

SCEPSIS SCIENTIFICA,
Or
THE VANITY OF DOGMATIZING
By
JOSEPH GLANVILL

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Bibliographic Note

The Vanity of Dogmatizing, the first work of Joseph Glanvill to be printed, was published in 1661. It probably appeared around March of that year since the dedicatory epistle, which also gives some account of its composition, is dated March 1, 1660. (In those days the year began on 25th March; so 1 March 1660 by Glanvill's reckoning is 1 March 1661 by ours.)

The second edition is entitled *Scepsis scientifica: or, Confest ignorance the way to science . . .* (&c.), and is dated 1665, though it was presented to the Royal Society in December 1664.

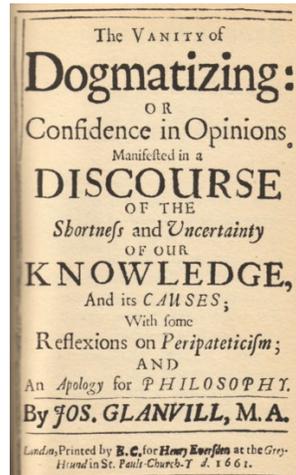
The two editions are much the same except for some rearrangements, minor stylistic changes, and slight omissions and additions. Of these omissions, the one of most general interest is the story on which Matthew Arnold based his *Scholar-Gypsy*. The second edition does not contain the dedicatory epistle addressed to Joseph Mynard, the Preface to the reader (a part of which, however, was recast to form chapter III of the *Scepsis*), or the three commendatory verses. In place of these the *Scepsis Scientifica* contains the long dedicatory epistle addressed to the Royal Society. Following the main treatise in the *Scepsis scientifica* there is added a reply to Thomas White's *Sciri, sine sceptices & scepticorum a jure disputationis exclusio* (1663), which had attacked *The Vanity of Dogmatizing*.

The final version of *The Vanity of Dogmatizing* is that in Glanvill's *Essays on Several Important Subjects in Philosophy and Religion* (1676). The first essay in this volume, *Against confidence in philosophy, and matters of speculation*, is in the main a reprint of the principal discourse as it appeared in the *Scepsis scientifica*, with further omissions and slight rearrangements. The essay begins with the third chapter of *The Vanity of Dogmatizing* (the fourth of the *Scepsis Scientifica*), the dropping of these preliminary chapters being the only alteration in material of any consequence. Of decided importance, however, are the stylistic changes, which are complete and thoroughgoing.

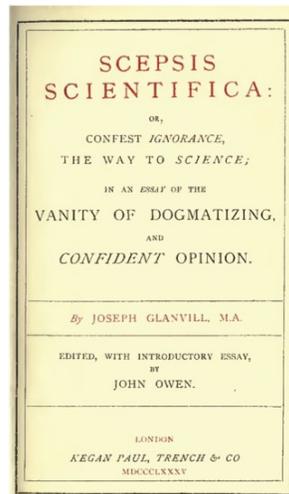
This edition has been created by combining the full text of the second edition (taken from an 1885 reprint by Kegan Paul, Trench & Co.) with the dedicatory epistle, introduction, three poetical testimonials and the story of the Scholar-Gypsy, in the first edition (taken from a facsimile published by the Facsimile Text Society, 1931). The spelling has been modernized.

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Title page of the 1931 edition of *The Vanity of Dogmatizing*



Title page of the 1885 edition of the *Scepsis Scientifica*.



The Dedicatory Epistle

To the reverend my ever honoured friend, Mr. JOSEPH MYNARD, B.D.

SIR;

I dare not approach so much knowledge, as you are owner of, but in the dress of an humble ignorance. The lesser Sporades must veil their light in the presence of the Monarch Luminary; and to appear before you with any confidence of science, were an unpardonable piece of dogmatizing. Therefore whatever be thought of the discourse itself, it cannot be censured in this application; and though the pedant may be angry with me, for shaking his endeared opinions; yet he cannot but approve of this appeal to one, whose very name would reduce a sceptick. If you give your vote against dogmatizing: 'tis time for the opinionative world, to lay down their proud pretensions: and if such known accomplishments acknowledge ignorance; confidence will be out of countenance; and the sciolist will write on his most presumed certainty; this is also vanity. Whatever in this discourse is less consonant to your severer apprehensions, I beg it may be the object of your charity, and candour. I Betake my self to the protection of your ingenuity, from the pursuits of your judicious censure. And were there not a benign warmth, as well as light attended you, 'twere a bold venture to come within your beams. Could I divine wherein you differ from me; I should be strongly induced to note that with a *deleatur*; and revenge the presumption, by differing from my present self. If anything seem to favour too much of the Pyrrhonian: I hope you'll consider, that Scepticism is less reprehensible in enquiring years, and no crime in a juvenile exercitation. But I have no design against science: my endeavour is to promote it. Confidence in uncertainties, is the greatest enemy to what is certain; and were I a sceptick, I'd plead for dogmatizing: for the way to bring men to stick to nothing, is confidently to persuade them to swallow all things.

The treatise in your hands is a fortuitous, undesigned abortive; and an equivocal eject of a very diverse intention: for having writ a discourse, which formerly I let you know of, of the soul's immortality: I designed a preface to it, as a corrective of enthusiasm, in a vindication of the use of reason in matters of religion: and my considerations on that subject, which I thought a sheet would have comprised, grew so voluminous, as to fill fourteen: which, being too much for a preface; I was advised to print apart. And therefore reassuming my pen, to annex some additional enlargements to the beginning; where I had been most curt and paring: my thoughts ran out into this discourse, which now begs your patronage: while the two former were remanded into the obscurity of my private papers: the latter being rendered less necessary by his majesty's much desired, and seasonable arrival; and the former by the maturer undertakings of the accomplished Dr. H. More.

I have no apology to make for my lapses, but what would need a new one. To say they are the erratas of one that hath not by some years reached his fourth climacterical, would excuse indeed the poverty of my judgement, but criminate the boldness of this address. Nor can I avoid this latter imputation, but by being more criminal: and to than this respectful presumption, I must do violence to my gratitude. Since therefore your obligations have made my fault, my duty; I hope the same goodness, that gave birth to my crime, will remit it. Hereby you'll further endear your other favours and make me as much an admirer of your virtues, as I am a debtor to your civilities: which time I cannot do them right in an acknowledgement; I'll

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acknowledge, by signifying that the greatness of them hath disabled me from doing so: an impotence, which a little charity will render venial; since it speaks yourself its author. These your endearments necessitate me to a self-contradiction; and I must profess my self dogmatical in

this, that I am,

SIR

Your most obliged and affectionate servant

JOS. GLANVILL

Cecil-house, in the Strand,

March 1, 1660

The Preface.

To complain in print of the multitude of books, seems to me a self-accusing vanity, whilst the querulous reproachers add to the cause of complaint, and transgress themselves in that, which they seem to wish amended. 'Tis true, the births of the press are numerous, nor is there less variety in the humors, and fancies of perusers, and while the number of the one, exceeds not the diversity of the other, some will not think that too much, which others judge superfluous. The genius of one approves, what another disregardeth. And were nothing to pass the press, but what were suited to the universal gusto; farewell typography! Were I to be judge, and no other to be gratified, I think I should silence whole libraries of authors, and reduce the world of books into a fardle: whereas were another to sit censor, it may be all those I had spared, would be condemned to darkness, and obtain no exemption from those ruins, and were all to be suppressed, which some think unworthy light; no more would be left, than were before Moses, and Trismegistus. Therefore, I seek no applause from the disgrace of others, nor will I hucksterlike discredit any man's ware, to recommend mine own. I am not angry that there are so many books already, (bating only the anomalies of impiety and irreligion) nor will I plead the necessity of publishing mine from feigned importunities. Those that are taken up with others, are at their liberty to avoid the divertisement of its perusal: and those, to whom 'tis not importunate will not expect an apology for its publication. What quarter the world will give it, is above my conjecture. If it be but indifferently dealt with, I am not disappointed. To print, is to run the gauntlet, and to expose oneself to the tongue-strappado. If the more generous spirits favour me, let pedants do their worst: there's no smart in their censure, yea, their very approbation is a scandal.

For the design of this discourse, the title speaks it. It is levied against dogmatizing, and attempts upon a daring enemy, confidence in opinions. The knowledge I teach, is ignorance: and methinks the theory of our own natures, should be enough to learn it us. We came into the world, and we know not how; nn live in't in a self-nescience, and go hence again and are as ignorant of our recess. We grow, we live, we move at first in a microcosm, and can give no more scientific account of the state of our three quarters confinement, than if we had never been extant in the greater world, but had expired in an abortion; we are enlarged from the prison of the womb, we live, we grow, and give being to our like: we see, we hear, and outward objects affect our other senses: we understand, we will, we imagine, and remember: and yet know no more of the immediate reason of most of these common functions, than those little embryo anchorites: we breathe, we talk, we move, while we are ignorant of the manner of these vital performances. The dogmatist knows not how he moves his finger; nor by what art or method he turns his tongue in vocal expressions. New parts added to our substance, to supply our continual decayings, and as we die we are born daily; nor can we give a certain account, how the aliment is so prepared for nutrition, or by what mechanism it is so regularly distributed; the turning of it into chyle, by the stomach's heat, is a general, and unsatisfying solution. We love, we hate, we joy, we grieve: passions annoy us, and our minds are disturbed by those corporal aestuations. Nor yet can we tell how there should reach our unbodied selves, or how the soul should be affected by these heterogeneous agitations. We lay us down, to sleep away our diurnal cares; night shuts up the senses' windows, the mind contracts into the brain's centre. We live in death, and lie as in the grave. Now we know nothing, nor

can our waking thoughts inform us, who is Morpheus, and what that leaden key, that locks us up within our senseless cells: there's a difficulty that pincheth, nor will it easily be resolved. The soul is awake, and solicited by external motions, for some of them reach the perceptive region in the most silent repose, and obscurity of night. What is't then that prevents our sensations; or if we do perceive, how is't, That we know it not? But we dream, see visions, converse with Chimera's, the one half of our lives is a romance, a fiction. We retain a catch of those pretty stories, and our awakened imagination smiles in the recollection. Nor yet can our most severe inquiries find what did so abuse us, or show the nature, and manner of these nocturnal illusions: when we puzzle our selves in the disquisition, we do but dream, and every hypothesis is a fancy. Our most industrious conceits are but like their object, and as uncertain as those of midnight. Thus when some days, and nights have gone over us, the stroke of fate concludes the number of our pulses; we take our leave of the Sun and Moon, and bid mortality adieu. The vital flame is extinct, the soul retires into another world, and the body to dwell with dust. Nor doth the last scene yield us any more satisfaction in our autography; for we are as ignorant how the soul leaves the light, as how it first came into it; we know as little how the union is dissolved, that is, the chain of the so differing subsistencies, that compound us, as how it first commenced. This then is the creature that so pretends to knowledge, and that makes such a noise, and bustle for Opinions. The instruction of Delphos may flame such confidants into modesty; and till we have learn't that honest *advizo*, though from hell, ΓΝΩΘΙ ΣΕΑΥΤΟΝ [Greek: GEOTHI SEAYTON]; confidence is arrogance, and Dogmatizing unreasonable presuming. I doubt not but the opinionative resolver, thinks all these easy knowables, and the theories here accounted Mysteries, are to him Revelations. But let him suspend that conclusion till he hath weigh'd the considerations hereof, which the Discourse itself will present him with; and if he can untie those knots, he is able to teach all humanity, and will do well to oblige mankind by his informations.

