By which the Individuals of every Species are multiplied; and that which the Almighty for its transgression, made to have an end; by the fertility of this Sperm, is continued to immortality.

From this all Creatures take their beginning; some laying up the like matter, for further procreation of the same Species.

In others, some diffus’d Atomes of this extract, shrinking themselves into some retired parts of the Matter; become as it were loft, in a wilderness of other confused seeds; and there sleep, till by a discerning corruption they

they are set at liberty, to execute their own functions. Hence it is, that so many swarms of living Creatures are from the corruption of others brought forth: From our own flesh, from other Animals, from Wood, nay, from every thing putrified, these imprisoned, seminal principles are multered forth, and oftentimes having obtained their freedom, by a kind of revenge feed on their prison; and devour that which preferv’d them from being scatter’d.

Neither are these without their subordinate forms; for from the walls of their bodies frequently, broken by corruption, issue forth other Creatures, differing in specie from themselves; as whosoever will but examine the production of Insects, shall easily finde.

This seed consists of two parts, Material Atomes, animated and directed by a spiritual form, proper to that species whose the seed is; and given to such matter at the creation, to distinguish it from other matters, and to make
make it such a Creature as it is. Both which are separated, the Material Atomes from the body; the form, from the form of the generator. Which in Vegetables, and sensitive Creatures, where the forms are compos'd of material substances, our Philosophers are easily persuad'd to believe. But how the immortal soul of man, should be communicated to these corruptible material Atomes of the seed of Man, without prejudice to its most pure nature, seems a Riddle to our Philosophers, and impiety to our Divines. I shall not undertake those large disputes pro and con about this argument, but do believe the Soul of Man may be traduced, though not generated; may spread and multiply itself into many, without fear of corruption. It being a substance incorruptible, immortal, like the Creator, the breath of his own mouth, which still retains so much of that nature, from whence it was breathed; that without the least diminution, it is able to communicate, and dilate itself into many Millions, and yet still remain the same entire substance that at first it was.

For the material part of this seed, there is a large dispute, whether it be a toto vel a parte decision. I shall not stand to tell you the names of those that are Patrons of the one, and of the other: nor rehearse their Arguments. If you examine them, you shall finde their most rational, that affirm the decision from the whole body, what we finde more particularly discourse of by our forementioned Author, in his 24 Chapter, we shall take up and a little review. Where he hath truly and fully evicted the wandering phancies of some, that would have this compound of several parts, to be collected from every particle, so as passing by, or through every little Atome of the Parents body, in its passage, should be impregnated, and imbued with the nature of it, and so retire to the reserve where
where it is kept for generation. And afterwards these particles being fer-
mented by convenient heat, do take
t heir posture and situation according to the posture and dispositions of
those Atomes they visited in their pas-
 sage, and from whom they received
those imbibed natures. But this circu-
lating our Author tells us, is impossi-
ble, I will not wrong him so much as
to rank his more solid reasons with
mine own. Could we finde these cha-
nels and conveyances in the Body,
by which this matter should passe; yet
I might doubt of the unquestionable
verity of this doctrine. For what should hinder this matter circulating about
the Body, from receiving qualities,
and so likewise the nature of every
part it passeth by; and so every par-
ticle of this matter, should be impregnated
with the natures of the whole;
and every small Atome should become
a living Creature, or else the Subse-
quently should blot out the Antecedent
Character, and the impression should
be only from the last part. We may
likewise as truly, as safely conclude
with our Author, that it is impossible
for every little part to remit some parts
impregnated with the nature of that
whole part from whence it fell. This
by some is thought to be done by that