I had thought here to have shut up my Preface, being sensible of the tedium of long preliminaries. But lest the ingenious rumble at my threshold, and take offence at the seemingly disproportionate excess, which I ascribe to Adam's senses: I'll subjoin a word to prevent the scruple. First then, for those that go the way of the allegoric, and assert pre-existence; I'm secure enough from their dissatisfaction. For, that the ethereal Adam could easily sense the most tender touches Upon his passive vehicle, and so had a clear and full perception of objects, which we since plunged into the grosser *hyle* are not at all, or but a little aware of; can be no doubt in their hypothesis. Nor can there as great a difference be supposed between the senses of eighty, and those of twenty, between the opticks of the blind bat and peripicacious eagle, as there was between those pure uneclipsed sensations, and aide of our now-embodied, muddied sensitive. Now that the pr-existent Adam could so advantageously form his vehicle, as to receive better information from the distant objects, than we by the most helpful telescopes; will be no difficult admission to the friends of the allegory. So that what may seem a mere hyperbolical, and fanciful display to the sons of the letter; to the allegorists will be but a defective representation of literal realities. And I cannot be obnoxious to their censure, but for my coming short in the description.

But I am like more dangerously to be beset by them that go the way of the plain: and 'twill be thought somewhat hard, to verify my hypothesis of the literal Adam. indeed, there is difficulty in the mechanical defence; and Dioptrical impugnation are somewhat formidable. For unless the constitution of Adam's organs

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was diverse from ours, and from those of his fallen self, it will to come seem impossible, that he could command distant objects by natural, as we do by artificial advantages. Since those removed bodies of sun and stars (in which I instance) could form but minute angles in Adam's retina, and such as were vastly different from those they form in ours assisted by a telescope. So that granting Adam's eye had no greater diametrical wideness of the pupil, no greater distance from the cornea to the *retiformis*, and no more filaments of the optic nerves of which the *tunica retina* is woven, than we: the unmeasurable odds of sensitive perfections which I assign him; will be conceived mechanically impossible. These difficulties may seem irresistibly pressing, and incapable of a satisfactory solution.

But I propound it to the consideration of the ingenious objectors, whether these supposed organical defects might not have been supplied in our unfallen protoplast by the vast perfections of his animadversive, and some other advantageous circumstances: so that though it be granted, that an object at the distance of the stars could not form in the eye of Adam any angles, as wide as those it forms by the help of a tube; yet I think my hypothesis may stand unshaken. For suppose two eyes of an equal and like figure, in the same distance from an object; so that it forms equal angles in both: it may come to pass by other reasons, that one of these eyes shall see this object bigger than the other: yea, if the difference of the reasons on both sides be so much greater, one eye shall see it clearly, and the other not at all: for let one of these eyes be placed in an old body, or in a body deprived quite, or in a great measure of those spirits which are allowed the instruments Of sight, or of the due egress and regress of them, in their natural courses and channels; and let the other have a body of a clean contrary quality; or let the soul that actuates one of the said eyes, be indued with an higher faculty of animadversion (I mean with a greater degree of the animadversive ability) than the soul hath, that actuates the other. In either of these cases, the forementioned difformity of vision, will fall out in the same uniform case of dioptrical advantages. For a little angle made in the eye, will make as discernible an impression to a soul of a greater animadversive power, and assisted by more and meeter instruments of sight; as a greater angle can make to a soul of a less power, and destitute of those other instruments, which are as necessary to sight as those dioptrical conveniencies. So that grant that the object set at the same distance made angles in the eye of Adam, no wider than those it forms in ours; yet that which we discern not, might have been seen by him having more and better spirits, and being endued with a stronger animadversive, according to mine hypothesis. For there is the same proportion between a great power, and a little help, or a little angle which is between a small power, and a great help, or a great angle.

If all this satisfy not, I beg from the ingenious the favour of this consideration: that some grains must be allowed to a rhetorical display, which will not bear the rigour of a critical severity. But whether this mine hypothesis stand or fall, my discourse is not at all concerned. And I am not so fond of my conjectures, but that I can lay them down at the feet of a convictive opposition.

Three Poetical Testimonials

**To the Learned Author, of the Eloquent and Ingenious Vanity of
DOGMATIZING.**

Poets are but libellers, I implore no Muse;
Parnassian praise is an abuse.
Call up the Spirit of Philosophy:
Your worth's disgraced by Poetry.
Summon Descartes, Plato, Socrates:
Let this great Triad speak your praise.
Other Encomiasts that attempt, set forth
Their own defects, and not your worth.
As if a Chamber-light should dare essay,
To gloss the beauty of the day.
He that thinks fully to describe it, dreams:
You're only seen by your own beams.
And only Eagle eyes can bear that light;
Your strength and lustre blinds weak sight.
Let pedants quarrel with th' light that detects
Their beloved vanities and defects.
And let the Bat, as soon as day's begun,
Commence a suit against the Sun.
Let reprehended Dogmatizers stamp;
And the scorched Moore curse Heaven's lamp:
While nobler souls, that understand what's writ,
Are debtors to your strength and wit.
You have removed the old antipathy
'Tween Rhetorick, and Philosophy:
And in your book have clothed Socratic sense,
In Demosthenian eloquence.
You've smoothed the Satyr, and the wanton have
Reformed and made Rhetorick grave.
And since your Pen hath thus obliged them both
'Tis fit they club t'express your worth.

H. Darsy, Esq;

**To his Worthy Friend Mr. JOSEPH GLANVILL;
Upon the Vanity of Dogmatizing in Philosophy, displayed in his ingenious book.**

NO controversies do me please,
Unless they do contend for peace:

JOSEPH GLANVILL

Nor scarce a demonstration,
But such as yours; which proves, there's none.
Doubtful I lived, and doubtful die:
Thus A'YTO'Σ[Greek: A'YTO'S] gave E"ΦH [Greek: EPHE] the lie;
And with his own more aged critics,
Expunged his youthful analytics.
To make my shrift, that certain I
Am only of Uncertainty;
Is no less glorious, than due,
After the Stagirite and You:
I am absolved, if the hand
Of great Apollo's priest may stand.
You have made Ignorance a Boast:
Pride hath its Ancient channel lost;
Like Arethusa, only found
By those, that follow'd underground:
Title your Book, The Works of Man;
The Index of the Vatican:
Call it Art's Encyclopedia
The Universal Pansophy
The State of all the Questions
Since Peter Lombard, solved at once;
Ignorance in a learned dress,
Which volumes teach, but not profess;
The learning which all ages knew
Being epitomised by you.
You teach us doubting; and no more
Do libraries turn o'er and o'er:
Take up the Folio, that comes next,
'Twill prove a comment on your text;
And the quotation would be good,
If Bodley in your margin stood

A. Borset, M.A.

To His Ingenious Friend the Author, on his Vanity of Dogmatizing.

Let vaunting knowledge now strike sail,
And unto modest ign'rance veil.
Our firmest Science (when all's done)
Is nought but bold opinion
He that hath conquered every Art
Th' Encyclopedia all by heart;
Is but so,e few conjectures better
Than he that cannot read a letter.
If any certainty there be,
'Tis this, that there's no certainty.

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Reason's a draft, that does display,
And cast its aspects ev'ry way.
It does acknowledge so back parts
'Tis faced like Janus, and regard's
Opposite sides; what one frowns on,
T'other face sweetly smiles upon.
Then may the Sciolist hereby
Correct his Metoposcopy.
Let him, e're censure reason, found
And view her lineaments all round
Let him with you his nescience own.
Weakness acknowledged is best;
And imperfection when confessed.
Meek and unboasting ignorance,
Is but a single impotence:
But when 'tis clad in high profesion,
'Tis then a double imperfection.
A silly ape struttingly dressed
Would but appear the greater jest.
But your example teacheth us
To become less ridiculous.
He that would learn, but what you show
The narrow bounds of what men know:
And would but take a serious view,
Of the foundations with you:
He'd scarce his confidence adventure
On bottoms which are so unsure.
In disquisition's first gust
It would be shipwrecked, sunk, and lost.

P.H.

JOSEPH GLANVILL

**AN ESSAY ON THE LIFE AND WORKS OF JOSEPH
GLANVILL.**

**By
John Owen.**

Of the great and many-sided mental throes through which England passed in the 17th century, especially of the reaction, political, religious, and literary, which is marked by the Restoration, it would be hard to find a better exponent than the author of the *Scepsis Scientifica*. Glanvill's was one of those eclectic, sympathetic intellects, which, like a glass with many facets, reveals in brilliant prismatic hues not one or two, but all the great Thought-forces which surround it; while in response to this varied intellectual sensitiveness, doubtless serving also as a stimulus, was his environment; for his lot chanced to be cast in one of the most stirring epochs of English History.

The chief events in Glanvill's uneventful life may be briefly summarized. He was born at Plymouth, in 1636. Of his earlier life and education we have no trustworthy record beyond a few casual hints scattered throughout his writings.[*Note 1.] He seems to have been brought up, if not as an extreme sectary, at least in some school of Puritanism which allowed small scope for independent judgment. Thus he tells us, in his "*Plus Ultra*" (p. 142): "In my first education I was continually instructed into a religious and fast adherence to everything I was taught, and a dread of disputing in the least article,"-- a mode of education which he was wont in after life vehemently to denounce. He entered the University of Oxford in 1652, and took his degree three years after. In the dearth of more direct information, his love of culture and mental independence may fairly be inferred from his associates. Thus he was a personal friend of, and for some few years chaplain to, the well-known Francis Rous, Provost of Eton, who, notwithstanding his Puritan proclivities, and the facility with which he accommodated himself to Cromwell's designs, was a man of considerable culture as well as liberality. Another of his theological friends was Baxter,[*Note 2.] while his circle of literary and scientific acquaintance comprised names as famous as Boyle and Meric Casaubon. Glanvill used to lament in after life that his friends had not sent him to Cambridge, so that he might have reached the "New Philosophy" of Descartes -- already domiciled in that University -- by a shorter route than that which his circumstances compelled him to follow. Indeed, the Aristotelianism which was still the ruling philosophy of Oxford seems to have sat as heavily on Glanvill's soul as did the Puritan dogmatism which was its prevailing type of religion. From these twin Incubi he resolved to free himself at the earliest possible moment. His liberation from Aristotle is marked by the publication of his first work, in 1661, while the Restoration may be taken as the date of his emancipation from the religious thralldom of Puritanism. No sooner had that event taken place, than Glanvill renounced the small modicum of Nonconformity he had hitherto professed, and took orders in the Church of England. Of this conduct Anthony Wood characteristically remarks, that at the Restoration "Glanvill turned about and became a Latitudinarian," but the altered position thus sneeringly alluded to was in Glanvill's case, as in that of others, not so much a change of front as a natural and inevitable movement in advance. His own judgment of such a transformation by development is indicated in his account of Bishop Rust, who similarly took advantage of the Restoration to "turn about" from Puritanism to the English Church. "He was one of the first," says Glanvill, "that

overcame the prejudices of the education of The late unhappy times in that University (Cambridge), and was very instrumental to enlarge others, He had too great a soul for the trifles of that age, and saw early the nakedness of phrases and fancies. He outgrew the pretended orthodoxy of those days, and addicted himself to the Primitive Learning and Theology, in which he even then became a great master." Glanvill soon became a marked man among the clergy of his time, and his preferment was rapid. First instituted to a small rectory in Essex, he was promoted shortly after to the vicarage of Frome, in Somerset. About the same date (1664) he was made a fellow of the newly-founded Royal Society -- an honour which he seems to have attained by his attack on Aristotle and Scholasticism, and his enlightened advocacy of the new methods of Descartes and Bacon. In 1666 he became Rector of the Abbey Church in Bath, and resided in that city until his death. In 1672 he exchanged the vicarage of Frome for the rectory of Street in Somerset, and about the same time was appointed one of the chaplains in ordinary to Charles II. A few years later (1678) he was installed Prebendary of Worcester. He died of fever in 1680, and was buried in the north aisle of the Abbey Church in Bath, where an inscription may still be seen recording his virtues, and insisting especially on the fact that the twenty-four years of his brief maturity were spent "*in studio et contemplatione verbi et operum Dei.*"

[*Note 1: Comp. Reliquie Baxteriane, Pt. II. P.378]

[*Note 2: The chief authorities for Glanvill's life -- all of them unsatisfactory -- are Prince's *Worthies of Devon*, p. 431, the *Biographia Britannica*, *ad. voc.*, and Horneck's Preface to Glanvill's Remains.]

Such are the chronological dry bones of Glanvill's life, and to these, so far as is known, nothing worthy of record can be added. The real extent of his fame and influence must not, however, be meted by the brevity and comparative unimportance of the chief events of his life -- the meagreness of his biographical data being largely compensated by the fulness of his literary remains. By his written works, now consigned to, in most instances, a most undeserved oblivion, Glanvill exercised no inconsiderable sway on English thought during the latter half of the 17th century. To the student of that period they still attest his high mental qualities, his keen intellectual perception, his variedly-sensitive imagination, what Wood terms his "quick, warm, spruce and gay fancy," his genial, many-sided receptivity, his fearlessness in enouncing his opinions, his quaint, pithy, pregnant and forcible style. Nor are they of less importance as reflecting the undercurrents of speculation then in activity among cultured Englishmen. Employing them for this latter purpose, and thereby illustrating the drift of the following treatise, we may take Glanvill as a fair exponent of the following thought-movements of his time. Thus he exemplifies:

1. The Reaction against Philosophical and Religious Dogmatism, which, though not caused, was materially aided by the collapse of the Puritan regime.
2. The study and advocacy of the foreign humanism imported into English literature in the 16th century, but the development of which had been arrested by the rapid growth of Puritanism and by the political troubles of the reigns of James I. and Charles I.
3. The liberalizing tendencies of English Theology, which centred around the school of Divines known as the Cambridge Platonists.
4. The early growth of experimental and natural Science, denoted by Bacon's works and the founding of the Royal Society.

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5. The imperfect conception of the true methods of scientific enquiry, which allowed the grossest superstitions a place side by side with the most enlightened researches of Science.

I. Glanvill was one of the first thinkers of the Restoration epoch to place on a philosophical basis the many-sided reaction which forms its chiefest characteristic. Just as Milton recognised an intensified ecclesiasticism in certain forms of Puritanism, Presbyter being but Priest "writ large," so Glanvill and others had no difficulty in detecting beneath its sour austerity and theoretical self-abasement a very real substratum of Omniscience. This was none the less specious in itself or less mischievous in operation for being ostensibly founded on religious sanctions, and assuming the place and function of a divine Revelation. From this standpoint of superior and superhuman knowledge, Puritanism opposed itself to all kinds. Its leaders, excepting a very few far-seeing thinkers, lumped all secular learning under the opprobrious title of "carnal knowledge." Their omniscience rendered all ordinary science superfluous, and the supposedly divine origin of their own enlightenment imparted to every other culture a kind of sinful character. Under these circumstances it was clearly necessary for liberal thinkers like Glanvill to enter the court of human judgment with the counter-plea of Ignorance. The attempt was in its essence precisely that which Socrates set himself in ancient Greece, and which the leaders of the Renaissance undertook when they opposed the dogmatism of mediaeval Rome. In fact, Glanvill and his fellow-thinkers were the apostles of the reactionary doubt which is invariably engendered by excessive or tyrannical dogma. The enterprise was not, however, exclusively secular in their case. The religious dogmatism which they opposed was only part of a general intellectual despotism, under which English thought of the freer sort had long groaned. Aristotle shared with Calvin supreme authority in English opinion -- his rule in the realms of science being as absolute as Calvin's in the domain of religious doctrine. There was indeed no little similarity in spirit and method between the two systems, as then conceived and administered; both agreed, e.g., in arrogating finality each in its own province, and therefore in opposing Novelty of Thought as the deadliest of human errors. According to Bacon's definition, Aristotle was Antichrist, and Glanvill, together with other free-thinkers, were not far wrong in discerning a similar antagonism to Truth in certain phases of Calvinism.

Against these twin giants, the "Pope and Pagan" of English Thought during the first half of the 17th century, Glanvill soon proceeded to set the battle in array. He attacked both the religious and scientific liberal culture of Dogmatism directly by pointing out their defects, and indirectly by inculcating as a counteracting principle what he terms the skeptical or free Philosophy. His first onslaught was made by his publication, in 1661, of a work entitled "*The Vanity of Dogmatizing or Confidence in Opinions*"--"A remarkable work," says Hallam, "but one so scarce as to be hardly known at all except by name." He republished this work in an altered and improved form in 1665, prefixing to it a warm panegyric on the Royal Society. This amended edition is even rarer than the "*Vanity of Dogmatizing*," the greater part of the impression having been destroyed in the Great Fire. Glanvill entitled it "*Scepsis Scientifica*," and it is this work which is presented to the English reader, after a lapse of two hundred and twenty years, in the ensuing pages.

But although he styled his thought *sceptical*, and himself a *sceptic*, Glanvill did not employ those terms in the commonly received sense of wanton or unreasonable disbelief, but in the classical meaning of enquiry and judicial suspense. It is true he is not careful to discriminate accurately between suspense and negation,

and his definition of *scepsis* is always in the most general terms,[*Note 3.] but there is no mistaking his usual conception of the principle or the mode of its application. It is best described as the principle opposed to excessive dogma, whether in Philosophy, Science or Religion. He defends his method in a noteworthy passage in the second of his collected essays (p. 44), which, as giving the key-note of the following treatise, deserves quotation.

"But the True Philosophers are by others accounted Sceptics from their way of Enquiry: which is not to continue still poring upon the writings and opinions of Philosophers, but to seek Truth in the great Book of Nature, and in that search to proceed with wariness and circumspection without too much forwardness in establishing maxims and positive doctrines: To propose their opinions as Hypotheses that may probably be the true accounts, without peremptorily affirming that they are. This among others hath been the way of those great men, the Lord Bacon and Descartes, and is now the method of the Royal Society of London, whose motto is *Nullius in Verba*. This is Scepticism with some, and if it be so indeed, 'tis such Scepticism as is the only way to sure and grounded knowledge, to which confidence in uncertain opinions is the most fatal enemy."

[*Note 3: Some mode of discrimination between Scepticism in its proper and primary sense of Enquiry, and in its perverted but usual sense of disbelief or Negation, seems urgently needed. The writer has endeavoured to effect this in his work, "*Evenings with the Sceptics*," and elsewhere, by spelling the word when employed in its original sense as *Skepticism*. The persistent confusion that occurs between Suspense and Negation, even in accredited works on Philosophy, is not very complimentary to the progress of human thought. Few persons seem able to realize that *Scepsis* is as much opposed to Dogmatic Negation as to Dogmatic Affirmation. In the following treatise the reader will find Glanvill's view of the relation between Suspense and Negation; and perhaps the writer may be pardoned for referring on the same point to his work on the Sceptics above-mentioned.]

That the mode of thought thus indicated was well adapted to the needs of the time is obvious, though Glanvill never loses sight of the fact that it is likely to operate only among comprehensive and cultured thinkers. Readers of the *Scepsis* will find in chaps. XXvi. and XXvii. remarks on the mischief which he considered had been caused in England by excessive dogma, and similar reflections occur throughout his works. In his defence of the *Scepsis*, e.g. he thus addresses his chief antagonist (Thomas White), who was a rabid Aristotelian: "If we differ, then, 'tis only in this, that you think it more suitable to the requisites of the present age to depress skepticism, and perhaps I look on dogmatizing and confident belief as the more dangerous and common evil." But although Glanvill designed his treatise as a counteractive to the thought-tendencies of his time, it is in itself an indirect outcome of the very influences which he deprecates. His assault on the Aristotelian Philosophy is conceived in the spirit and carried out by the method that marks mediaeval and scholastic Peripateticism, while he attacks current dogmatic Theology from the basis of the primary article in its creed. The latter point seems to merit a few remarks, as indicating the germ and evolution of his Skepticism. Curious as it may seem, it was a direct outgrowth of his Puritan education, for it had as its starting point, The Fallible nature of humanity by means of the Fall. Few things indeed are more remarkable among the many strange mutual relations of Philosophy and Theology than the reciprocal action of the Philosophical doctrine of the weakness of human reason, and the Theological Dogma of the natural degeneracy of mankind. While among the Greeks and ancient Hindus the experience of intellectual impotence and limitation induced a theory of natural fallibility, among Christian thinkers such as Augustine and Pascal the dogma of the fall issued into a Skeptical theory of Intellectual

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imperfection. Thus Skepticism is oftentimes found to be in Christian speculation nothing else than the philosophical form of Original Sin. In Glanvill's case the Theological form of the doctrine not only leads up to its philosophical form, but becomes merged and lost in it. He enlarges on this theme more in his *Vanity of Dogmatizing* than in his later *Scepsis Scientifica*. His introductory chapter in the former work consists of some bold speculations as to the perfection of Adam's Intellect before the Fall. So we are told that "all the powers and faculties of this copy of the Divinity, this medal of God, were as perfect as beauty and harmony in Idea. The soul was not clogged by the inactivity of its mass as ours; nor hindered in its actings by the distemperature of indisposed organs. Passions kept their place as servants of the higher powers, and durst not arrogate the throne as now . . . Even the senses, the soul's windows, were without any spot or opacity: to liken them to the purest crystal were to debase them by the comparison, . . . Adam needed no spectacles. The acuteness of his natural optics (if conjecture may have credit) showed him much of the celestial magnificence and bravery without a Galileo's tube: and 'tis most probable that his naked eyes could reach near as much of the upper world as we with all the advantages of Art. His sight could inform him whether the Loadstone doth attract by Atomical Effluvioms. It may be he saw the motion of the blood and spirits through the transparent skin as we do the workings of those little industrious animals (bees) through a hive of glasse Sympathies and Antipathies were to him no occult qualities, &c." (*Vanity of Dogmatizing*, pp. 5-7). Much of this introduction may justify Hallam's criticism of it as rhapsodical, and Glanvill's fanciful surmises, which are, however, not more extravagant than similar theological speculations of a bygone age, are considerably toned down in the "*Scepsis*," where the reader will find the following disclaimer, better becoming a Skeptic:--"But a particular knowledge of the blest advantages and happy circumstances of our primitive condition is lost with Innocence, and there are scarce any hints of conjecture from the present." Nevertheless, though more briefly and cautiously, the *Scepsis Scientifica* also insists upon man's inherent incapacity for knowledge, which Glanvill somewhat incongruously both laments as a lapse from his original perfection, and claims as a primary condition of wisdom. The second chapter is on "Our Decay and Ruines by the Fall," and consists of a lengthy elaboration of that subject. Succeeding chapters expand and illustrate the argument of human impotence, and insist on its only possible outcome of scepticism or judicial suspense on most moot points of speculation.