quasi epilepsia in coitu, that kind of
convulsion or concusion of the parts,
by which is shook off from them some-
what retaining the nature, and propert-
y of every part, and these being joyn-
ed, make up the Seed. This seems to
be very much befriended by our Au-
thors relation of the Cats kined with-
out tails: and the Woman's daughters
with six fingers upon a hand. My self
also have seen a kind of Poultry with-
out rumps: which breeding with their
own kinde, still brought forth Chick-
en wanting that part: If with others,
sometimes they had rumps, sometimes
but part of a rump. And not long since
I saw a Mungril Bitch, that had her
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tail cut close to her body almost, whose Whelps were half without tails, and half with tails: the next year following, she brought them forth all with long tails, as she had before the cutting off. Which though it seems to favour (as I said) this opinion, it doth no way confirm it; as may appear by the more frequent perfect generations of mutilated creatures, which beget children or issue with two legs or arms, though they had but one; Spagniels, whose tails are always cut, bring forth Whelps whose tails need as much cutting, as their Dams or Sires did. Wee must therefore look out some other way, how this may be done, without the parts themselves.

Some others have supposed this decision to be made from the blood, when it is tantum non assimilatus; after it hath undergone all its concoctions, and received all its names christned by the Arabian, of Humoris in nominati, Rosis, Glutinis, & Cambii; and is fastned to

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to the part, but not perfectly assimilated; and this being selected, and repo
ted in convenient vessels, receiving some kinde of impression from the part from whence it was divided; it retains still an imperfect signature, and delineation of them, and makes up that which we call the sperme. But I shall here want Anatomic to instruct me, how this Cambium, this thinner, or not yet confirmed, or hardened substance of every part, should desert its hold; and being flaken off, should be conveighed into the seminal vessels, all which, returns to the first opinion confuted by our Author. Who hath likewise fairly cleer'd the other part of the doubt, whether this matter be divided, or taken only from similar parts alone, and so the matter of bone, should accordingly to the conveniency of place and use, become round, blady, circular, or long, and the flesh likewise, only by the help of fermenting heat.

After our noble Author hath so stra. C nuosly
nuously confuted these phanfies, we shall finde him laying down his own op-
pinion, and seeking some other means and course of Generation: He tells us,
that the superfluous part of the nour-
ishment, when it is drained from the ref, and reserv'd in a convenient place,
by little and little through digestion gaineth vigour, and spirits, and becomes
a homogeneal body, like to other sim-
ple compounds; which by other de-
gresses of heat and moisture, is changed
into another substance, and that again
by other temperaments into another.
And thus by the course of nature, and
by passing successively many degrees
of temper, and by receiving a total
change in every one of them; at length
an Animal is made of such juice as af-
terwards serves to nourish him.

But if we more seriously examine
this assertion, we shall finde it to leave
the truth very much behinde it. For
first, if we but look on the Body to be
nourished; we shall finde it to be com-
pos'd


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pos'd of many several parts, of differ-
ing natures, which would sufficiently
instruct us in the disagreeing and heter-
ogeneous particles of that which nour-
ished this heterogeneous Body. But if
we more curiously anatnomize this juice
or blood, it will abundantly shew us,
it is no homogeneal Body; neither
therefore can that superfluous part be
lected and drained from it, claim that
privilege.

Should we grant this, it cannot ap-
pear how heat working upon this ho-
mogeneal body, should make in it a
total change in the nature of it; or cre-
ate it an other substance quite different
from the first, making it leffe homo-
geneal. And in every digestion or ope-
ration of heat upon it, it should be-
come still leffe homogeneal, until that
substance be produced which wee see
compos'd of so many heterogeneous parts. If we examine the workes of
heat, we shall finde it penetrating, di-
viding, and mixing of small particles of