ii. But although the *Scepsis* has its germ in Theological Dogma, its final development in Glanvill's mind must be ascribed to other influences, viz., to the freethinking liberalizing culture which English literature of the 16th and 17th centuries had derived from Continental sources, chiefly from the leading thinkers of the Italian and French Renaissance. It is not sufficiently borne in mind that the Restoration, which brought back Charles II. and reinstated in a modified form the old monarchy, was also a Restoration of a literary movement which the civil troubles and rapid growth of Puritanism had arrested. During the Elizabethan era the works which still hold their place as the highest products of English culture were indebted largely for suggestion and shaping to Ariosto, Boccaccio, Dante, Montaigne, and Rabelais, and other names of "light and leading" in France and Italy; but during the Civil War and the Commonwealth this importation of foreign thought became almost extinct. The fact, no doubt, admits of easy explanation. These foreign commodities were held to be contraband, for the two reasons that they were incompetent to decide grave questions of political and religious controversy, and their free humanizing tendency

was diametrically opposed to the Puritan spirit. They shared the fate which befel all mere secular literature, all culture of the intellect for its own sake. They were sacrificed to that sour disdain of those graces which adorn and refine both letters and human life, which forms the ugliest feature of extreme Puritanism. But the stream of Continental enlightenment from whence Shakespeare and Spenser slaked their thirst had in reality not been destroyed by Puritanism, it had only been dammed, and when it burst its dykes at the Restoration, we cannot be surprised if it displayed all the greater force and volume on account of its confinement. Glanvill's works are among the earliest indications of this reflux of Continental thought. His chief teachers are Descartes, Montaigne, Charron, Gassendi. Many of the utterances in the *Scepsis* would suggest a close study of Montaigne's Essays. He often quotes him by name, and never without some commendatory epithet. But it is probable that Glanvill, like Sir Walter Raleigh in his *Sceptic*, may have been indebted largely for his sceptical reasonings either to Henry Stephens' translation of the Hypotyposes of Sextus Empeirikos, or to Gassendi's reproduction of the same arguments. In others of his writings Glanvill displays a similar predilection for the leading spirits of what he terms the Free Philosophy. This will serve to account for the suspicion and malevolence which his writings seem to have excited, for he became identified, albeit most unjustly (see his sermon, "Against Scoffing at Religion"), with the excessive libertinism which marked the thought and manners of Charles II.'s reign, and which was largely traceable to Continental sources. Not, however, that these supplied all the motive causes of the reaction. There can be little question that Puritanism, notwithstanding its undeniable merits, helped to engender by its excessive austerity the licence that ensued upon the Restoration. Glanvill fully recognised this fact, and often takes occasion to remark on it in his writings. Thus he observes sententiously in one of his sermons, "The (religious) follies and divisions of one age make way for Atheism in the next." Indeed, Puritanism itself had, as every oppressive scheme of human thought and conduct must needs have, its own licentious side, besides inducing a reactionary excess in other systems. This is abundantly shown by its own distinctive literature, such works, *e.g.* as Edwards' *Gangrena*, and Bailey's *Letters and Journals*. The aim of Glanvill was to direct as far as he could the swollen current of free thought into proper and innocent channels -- to show that Continental Humanism and Philosophy were reconcilable with a moderate and rational Christianity; in a word, to prevent intellectual liberty from becoming "a cloak of maliciousness." For such an attempt no commendation can be deemed excessive. The methods of Puritanism, with its extreme other-worldliness, its 'rigid formalism, its stress on minutiae in speculation and conduct, its malevolent opposition to every form of recreation and pleasure -- whatever appeared likely to enliven human existence -- had a peculiarly cramping, numbing influence on men's minds. It operated as Mephistopheles said of the school logic

"Da wird der Geist euch wohl dressirt
In Spanische stefeln eingeschnürt."

with the intensification that its strait-lacedness claimed to have a religious basis. Some mode of liberation from this narrow and fanatical obscurantism was urgently needed---what Glanvill indignantly terms "that Barbarism that made Magic of Mathematics and Heresy of Greek and Hebrew." What his proposed remedy was readers of the *Scepsis* will see for themselves; but there is one passage in his Essays wherein he speaks so explicitly of the broadening effects of Humanism and the Free

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Philosophy as opposed to current Superstition, Enthusiasm, and other foes of human Reason and Religion, that it merits quotation. The passage has an additional interest from its relation to Glanvill's well-known opinions on witchcraft. "Superstition consists either in bestowing religious valuation and esteem on things in which there is no good, or fearing those in which there is no hurt. So that this folly expresseth itself one while in doting upon opinions as fundamentals of Faith, and idolizing the little models of fancy for Divine Institutions, and then it runs away afraid of harmless indifferent appointments, and looks pale upon the appearance of any unusual effect of Nature. It tells ominous stories of every meteor of the night, and makes sad interpretations of each unwonted accident. All which are the products of Ignorance and a narrow mind, which defeat the design of Religion, that would make us of a free, manly, and generous spirit, and indeed represent Christianity as if it were a fond, sneaking, weak and peevish thing, that emasculates men's understandings, making them amorous of toys, and keeping them under the servility of childish fears, so that hereby it is exposed to the distrust of larger minds, and to the scorn of Atheists. These and many more are the mischiefs of superstition, as we have sadly seen and felt."

"Now against this evil spirit and its influences the real experimental Philosophy is one of the best securities in the world. For by a generous and open enquiry in the great field of Nature, men's minds are enlarged and taken off from all fond adherencies to their private sentiments. They are taught by it that certainty is not in many things, and that the most valuable knowledge is the practical. By which means they will find themselves disposed to more indifferency towards those petty notions in which they were before apt to place a great deal of religion; and to reckon that all that will signify lies in the few certain operative principles of the gospel and a life suitable to such a Faith. Besides which (by making the soul great), this knowledge delivers it from fondness on small circumstances, and imaginary models, and from little scrupulosities about things indifferent, which usually work disquiet in narrow and contracted spirits, and I have known divers whom Philosophy and not disputes, hath cured of this malady." (*Essay iv.*, pp. 13-14) In thus asserting a broad culture of Humanism and scientific thought as the best antidote to a narrow, intolerant Theology, Glanvill acted in conformity not only with his own free instincts, but with the best teachings of history -- no law of human progress being better attested than the beneficent effects of Nature study and liberal speculation, on those who have been dieted too exclusively on Theological food.

III. The last sentence of this passage is interesting as probably referring to the Latitudinarians, as they were termed by "men of narrower thoughts and fiercer tempers," says Burnet. They formed that party in the church who found refuge in Philosophical Research and Platonic metaphysics from the religious and other controversies of the time, and whose credenda might be succinctly described as Armenianism; A stress upon human Reason as against extraneous authority; Aversion to dogma on speculative subjects; Belief in Immutable Morality; Large if not universal tolerance of religious opinions; and Belief in the Pre-existence of Souls. It is true Glanvill's name does not occur in ordinary enumerations of the leaders of this party, or, if mentioned, occupies only a secondary place, but readers of the *Scepsis* will readily perceive how entirely his sympathies accord with the tenets we have just named. Indeed, with two of the most prominent members of the party, Dr. Henry More and Bishop Rust, he seems to have been on terms of personal and intimate friendship. It is however certain that he considered himself as much a member of that school of thought, as that he was a Fellow of the Royal Society. Nor does he manifest

any dislike to the epithet Latitudinarian, when duly interpreted, which was its customary designation. It conveyed a protest against narrowness and intolerance, which he appreciated just as heartily as Bishop Thirlwall in our day, and for the same reason, did the title of Broad Churchman. Omitting for lack of space other points of affinity which connect Glanvill with the Cambridge Platonists, we limit our remarks to his undogmatic and comprehensive presentation of Christianity, with regard to which he may claim a place second to none of the party.

Glanvill's view of the Christian Religion may be summed up by the epithets Primitive and Rational. Like Pascal he is an example of that appeal to the personal teaching of Christ, which is the best and only resource of the thoughtful intellect, when distracted by conflicting and irrational Dogmas. From the swollen and turbid stream of ecclesiastical tradition, he turns back to the pure and limpid fountain, which rises amid the mountains of Galilee. Hence he assures us that "he owns no opinion in Divinity which cannot plead the prescription of above 1600." . . . As a believer in Immutable Morality, he contends that, "Divine Truths were most pure in their source and Time could not perfect what Eternity began. Our Divinity, like the Grandfather of Humanity, was born in the fulness of Time, and in the strength of its manly vigour." He maintains a distinction in this respect between Natural and Divine Truth, "Natural Truths are more and more discovered by Time . . . But these Divine Verities are most perfect in their fountain, and original. They contract impurities in their streams and remote derivations." This theme, incidentally touched upon in the "*Scepsis*," is fully developed in his Essays, and in his sermon "On the Antiquity of our Faith" whence the last extract is taken. He calls the two great commandments of the Gospels, "Those Evangelical Unquestionables." The comparative allegiance he conceives himself to own to Primitive Christianity on the one hand, and the tenets of the English Church on the other, he thus indicates:-- "Contenting myself with a firm assent to the few Fundamentals of Faith, and having fixed that end of the compass, I desire to preserve my liberty as to the rest, holding the other in such a posture as may be ready to draw these lines, my judgment informed by the Holy Oracles, the Articles of our Church, the apprehensions of wise antiquity and my particular reason shall direct me to describe: and when I do that," he adds with noble and Christian tolerance, "'tis for myself and my own satisfaction. I am not concerned to impose my sentiments upon others, nor do I care to endeavour the change of their minds, though I judge them mistaken, as long as Virtue, the Interests of Religion, the Peace of the World, and their own, are not prejudiced by their errors." Glanvill's significant simile of the compasses, and his idea of the latitude the church allowed in ordinary matters of speculation, receives a further illustration from his preface to "*Lux Orientalis*." "It is none of the least commendable indulgences of our church that she allows us a latitude of judging in points of speculation, and ties not up men's consciences to an implicit assenting to opinions not necessary or fundamental . . . Nor is there less reason in this parental indulgence than there is of Christian charity and prudence; since to tie all others up to our opinions and to impose difficult and disputable matters under the notion of Confessions of Faith, and Fundamentals of Religion, is a most unchristian piece of tyranny, the foundation of persecution, and every root of Antichristianism." Nor is he unprepared with an answer to the delicate and crucial question -- What are Fundamentals? His reply forms the fifth of his Collected Essays, and of a sermon *ad clerum*, which he entitled λογου θρησκεια [Greek:logou threskeia] (The Service of Reason), to which we must refer our readers. Suffice it to say, that Glanvill's opinion of the essentials of Religion is marked by extreme simplicity, the most generous comprehension, and the noblest scorn of long and difficult Creeds and Confessions.

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Such schemes of Belief were, we need hardly say, very frequent during the years immediately following the Restoration. Hardly a Divine of note could be named, either among the clergy or the Nonconformists, who did not try his hand at devising a system of Belief for the National Church. As a rule these designs serve only to illustrate the narrow conceptions of the would-be ecclesiastical architects. The scheme propounded by Glanvill is probably unique for its exceedingly broad and undogmatic spirit. That it should have been deliberately put forth amid the scenes of ecclesiastical and political tyranny, which disgrace our annals from 1662 onwards, gives it the appearance almost of a grave satirical jest. The church erected on Glanvill's Fundamentals might have been acceptable to some ideal community -- some imaginary city of Bensalem, in New Atlantis -- it was evidently unsuited by its very excellencies for the England of the 17th century.

Iv. But Glanvill is not only an advocate of broad religious and literary culture, as required by the exigencies of his time, he also insists on a specific pursuit of natural science -- i.e. the New Philosophy of Experiment, such as was taught by Bacon, Descartes and the Royal Society. The advocacy was in truth urgently needed. For we must remember that this new movement of thought, notwithstanding a few propitious circumstances, soon found itself in antagonism to various reactionary forces, which followed upon the Restoration, and which may be described as a recoil towards Medievalism. It is true the Royal Society received its charter in 1662, and its small band of Fellows were doing their utmost to promote experimental Science as it was then understood; but this at first was no more than an insignificant back-eddy by the side of a broad and rapid onward current. Of this retrograde movement, the House of Commons, which as Macaulay says, "was more loyal than the King, and more Episcopal than the Bishops," was the political centre, but of its philosophical and Theological phases, the University of Oxford was the stronghold. Here then were two concurrent reactionary movements, each aided by the other, towards Scholasticism in Philosophy, and Sacerdotalism in Theology. The first took the form of an exclusive devotion to Aristotle, and the second so far shared this worship as to maintain that all the Philosophy and Science an orthodox divine needed were contained in the same repository of Greek wisdom. The advice of Marlowe's Faust:--

"Having commenced, be a Divine in show,
Yet level at the end of every art,
And live and die in Aristotle's works,"

Still summarized the essentials of clerical training as taught by the largest English University. Bearing this in mind, we are able to discern what the animus against Aristotle, disclosed in the *Scepsis Scientifica*, and Glanvill's other writings, really signified. It was not mere opposition to the doctrines of the greatest of Greek Scientific Teachers. From his long and intimate connexion, almost amounting to identification, with medieval Catholicism, the name of Aristotle had become the symbol of pre-Reformation ideas, not only in Philosophy, but in Theology as well. It was the recognized banner of an antiquated Dogmatism, from which the freer minds of Europe were detaching themselves. The extent of this movement which had derived impetus from the ascendancy of Puritanism (for all the leading Calvinists were Aristotelians) is sufficiently shown by the number of Peripatetic Teachers contemporary with Glanvill, and some of them his own personal antagonists. Even enlightened thinkers, like Meric Casaubon, felt compelled to take up arms in defence of the Stagirite, and to deprecate a too hasty or complete sundering of the associations

that clustered round his venerable name. If among a number of concurrent causes, any single one be selected as the chief power, which in England helped to dethrone Aristotle, and the medievalism with which his name had become identified, it is the foundation of the Royal Society, and the newly awakened enthusiasm, on behalf of Natural Science, of which it was the focus. Those who have dipped into the earlier volumes of the Philosophical Transactions, are aware of the fact that the proceedings of the Society constituted at first a kind of tacit crusade against Aristotle. No doubt the Society itself was only a practical outcome of the Philosophies of Bacon and Descartes, but it is characteristic of the English intellect, that mere philosophical theory obtains little popular recognition until it has been embodied, enforced and illustrated by actual experiment. Glanvill was a foremost combatant in the struggle. He came forward as the advocate of Freethought and experimental Science, the uncompromising foe of Aristotelianism, the enthusiastic disciple of Bacon and Descartes. To the great French thinker we must ascribe a preponderating share in the moulding of his intellect, for though his veneration for Bacon was great, it was exceeded by his regard for Descartes, whom he addresses in terms of fulsome, and even extravagant, panegyric. He speaks of him as "the grand Secretary of Nature, the miraculous Descartes." "That great man, possibly the greatest that ever was," &c. Probably the more critical analytic and direct method of the French Thinker was better suited to Glanvill's intellect than the practical, yet somewhat ponderous, system of the English Philosopher. Certainly the *Discourse on Method* afforded a shorter road to Skepticism than the devious route supplied by the *Novum Organum*.

Besides the attack on Aristotle contained in the *Scepsis* Glanvill returns to the subject in more than one of his subsequent writings, especially in his work *Plus Ultra*, published in 1668, and afterwards epitomized in the third of his collected *Essays* "Of the modern Improvements of Useful Knowledge." His stand-point in the *Plus Ultra*, and his other writings on the same topic, are even now of considerable interest. We are thereby made aware that Glanvill's age was emphatically an age of Discovery and Invention in every department of human knowledge. Galileo's "tube" was as yet a novelty; Harvey had not long discovered the circulation of the blood; the Barometer, Thermometer, Microscope and Air-pump were comparatively recent inventions. New discoveries in Geography, and thereby, as Glanvill remarked, a larger field for human speculation were of continual occurrence. At the very time the *Plus Ultra* was published, Newton, then a young man of twenty-four, was pursuing those studies which gave to Glanvill's enthusiastic forecast of the future a far more prophetic character than he, even in his most sanguine moments, would have dared to anticipate. In short, the human intellect, after long and devious wanderings, had reached the bounds of the "Wonderland" of Modern Science, and expectation was rife as to the disclosures likely to follow; Glanvill was one of the first to prognosticate a glorious future for English and European Science. His enthusiasm is in part depicted in his address to the Royal Society, prefixed to the *Scepsis*. But its fullest expression is found in his *Plus Ultra*. This is indeed a cheering cry of "Forward" for all lovers of Knowledge, as well as a much needed protest against the Dogmatic and Immobile "Ne Plus Ultra" of the past.

v. It is with regret that we turn from that phase of Glanvill's intellect which has most affinity with the present to another aspect of it, closely allied with the remote past, from the enlightened advocate of natural Science to the apologist for antiquated and gross superstition, from the author of *Scepsis Scientifica* and *Plus Ultra* to the writer of *Sadducismus Triumphatus; or, a Full and Plain Evidence*

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concerning Witches and Apparitions. Such a conjunction is, however, not unparalleled. Many instances occur both among ancient and modern thinkers of a cautious skepticism in one direction being counterbalanced by a surplusage of faith in another. Nor is Glanvill's philosophical suspense totally unrelated to his witch-beliefs. Skepticism, we must remember, is largely a cleansing process, and may possibly result in the admission into the swept and garnished intellect of some other spirits more wicked than the single one exorcised. He indeed calls attention to the connexion between his *Scepsis* and his Book on Witches (*Sad. Tri.* p. 7), the plea for the existence of such supernatural beings as witches being based on that very ignorance of the hidden processes of Nature which it is the object of the *Scepsis* to set forth and demonstrate. There are besides other points of connexion between this superstition of Glanvill's and his general environment and mental conformation. With all his desire to emancipate himself from the Puritanism of the Commonwealth, his thought betrays occasional sympathies with its origin, as we have already incidentally noted. Here, at least, he is in full accord with the despised Sectaries. No article of Puritan faith was more firmly grounded than that which related to the reality and malefic power of witches, and Glanvill's work on the subject is only one of a large number written by "enthusiasts" and Sectaries whose other credenda he would have disdainfully rejected. No doubt the dominating element in his intellectual formation was not Sentiment nor Intuition, but Reason. Still, it was Reason qualified by emotional sensitiveness, as well as by an eager powerful imagination, which sometimes carried him further than he wanted to go. His "warm, spruce and gay fancy" is apparent in all his works, even in those which treat of science and philosophy; but in no direction does he allow it freer flight than within the confines of the spirit world. We must therefore find in his uncompromising belief in the existence and perpetual activity of non-material Beings a primary motive of his witch-faith. But the work had also a polemical object. It was written to confute the materialists of his time. "'Tis well known," he says, "that the Sadducees denied the existence of spirits and the Immortality of Souls, and the heresie is sadly revived in our days." (*Essay* iv. p. 8). On the truth of the latter statement it is needless to dilate. All who are acquainted with the chief under-currents of English speculation during the latter half of Charles II.'s reign are aware that not the least influential among them was an unthinking and gross materialism, -- which was in itself, let us add, only the natural reaction of Puritan dogmatism -- as to the manifold activities of the world of spirits. This materialism Glanvill attacks in the most vehement fashion. Not only was the denial of spirits unjustifiable, but it was unphilosophical. It set an absolute barrier to speculation. It asserted a finality which was both arbitrary and incapable of proof, and it left many unquestioned facts in human history without any rational basis. But once the existence and continuous energy of good spirits were admitted, then, according to Glanvill, there must needs be bad spirits as well, and their activities will probably be no less varied. The inference, though in an opposite direction, was precisely that by which Göethe's Supernaturalist on the Brocken inferred the existence of good spirits:

"Denn von den Teufeln kann ich ja
Auf Gute Geister schliessen."

We have no space to dwell further on Glanvill's "Vanquished Sadducieism," nor to resuscitate the Demon of Tedworth and other fantastic spectres of equal authenticity from the oblivion which is their just due. The argument of the book is in form Inductive. Glanvill bases his proof on what he terms a choice collection of

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modern Relations, but it is in truth a travesty of the Inductive method, and betrays a ludicrous misconception of the nature of human testimony. But while we assign to Glanvill's witch-beliefs their merited estimate, we must remember that we cannot fairly blame him for not being in advance of his time. His benighted condition on this subject was shared by most of his compeers in English thought. Boyle, Henry More, Meric Casaubon, Baxter, Cudworth, all believed fully in Witchcraft, and most of them wrote in its defence. Glanvill's own co-Fellows of the Royal Society were similarly fully persuaded of the truth of Alchymy, and in some cases attested their scientific instincts by a diligent search for the philosopher's stone. Bacon himself believed in the transmutation of metals, and Sir Kenelm Digby's sympathetic powder and weapon salve found numerous recipients as credulous as their author. On the whole, then, while we cannot exonerate the author of the *Scepsis* from sharing an unworthy and degrading superstition, we must allow him the extenuating circumstances which are always due when a man's errors are the outcome of his environment. After all, a thinker's claim to stand in the forefront of the speculation of his time must be determined not by an impossible freedom from all the errors by which he is surrounded, but by such a comparative immunity from some of them, as enables him to reach forward to, and represent the Knowledge and enlightenment of the Future. Readers of the *Scepsis*, the *Plus Ultra*, and the collected "*Essays*," will have no difficulty in claiming such a position for Joseph Glanvill.

Our space rather than the interest of the subject is exhausted. All we have attempted is to set before the readers of the ensuing treatise, such particulars as to the life and thought of its author as seemed likely to enhance their appreciation of his work, and to aid its fuller comprehension. Let us add, that the spirit and intent of Glanvill's work seems to us of more durable worth than its form, though this also is charged with manifold interest. As long as men are constituted as they are, the peace and welfare of the world will always be imperilled by excessive dogma, or too confident Belief on many moot points of speculation, not only in Philosophy and Theology, but in Science, Politics, and other departments of human thought which deal with indeterminable matters and issues, and therefore there will always be room for a Scientific Skepticism -- for the enquiry and judicial suspense of the truly wise man.

AN ADDRESS TO THE ROYAL SOCIETY.

Illustrious Gentlemen,

The name of your honorable society is so august and glorious, and this trifle to which I have prefixed it, of so mean, and so unsuitable a quality; that 'tis fit I should give an account of an action so seemingly obnoxious. And I can expect no other from those, that judge by first sights and rash measures, then to be thought fond or insolent; or, as one that hath unmeet thoughts of himself, or you. But if a naked profession may have credit in a case wherein no other evidence can be given of an intention; I adventured not on this address upon the usual motives of dedications. It was not upon design to credit these papers (which yet derive much accidental honour from the occasion.) Nor to compliment a society so much above flattery, and the regardless air of common applauses. I intended not your illustrious name the dishonour of being fence against detraction for a performance, which possibly deserves it. Nor was it to publish how much I honour you; which were to fancy myself considerable. Much less was I so fond, to think I could contribute anything to a constellation of worthies from whom the learned world expects to be informed. But, considering how much it is the interest of mankind in order to the advance of knowledge, to be sensible they have not yet attained it; or at least, but in poor and diminutive measures; and regarding your society as the strongest argument to persuade a modest and reserved diffidence in opinions, I took the boldness to borrow that deservedly celebrated name, for an evidence to my subject; that so what was wanting in my proof, might be made up in the example. For if we were yet arrived to certain and infallible accounts in nature, from whom might we more reasonably expect them then from a number of men, whom, their impartial search, wary procedure, deep sagacity, twisted endeavours, ample fortunes, and all other advantages, have rendered infinitely more likely to have succeeded in those enquiries; then the sloth, haste, and babble of talking disputants; or the greatest industry of single and less qualified attempters? If therefore those (whom, I am in no danger of being disbelieved by any that understand the world and them, if I call the most learned and ingenious society in Europe.) If they, I say, confess the narrowness of human attainments, and dare not confide in the most plausible of their sentiments; if suck great and instructed spirits think we have not as yet phenomena enough to make as much as hypotheses; much less, to fix certain laws and prescribe methods to nature in her actings: what insolence is it then in the lesser size of mortals, who possibly know nothing but what they gleaned from some little system, or the disputes of men that love to swagger for opinions, to boast infallibility of knowledge, and swear they see the sun at midnight.