C 2
it self, with the Atomes of the bodies it works upon; and in progress of time, divides the body into such small indivisible parts, that it becomes like it self, in respect of rarity. As Fire working on, and mixing it self with Water, divides it into small discernible Atomes, which now attains unto the same rarity, and lightness with the Fire; and being accompanied and intermixed with those fiery Atomes, flies aloof, till at last disliking one another's society, being far removed from the Agent rariifying them, they part companies. And then those unseen Atomes of Water, collect themselves again to their former temper, and bulk, no whit changed or altered either in qualities or substance, which were impossible, were this change total, or could this action of heat create heterogeneous parts, in this homogeneal substance. If we further consider the power of heat, (or any other qualities) we shall surely finde, that in no action there can any substantial

substantial thing be given, which is not originally in the agent, or giver. Fire could not give heat, nor Water, moisture, unless it were inherent in those Bodies. Neither can heat or Fire working on an homogeneal body, give it any other heterogeneous parts then fiery ones; nor moisture, any other, then moist ones, which indeed accidentally may give hardnesse to bones, and softnesse to flesh; but how comes this boney substance in this place blady, in that round, in another long? this Muscle round, that triangular? this Plant of one form and nature, that of another? We must seek out some other agent to fashion these parts, and to compose this difficulty; and confidently conclude, this way to be lame, and imperfect; of which our Author seems to be conscious, and that makes him so staggering, and at last falling upon an opinion, which he before in part rejected, viz. That the blood in its circulation visiting every part, is impregna-
nated with the nature of them, and the purest part of this blood being extracted like a quintessence out of the whole Mass, is reserved in convenient receptacles till there be use of it; which is the feed, of which a new Animal is to be made. This imbution of specific qualities from every part, will appear as impossible as the former. For first, there are many parts from which the blood doth not again return, as from all those parts, which have attracted their specific nourishment from out of the vessels; from them there is no return made. Besides, the blood, in its circulation, is carried in vessels of the same nature, from the one end of the body to the other; and out of those vessels there is not the least motion in the blood. How these qualities should be communicated from every particle, through the thick skins of the vessels, seems somewhat strange. Besides all this, should we grant this circulation through every particle, how comes it to passe that receiving so many differing qualities, the one doth not confound the other, and that which is last imprest doth not blot out all the rest? These or the like difficulties being kenn'd by our Author, makes him flye to another refuge; and to tell us, that the heart of every perfect Animal, containeth in it, the specific virtues of all the several parts of its own body; by reason of the bloods continual resorting to it, in a circle from all parts of its body, and its being nourished by that juice; so that the Heart is the abridgement of the whole, and imbues the blood with those specific qualities, from whence is extracted the feed. But neither can this close all the former difficulties. For how shall we suppose, so many distinct qualities to be imprest in so narrow a compass, as in the heart, without confusion; or how to short a stay in the heart, could implant such a numerous Regiment of qualities in the blood; or why not differing
faring faculties in the same particle of
blood; all flying (without distinction)
through the ventricles of the heart? we
shall be forc'd therefore to seek out
some other way, which indeed our Au-
thor hath chalkt out unto us, though
himself hath not trod in it.

A more particular Narration of the way
of Generation.

Chapter the Fifth.

Our noble Author hath laid this
ground for us, which I hope will
easily lead us to the truth, viz. That
it is necessary the parts should be made
in generation, of a matter like to that
which maketh them in nutrition. Now
what that is from whence every part
receiveth his nourishment, wee must
search for in the blood: Which is a
tincture extracted from those things we
eat, concocted and separated in the
Stomack,

Stomack, Liver, and Heart; and after
wards by its circulating in the Arte-
ries and Veins, is pellicani'd (as the
Chymists term it) and becomes most
pure, and defecated from all its ex-
crements, and is made a fit nourishment
for every part. The things we eat are
not simple, but compounded of as great
a variety as the parts to be nourished
can expresse. What variety of Plants
goes to the making up of one piece of
flesh we eat? What multitudes of dif-
fering Atomes are conjoin'd in one
piece of bread, or draught of drink,
or Wine? The extract then sure must
be furnisht with as great a swarm of
differing parts; only here they are
more refin'd, more subtilis'd, and se-
parated one from another. But how
doeth this variety of parts in the blood,
make it the fitter for nourishment? by
comprehending in it small indivisible
particles, cognate or similar Atomes,
which are of the same substance, ef-
fence, and nature with the parts, to
which