Nor was this the only inducement to the dishonour I have done you in the direction of these worthless papers; but I must confess I designed hereby to serve myself in another interest. For having been so hardy as to undertake a charge against the philosophy of the schools, and to attempt upon a name which among some is yet very sacred, I was liable to have been overborne by a torrent of authorities, and to have had the voice of my single reason against it, drowned in the noise of multitudes of applauders: that I might not therefore be vapoured down by insignificant testimonies, or venture bare reasons against what the dotting world counts more valuable, I presumed to use the great name of your society to annihilate all such arguments. And I cannot think that any, that is but indifferently impudent, will have the confidence to urge, either the greatness of the author, or the number of its

admirers in behalf of that philosophy, after the Royal Society is mentioned. For though your honourable and ingenious assembly hath not so little to do, as to dispute with men that count it a great attainment to be able to talk much, and little to the purpose: and though you have not thought it worth your labour to enter a professed dissent against a philosophy which the greatest part of the virtuosi, and enquiring spirits of Europe have deserted, as a mere maze of words, and useless contrivance: yet the credit which the mathematics have with you, your experimental way of enquiry, and mechanical attempts for solving the phenomena; besides that some of you (to whose excellent works the learned world is deeply indebted) publicly own the Cartesian and atomical hypotheses; these, I say, are arguments of your no great favour to the Aristotelian. For indeed that disputing physiology is of no accommodation to your designs; which are not to teach men to cant endlessly about *materia*, and *forma*; to hunt chimeras by rules of art, or to dress up ignorance in words of bulk and sound, which shall stop the mouth of enquiry, and make learned fools seem oracles among the populace: but the improving the minds of men in solid and useful notices of things, helping them to such theories as may be serviceable to common life, and the searching out the true laws of matter and motion, in order to the securing of the foundations of religion against all attempts of mechanical atheism.

In order to the furtherance (according to my poor measure) of which great and worthy purposes, these papers were first intended. For perceiving that several ingenious persons whose assistance might be conducive to the advance of real and useful knowledge, lay under the prejudices of education and customary belief; I thought that the enlarging them to a state of more generous freedom by striking at the root of pedantry and opinionative assurance would be no hindrance to the world's improvement. For such it was then that the ensuing essay was designed; which therefore wears a dress, that possibly is not so suitable to the graver geniuses, who have outgrown all gaieties of style and youthful relishes; but yet perhaps is not improper for the persons, for whom it was prepared. And there is nothing in words and styles but suitableness, that makes them acceptable and effective. If therefore this discourse, such as it is, may tend to the removal of any accidental disadvantages from capable ingenuities, and the preparing them for inquiry, I know you have so noble an ardour for the benefit of mankind, as to pardon a weak and defective performance to a laudable and well-directed intention. And though, if you were acted by the spirit of common mortals, you need not care for the propagation of that gallantry and intellectual grandeur which you are so eminently owners of since 'tis a greater credit, and possibly pleasure, to be wise when few are so; yet you being no factors for glory or treasure, but disinterested attempters for the universal good, cannot but favourably regard anything, that in the least degree may do the considering world a kindness; and to enable it with the spirit that inspires the Royal Society, were to advantage it in one of the best capacities in which it is improvable. These papers then (as I have intimated) having been directed to an end subordinate to this, viz., the disposing the less stupid minds for that honour and improvement; I thought it very proper to call up their eyes to you, and to fix them on their example: that so natural ambition might take part with reason and their interest to encourage imitation. In order to which, I think it needless to endeavour to celebrate you in a professed encomium; since customary strains and affected juvenilities have made it difficult to commend, and speak credibly in dedications; and your deserts, impossible in this. So that he that undertakes it, must either be wanting to your merits, or speak things that will find but little credit among those that do not know you. Or, possibly such, as will be interpreted only as what of course is said on such occasions, rather because 'tis usual,

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then because 'tis just. But the splendour of a society, illustrious both by blood and virtue, excuseth my pen from a subject, in which it must either appear vain, or be defective. I had much rather take notice therefore, how providentially you are met together in days, wherein people of weak heads on the one hand, and vile affections on the other, have made an unnatural divorce between being wise and good. These conceiving reason and philosophy sufficient vouchees of licentious practices and their secret scorn of religion; and those reckoning it a great instance of piety and devout zeal, vehemently to declaim against reason and philosophy. And what result can be expected from such supposals, that 'tis a piece of wit and gallantry to be an atheist, and of atheism to be a philosopher, but irreligion on the one side, and superstition on the other, which will end in open irreclaimable atheism on both? Now it seems to me a signality in providence in erecting your most honourable society in such a juncture of dangerous humours, the very mention of which is evidence, that atheism is impudent in pretending to philosophy; and superstition sottishly ignorant in fancying, that the knowledge of nature tends to irreligion. But to leave this latter to its conceits, and the little impertinencies of humour and folly it is fond of: the former is more dangerous, though not more reasonable. For where 'tis once presumed, that the whole fabric of religion is built upon ignorance of the nature of things; and the belief of a God, ariseth from unacquaintance with the laws of matter and motion; what can be the issue of such presumptions, but that those that are so persuaded, should desire to be wise in a way that will gratify their appetites: and so give up themselves to the swinge of their unbounded propensions? Yea, and those, the impiety of whose lives makes them regret a deity, and secretly wish there were none will greedily listen to a doctrine that strikes at the existence of a being, the sense of whom is a restraint and check upon the licence of their actions. And thus all wickedness and debauches will flow in upon the world like a mighty deluge, and beat down all the banks of laws, virtue, and sobriety before them.

Now though few have yet arrived to that pitch of impiety, or rather folly, openly to own such sentiments; yet, I doubt, this concealment derives rather from the fear of man, men from the love or fear of any being above him. And what the confident exploding of all immaterial substances, the unbounded prerogatives are bestowed upon matter, and the consequent assertions, signify, you need not be informed. I could wish there were less reason to suspect them branches of a dangerous cabbala. For the ingenious world being grown quite weary of qualities and forms, and declaring in favour of the mechanical hypothesis, (to which a person that is not very fond of religion is a great pretender) divers of the brisker geniuses, who desire rather to be accounted wits, then endeavour to be so, have been willing to accept mechanism upon Hobbian conditions, and many others were in danger of following them into the precipice. So that 'tis not conceivable how a more suitable remedy could have been provided against the deadly influence of that contagion, than your honourable society, by which the meanest intellects may perceive, that mechanic philosophy yields no security to irreligion, and that those that would be genteely learned and ingenious, need not purchase it, at the dear rate of being atheists. Nor can the proleptical notions of religion be so well defended by the professed servants of the altar, who usually suppose them, and are less furnished with advantages for such speculations; so that their attempts in this kind will be interpreted by such as are not willing to be convinced, as the products of interest, or ignorance in mechanics; which suspicions can never be derived upon a society of persons of quality and honour, who are embodied for no other interest but that of the public, and whose abilities in this kind are too bright to admit the least shadow of the other censure. And 'tis to be hoped

that the eminence of your condition, and the gallantry of your principles, which are worthy those that own them, will invite gentlemen to the useful and ennobling study of nature, and make philosophy fashionable; whereas while that which the world calls so, consisted of nought but dry spinosities, lean notions, and endless alterations about things of nothing, all unbecoming men of generous spirit and education; of use nowhere but where folks are bound to talk by a law, and professed by few but persons of ordinary condition; while, I say, philosophy was of such a nature, and clothed with such circumstances, how could it be otherwise then contemptible, in the esteem of the more enfranchised and sprightly tempers? So that your illustrious society hath redeemed the credit of philosophy; and I hope to see it accounted a piece of none of the meanest breeding to be acquainted with the laws of nature and the universe. And doubtless there is nothing wherein men of birth and fortune would better consult their treble interest of pleasure, estate, and honour, than by such generous researches. In which (1.) They'll find all the innocent satisfactions which use to follow victory, variety, and surprise, the usual sources of our best tasted pleasures. And perhaps human nature meets few more sweetly relishing and cleanly joys, than those, that derive from the happy issues of successful trials: yea, whether they succeed to the answering the particular aim of the naturalist or not; 'tis however a pleasant spectacle to behold the shifts, windings and unexpected caprichios of distressed nature, when pursued by a close and well managed experiment. And the delights which result from these nobler entertainments are such, as our cool and reflecting thoughts need not be ashamed of. And which are dogged by no such sad sequels as are the products of those titillations that reach no higher then fancy and the senses. And that alone deserves to be called so, which is pleasure without guilt or pain. Nor (2.) have the frugaller sons of fortune any reason to object the costliness of the delights we speak of; since, in all likelihood, they frequently pay dearer for less advantageous pleasures. And it may be there are few better ways of adding to what they are afraid to waste, then inquiries into nature. For by a skilful application of those notices, may be gained in such researches, besides the accelerating and bettering of fruits, emptying mines, draining fens and marshes, which may hereby be effected, at much more easy and less expensive rates, then by the common methods of such performances: I say, besides these, lands may be advanced to scarce credible degrees of improvement, and innumerable other advantages may be obtained by an industry directed by philosophy and mechanics, which can never be expected from drudging ignorance. But though those inquisitive pursuits of things should make out no pretence to pleasure or advantage; yet upon the last account (3.) Of honour, they are infinitely recommendable to all that have any sense of such an interest. For 'tis a greater credit, if we judge by equal measures, to understand the art whereby the almighty wisdom governs the motions of the great automaton, and to know the ways of captivating nature, and making her subserve our purposes and designments; than to have learnt all the intrigues of policy, and the cabals of states and kingdoms; yea, then to triumph in the head of victorious troops over conquered empires. Those successes being more glorious which bring benefit to the world; then such ruinous ones as are dyed in human blood, and clothed in the livery of cruelty and slaughter.

Nor are these all the advantages upon the account of which we owe acknowledgments to providence for your erection; since from your promising and generous endeavours, we may hopefully expect a considerable enlargement of the history of nature, without which our hypotheses are but dreams and romances, and our science mere conjecture and opinion. For while we frame schemes of things without consulting the phenomena, we do but build in the air, and describe an

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imaginary world of our own making, that is but little akin to the real one that God made. And 'tis possible that all the hypotheses that yet have been contrived, were built upon too narrow an inspection of things, and the phases of the universe. For the advancing day of experimental knowledge discloseth such appearances, as will not lie even, in any model extant. And perhaps the newly discovered ring about Saturn, to mention no more, will scarce be accounted for by any system of things the world hath yet been acquainted with. So that little can be looked for towards the advancement of natural theory, but from those, that are likely to mend our prospect of events and sensible appearances; the defect of which will suffer us to proceed no further towards science, then to imperfect guesses, and timorous supposals. And from whom can this great and noble acquist be expected, if not from a society of persons that can command both wit and fortune to serve them, and professedly engage both in experimental pursuits of nature?

The desired success of which kind of engagements cannot so reasonably be looked for from any in the known universe, as from your most honourable society, where fondness of preconceived opinions, sordid interests, or affectation of strange relations, are not like to render your reports suspect or partial, nor want of sagacity, fortune, or care, defective: some of which possibly have been ingredients in most former experiments. So that the relations of your trials may be received as undoubted records of certain events, and as securely be depended on, as the propositions of euclid. Which advantage cannot be hoped from private undertakers, or societies less qualified and conspicuous then yours. And how great a benefit such a natural history as may be confided in, will prove to the whole stock of learned mankind, those that understand the interest of the inquiring world may conjecture. Doubtless, the success of those your great and catholic endeavours will promote the empire of man over nature; and bring plentiful accession of glory to your nation; making Britain more justly famous then the once celebrated Greece; and London the wiser Athens. For you really are what former ages could contrive but in wish and romances; and Solomon's house in the new Atlantis was a prophetic scheme of the Royal Society. And though such august designs as inspire your enquiries, use to be derided by drolling fantastics, that have only wit enough to make others and themselves ridiculous: yet there's no reproach in the scoffs of ignorance; and those that are wise enough to understand your worth, and the merit of your endeavours, will condemn the silly taunts of fleering buffoonery; and the jerks of that wit, that is but a kind of confident, and well-acted folly. And 'tis none of the least considerable expectations that may be reasonably had of your society, that 'twill discredit that toyishness of wanton fancy; and pluck the misapplied name of the wits, from those conceited humourists that have assumed it; to bestow it upon the more manly spirit and genius, that plays not tricks with words, nor frolics with the caprices of frothy imagination: but employs a severe reason in enquiries into the momentous concernments of the universe.

On consideration of all which accounts, I think it just you should have acknowledgments from all the sons and favourers of wisdom: and I cannot believe it a crime for me to own my part of those obligations (though in a slender offering) for which all the thoughtful and awakened world is your debtor; no more then 'twas a fault to pay the tribute penny to Caesar, or is a piece of guilt to be dutiful. And though perhaps I have not so well consulted the repute of my intellectuals, in bringing their weaknesses and imperfections into such discerning presences; yet I am well content, if thereby I have given any proof of an honest will, and well-meaning morals; and I think, I can without repugnance sacrifice the former, to an occasion of gaining myself

this latter and better testimony; of which disposition, I say, I am now giving an instance in presenting so illustrious an assembly with a discourse, that hath nothing to recommend it, but the devotion wherewith 'tis offered them. And really when I compare this little and mean performance, with the vastness of my subject; I am discouraged by the disproportion: and methinks I have brought but a cockle-shell of water from the ocean: whatever I look upon within the amplitude of heaven and earth, is evidence of human ignorance; for all things are a great darkness to us, and we are so unto ourselves: the plainest things are as obscure, as the most confessedly mysterious; and the plants we tread on, are as much above us, as the stars and heavens. The things that touch us are as distant from us, as the pole; and we are as much strangers to ourselves, as to the inhabitants of america. On review of which, methinks I could begin anew to describe the poverty of our intellectual acquisitions, and the vanity of bold opinion; which the dogmatists themselves demonstrate in all the controversies they are engaged in; each party being confident that the other's confidence is vain; from which a third may more reasonably conclude the same of the confidence of both. And methinks there should need no more to reduce disputing men to modest acknowledgments, and more becoming temper, than the consideration; that there is not anything about which the reason of man is capable of being employed, but hath been the subject of dispute, and diversity of apprehension. So that, as the excellent Lord Montaigne hath observed, [mankind is agreed in nothing; no, not in this, that the heavens are over us;] every man almost differing from another; yea, and every man from himself: and yet every man is assured of his own schemes of conjecture, though he cannot hold this assurance, but by this proud absurdity, that he alone is in the right, and all the rest of the world mistaken. I say then, there being so much to be produced both from the natural and moral world to the shame of boasting ignorance; the ensuing treatise, which with a timorous and unassured countenance adventures into your presence, can pride itself in no higher title, than that of an essay, or imperfect offer at a subject, to which it could not do right but by discoursing all things. On which consideration, I had once resolved to suffer this trifle to pass both out of print and memory; but another thought suggesting, that the instances I had given of human ignorance were not only clear ones, but such as are not so ordinarily suspected; from which to our shortness in most things else, 'tis an easy inference, and *a potiori*, I was persuaded, and somewhat by experience, that it might not be altogether useless in the capacities 'twas intended for: and on these accounts I suffered this publication; to which (without vanity I speak it) I found so faint an inclination, that I could have been well content to suffer it to have slipped into the state of eternal silence and oblivion. For I must confess that way of writing to be less agreeable to my present relish and genius; which is more gratified with manly sense, flowing in a natural and unaffected eloquence, than in the music and curiosity of fine metaphors and dancing periods. To which measure of my present humour, I had endeavoured to reduce the style of these papers; but that I was loth to give myself that trouble in an affair, to which I was grown too cold to be much concerned in. And this inactivity of temper persuaded me, I might reasonably expect a pardon from the ingenious, for faults committed in an immaturity of age and judgment that would excuse them; and perhaps I may have still need to plead it to atone for the imperfections of this address: by which, though I have exposed deformities to the clearest sunshine, that some others prudence would have directed into the shades and more private recesses; yet I am secure to lose nothing by the adventure that is comparably valued by me as is the honour of declaring myself,

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Illustrious gentlemen,
The most humble admirer of your august Society,
Jos. Glanvill.

Scepsis Scientifica;
or,
The Vanity of Dogmatizing

Chap. I.

A general description of the state of primitive ignorance; by way of introduction.

WHATEVER is the innocence and infelicity of the present state, we cannot, without affronting the divine goodness, deny, but that at first we were made wise and happy; for nothing of specific imperfection or deformity could come from the hands that were directed by an almighty wisdom; so that, whatever disorders have since befallen them, all things were at first disposed by an omniscient intellect that cannot contrive ineptly; and ourselves exactly formed according to the deeds of that mind, which frames things consonantly to the rules of their respective natures. But a particular knowledge of the blest advantages, and happy circumstances of our primitive condition, is lost with innocence; and there are scarce any hints of conjecture from the present. However, this perhaps we may safely venture on by way of general description:

That the eternal wisdom from which we derive our beings, enriched us with all those enoblements that were suitable to the measures of an unstraightned goodness, and the capacity of such a kind of creature. And as the primogenial light which at first was diffused over the face of the unfashioned charrs, was afterwards contracted into the fountain luminaries; so those scattered perfections which were divided among the several ranks of inferior natures, were summed up, and constellated in ours. Thus the then happy temper of our condition and affairs anticipated the aspires to be like gods; and possibly was scarce to be added to as much as in desire. But the unlikeness of it to our now miserable, because apostate, state, makes it almost as impossible to be conceived, as to be regained. 'Twas a condition envied by creatures that nature had placed a sphere above us; and such as differed not much from glory and blessed immortality but in perpetuity and duration.

For since the most despicable and disregarded pieces of decayed nature are so curiously wrought, and adorned with such eminent signatures of divine wisdom as speak it their author, and that after a curse brought upon a disordered universe: with how rich an embroidery then think we were the nobler composures dignified in the days of spotless innocence? And of how sublime a quality were the perfections of the creature that was to wear the image of the prime perfection? Doubtless, they were as much above the hyperboles that fond poetry bestowes upon its admired objects, as their flattered imperfect beauties are really below them. And the most refined glories of subcelestial excellencies are but more faint resemblances of these. For all the powers and faculties of this copy of the divinity, this medal of God, were as perfect, as beauty and harmony in idea. The soul being not cloyed by an unactive mass, as now; nor hindered in its actings, by the distemperature of indisposed organs, passions kept their place, and transgressed not the boundaries of their proper natures; nor were the disorders began which are occasioned by the licence of unruly appetites. Now though perhaps some will not allow such vast advantages to the terrestrial Adam, which they think not consistent with the history, and circumstances of his defection:

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yet those that suppose the allegory and preexistence, will easily admit all this, and more of the ethereal condition. But I'll not determine anything in matters of so high and difficult a nature; whichever is the truth, this general account I have given is not concerned; I asserting only what both will acknowledge, that the first condition of our natures was a state of blessedness and perfection.

Chap. II.**Our decay and ruins by the fall; particularly those of our intellectual powers.**

BUT, 'tis a miserable thing to have been happy. And a self-contracted wretchedness, is a double one. Had felicity always been a stranger to our natures, our now misery had been none; and had not ourselves been the authors of our ruins, less, we might have been made unhappy, but since we are miserable we chose it. He that gave them, might have taken from us our other enjoyments, but nothing could have robbed us of innocence but ourselves. That we are below the angels of God is no misery, 'tis the lot of our natures: but that we have made ourselves like the beasts that perish, is severely so, because the fruit of a voluntary defection. While man was innocent he was likely ignorant of nothing, that imported him to know. But when he had transgressed, the fault that opened his eyes upon his shame, shut them up from most things else, but his newly purchased misery. He saw the nakedness of his soul with that of his body, and the blindness and disarray of his faculties, which his former innocence was a stranger to. And what disclosed this poverty and these disorders, caused them, whether the understanding and affections were the most criminal authors of that unhappy defailance, need not be disputed. And how evils should commence in so blessed a constitution of affairs, and advantageous temper of them both, will perhaps difficultly be determined: merciful heaven having made it easier to know the cure, than the rise of our distempers. This is certain, that our masculine powers are deeply sharers of the consequential mischiefs; and though Eve were the first in the disobedience, yet was Adam a joint partaker of the curse: so that we are not now like the creatures we were made, but have lost both our maker's image, and our own. And possibly the beasts are not more inferior to us, than we are to our ancient selves: a proud affecting to be like gods having made us unlike men. For (to pass the other instances of our degradation which indeed were a plentiful subject, but not so press to my design) our intellectual and highest faculties are deplorable evidence of our ruins. And upon these I shall fix my observations.

For whereas our ennobled understandings could once take the wings of the morning, to visit the world above us, and had a glorious display of the highest form of created excellencies, they now lie groveling in this lower region, muffled up in mists, and darkness: the curse of the serpent is fallen upon degenerated man, to go on his belly and lick the dust. And as in the Cartesian hypothesis, the planets sometimes lose their light, by the fixing of the impurer scum; so our impaired intellects, which were once as pure light and flame in regard of their vigour and activity, are now darkened by those grosser spots, which disobedience hath contracted. And our now overshadowed souls (to whose beauties stars were foils) may be exactly emblem'd, by those crusted globes, whose influential emissions are intercepted, by the interposal of the benighting element, while the purer essence is imprisoned by the gross and impervious matter. For these once glorious lights, which did freely shed abroad their harmless beams, and wantoned in a larger circumference, are now pent up in a few first principles (the naked essentials of our faculties) within the straight confines of a prison. And whereas knowledge dwelt in our undepraved natures, as light in the sun, in as great plenty, as purity; it is now hidden in us like sparks in a flint, both in scarcity and obscurity.

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For, considering the shortness of our intellectual sight, the deceptibility and impositions of our senses, the tumultuary disorders of our passions, the prejudices of our infant educations, and infinite such like (of which an after occasion will befriend us, with a more full and particular recital) I say, by reason of these, we may conclude of the science of the most of men, truly so called, that it may be trussed up in the same room with the Iliads, yea it may be all the certainty of those high pretenders to it, the voluminous schoolmen, and peripatetical dictators, (bating what they have of the first principles and the word of God) may be circumscribed by as small a circle, as the creed, when brachygraphy had confined it within the compass of a penny. And methinks the disputes of those assuming confidents, that think so highly of their attainments, are like the controversy of those in Plato's den, who having never seen but the shadow of an horse trajected against a wall, eagerly contended, whether its neighing proceeded from the appearing mane, or tail, ruffled with the winds. And the dogmatist's are no less at odds in the darker cells of their imaginary principles about the shadows and *exuviae* of beings; when for the most part they are strangers to the substantial realities. And like children are very busy about the babies of their fancies, while their useless subtleties afford little entertainment to the nobler faculties.

But many of the most accomplished wits of all ages, whose modesty would not allow them to boast of more than they were owners of, have resolved their knowledge into Socrates his sum total, and after all their pains in quest of science, have sat down in a professed nescience. It is the shallow unimproved intellects that are confident pretenders to certainty; as if contrary to the adage, science had no friend but ignorance. And though their general acknowledgments of the weakness of human understanding, and the narrowness of what we know, look like cold and sceptical discouragements; yet the particular expressions of their sentiments and opinions, are as oracular, as if they were omniscient. To such, as a curb to confidence, and as an evidence of human infirmities even in the noblest parts of man, I shall give the following instances of our intellectual blindness: not that I intend to pose them with those common enigmas of magnetism, fluxes, refluxes, and the like; these are resolved into a confessed ignorance and I shall not persue them to their old asylum; and yet it may be there is more knowable in these, than in less acknowledged mysteries: but I'll not move beyond ourselves, and the most ordinary and trivial phenomena in nature, in which we shall find enough to shame confidence, and unplume dogmatizing.

Chap. III.**A general account of our ignorance of our own natures.**

To begin then with the theory of our own natures; we shall find in them too great evidence of intellectual deficiency and deplorable confessions of human ignorance. For we came into the world, and we know not how; we live in't in a self-nescience, and go hence again and are as ignorant of our recess. We grow, we live, we move at first in a microcosm, and can give no more scientific account, of the state of our three quarters confinement, than if we had never been extant in the greater world, but had expired in an abortion; we are enlarged from the prison of the womb, our senses are affected, we imagine and remember; and yet know no more of the immediate reasons of these common functions, than those little embryo anchorites: we breathe, we talk, we move, while we are ignorant of the manner of these vital performances. The dogmatist knows not how he stirs his finger; nor by what art or method he directs his tongue in articulating sounds into voices. New parts are added to our substance, to supply our continual decayings, and as we die we are born daily; nor can we give a certain account, how the aliment is so prepared for nutrition, or by what mechanism it is so regularly distributed; we are transported by passions; and our minds ruffled by the disorders of the body; nor yet can we tell how these should reach our immaterial selves, or how the soul should be affected by such kind of agitations. We lay us down, to sleep away our cares; night shuts up the senses' windows, the mind contracts into the brain's centre; we live in death, and lie as in the grave. Now we know nothing, nor can our waking thoughts inform us, who is Morpheus, and what that leaden key is that locks us up within our senseless cells: there's a difficulty that pincheth, nor will it easily be resolved. The soul is awake, and solicited by external motions, for some of them reach the perceptive region in the most silent repose, and obscurity of night. What is't then that prevents our sensations; or if we do perceive, how is't that we know it not? But we dream, see visions, converse with chimeras; the one half of our lives is a romance, a fiction. We retain a catch of those pretty stories, and our awakened imagination smiles in the recollection. Nor yet can our most severe inquiries find what did so abuse us, or show the nature and manner of these nocturnal illusions: when we puzzle ourselves in the disquisition, we do but dream, and every hypothesis is a fancy. Our most industrious conceits are but like their object, and as uncertain as those of midnight. Thus when some days and nights have gone over us, the stroke of fate concludes the number of our pulses; we take our leave of the sun and moon, and lay our heads in ashes. The vital flame goes out, the soul retires into another world, and the body to dwell in darkness. Nor doth the last scene yield us any more satisfaction in our autography; for we are as ignorant how the soul leaves the light, as how it first came into it; we know as little how the union is dissolved, that is the chain of the so differing subsistencies that compound us, as how it first commenced. This then is the proud creature that so highly pretends to knowledge, and that makes such a noise and bustle for opinions. The instruction of delphos may shame such confidants into modesty: and till we have learned that honest advise, though from hell, ΓΝΩΘΙ ΣΕΑΥΤΟΝ [Greek: GNOTHI SEAYTON], confidence is arrogance, and dogmatizing unreasonable presuming. I doubt not but the opinionative resolver, thinks all these easy problems, and the theories here accounted mysteries, are to him revelations. But let him suspend that conclusion till he hath weighed the considerations hereof, which the process of our discourse will

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present him with; and if he can untie those knots, he is able to teach all humanity, and will do well to oblige mankind by his informations

Chap. IV.

Some great instances of our ignorance discoursed of, (i) of things within ourselves. The nature of the soul and its origin, glanced at and passed by: (1) its union with the body is unconceivable: so (2) is its moving the body, considered either in the way of Sir K. Digby, Descartes, or Dr. H. More, and the Platonists. (3) the manner of direction of the spirits, as unexplicable.

But that I may more closely pursue the design I am engaged on, I shall discourse some great instances of our ignorance in a way of more press and strict survey. And those I shall insist on are such as (1) concern the soul, both in its common nature, and particular faculties. Or (2) such as are drawn from the consideration of our own, other organical bodies, and matter in the general. And (3) some trite and common appearances. Of which I discourse in order.

If certainty were anywhere to be expected one would think it should be in the notices of our souls, which are indeed ourselves, and whose sentiments we are intimately acquainted with. In things without us, ignorance is no wonder; since we cannot profound into the hidden things of nature, nor see the first springs and wheels that set the rest a-going. We view but small pieces of the universal frame, and want phenomena to make entire and secure hypotheses. But if that whereby we know other things, know not itself; if our souls are strangers to things within them, which they have far greater advantages of being acquainted with than matters of external nature; I think then this first instance will be a fair one, for the extorting a confession of that ignorance I would have acknowledged.

(1) I take notice then that the learned world hath been at an infinite uncertainty about the speculation of the soul's nature. In which every man almost held a distinct opinion. Plato called it, only in the general, a self-moving substance. Aristotle an entelechie, or, an hee-knew-not-what. Hesiod and Anaximander compounded it of earth and water. Heraclides made it light. Zeno the quintessence of the four elements. Xenocrates and the Egyptians a moving number. The Chaldeans a virtue without form. Parmenides composed it of earth and fire. Empedocles of blood. Galen held it an hot complexion. Hippocrates a spirit diffused through the body. Varro supposed it an heated and dispersed air. Thales a nature without rest. And Crates and Decearchus, nothing. Thus have the greatest sages differed in the first theory of human nature; which yet perhaps is not so desperate an inquiry, as some others that are apprehended less difficult. And possibly most have been deceived in this speculation, by seeking to grasp the soul in their imaginations; to which gross faculty, that purer essence is unpalpable and we might as well expect to taste the sunbeams. Such therefore are to be minded, that the soul is seen, like other things, in the mirror of its effects and attributes: but if like children, they'll run behind the glass to catch it, their expectations will meet with nothing but vacuity and emptiness. And though a pure intellectual eye may have a sight of it in reflex discoveries; yet if we affect a grosser touch, like Ixion we shall embrace a cloud.

(2) It hath been no less a trouble to determine the soul's origin, than nature. Some thought it was from the beginning of the world, and one of the first things created. Others, that 'tis an extract from the universal soul of all things. Some believe

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it came from the moon, others from the stars, or vast spaces of the Æther above the planets; some that 'tis made by God, some by angels, and some by the Generant. Whether it be immediately created or traduced, hath been the great ball of contention to the later ages. And yet, after all the bandying attempts of resolution; 'tis as much a question as ever; and it may be will be so till it be concluded by immortality. The patrons of traduction accuse their adversaries of affronting the attributes of God; and the assertors of creation impeach them of violence to the nature of things. Either of the opinions strongly opposeth the other; but very feebly defends itself. Which occasion some to think, that both are right, and both mistaken; right in what they say against each other; but mistaken in what they plead for their respective selves. But I shall not stir in the waters which have been already mudded by so many contentious inquiries. The great St. Austin, and others of the grey heads of reverend antiquity, have been content to sit down here in a professed neutrality: and I'll not industriously endeavour to urge men to a confession of what they freely acknowledge; but shall note difficulties which are not so usually observed, though as unaccountable as these.

§.1. It is the saying of divine Plato, that man is nature's horizon; dividing betwixt the upper hemisphere of immaterial intellects, and this lower of corporeity: and that we are a compound of beings distant in extremes, is as clear as noon. But how the purer spirit is united to this clod, is a knot too hard for our degraded intellects to untie. What cement should unite heaven and earth, light and darkness, natures of so divers a make, of such disagreeing attributes, which have almost nothing, but Being, in common; this is a riddle, which must be left to the coming of Elias. How should a thought be united to a marble-statue, or a sunbeam to a lump of clay? The freezing of the words in the air in the northern climes, is as conceivable, as this strange union. That this active spark, this *συμφυτον πνευμα* [Greek: *symphuton pneuma*] (as the stoics call it) should be confined to a prison it can so easily pervade, is of less facile apprehension, than that the light should be pent up in a box of crystal, and kept from accompanying its source to the lower world: and to hang weights on the wings of the wind seems far more intelligible.

In the unions, which we understand, the extremes are reconciled by interceding participations of natures, which have somewhat of either. But body and spirit stand at such a distance in their essential compositions, that to suppose an uniter of a middle constitution, that should partake of some of the qualities of both, is unwarranted by any of our faculties, yea most absonous to our reasons; since there is not any the least affinity betwixt length, breadth and thickness; and apprehension, judgement and discourse: the former of which are the most immediate results (if not essentials) of matter, the latter of spirit.

§. 2. Secondly, we can as little give an account, how the soul moves the body. That, that should give motion to an unwieldy bulk, which itself hath neither bulk nor motion; is of as diffical an apprehension, as any mystery in nature. For though conceiving it under some fancied appearance, and pinning on it material affections, the doubt both not so sensibly touch us; since under such conceptions we have the advantage of our senses to befriend us with parallels; and gross apprehenders may not think it any more strange, than that a bullet should be moved by the rarified fire, or the clouds carried before the invisible winds: yet if we defecate the notion from materiality, and abstract quantity, place, and all kind of corporeity from it, and represent it to our thoughts either under the notion of the ingenious Sir K. Digby; as, a pure mind and knowledge; or, as the admired Descartes expresses it, *Une chose qui pense*, as, a thinking substance; it will be as hard to apprehend, as that an empty wish

should remove mountains: a supposition which if realized, would relieve Sisyphus. Nor yet doth the ingenious hypothesis of the most excellent Cantabrigian philosopher, of the soul's being an extended penetrable substance, relieve us; since, how that which penetrates all bodies without the least jog or obstruction, should impress a motion on any, is by his own confession alike inconceivable. Neither will its moving the body by a vehicle of spirits, avail us; since they are bodies too, though of a purer mould.

And to credit the unintelligibility both of this union and motion, we need no more than to consider that when we would conceive anything which is not obvious to our senses, we have recourse to our memories, the storehouse of past observations: and turning over the treasure that is there, seek for something of like kind, which hath formerly come within the notice of our outward or inward senses. So that we cannot conceive anything, that comes not within the verge of some of these; but either by like experiments which we have made, or at least by some remoter hints which we receive from them. And where such are wanting, I cannot apprehend how the thing can be conceived. If any think otherwise, let them carefully peruse their perceptions: and, if they find a determinate intellection of the modes of being, which were never in the least hinted to them by their external or internal senses; I'll believe that such can realize chimeras. But now in the cases before us there are not the least footsteps, either of such an union, or motion, in the whole circumference of sensible nature: and we cannot apprehend anything beyond the evidence of our faculties.

§. 3. Thirdly, how the soul directs the spirits for the motion of the body according to the several animal exigents; is as perplex in the theory, as either of the former. For the *meatus*, or passages, through which those subtle emissaries are conveyed to the respective members, being so almost infinite, and each of them drawn through so many meanders, cross turnings, and divers roads, wherein other spirits are continually a-journeying; it is wonderful, that they should exactly perform their regular destinations without losing their way in such a wilderness: neither can the wit of man tell how they are directed. For that they are carried by the manuduction of a Rule, is evident from the constant steadiness and regularity of their motion into the parts, where their supplies are expected: but, what that regulating efficiency should be, and how managed; is not easily determined. That it is performed by mere *Mechanism*, constant experience confutes; which assureth us, that our spontaneous motions are under the *Imperium* of our will. At least the first determination of the spirits into such or such passages, is from the soul, what ever we hold of the after conveyances; of which likewise I think, that all the philosophy in the world cannot make it out to be purely mechanical. But yet though we gain this, that the soul is the principle of direction, the difficulty is as formidable as ever. For unless we allow it a kind of inward sight of the anatomical frame of its own body of every vein, muscle, and artery; of the exact site, and position of them, with the several windings, and secret chanel: it is as unconceivable how it should be the directrix of such intricate motions, as that a blind man should manage a game at chess, or marshal an army. But this is a kind of knowledge, that we are not in the least aware of: yea many times we are so far from an attention to the inward direction of the spirits, that our employed minds observe not any method in the outward performance; even when 'tis managed by variety of interchangeable motions, in which a steady direction is difficult, and a miscarriage easy. Thus an artist will play a lesson on an instrument without minding a stroke; and our tongues will run divisions in a tune not missing a note, even when our thoughts are totally engaged elsewhere: which effects are to be attributed to some

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secret art of the soul, which to us is utterly occult, and without the ken of our intellects.

Chap. V.**(4) we can give no account of the manner of Sensation.**

§. 4. But besides the difficulties that lie more deep, and are of a more mysterious alloy; we are at a loss for a scientific account even of our senses, the most knowable of our faculties. Our eyes, that see other things, see not themselves: and the foundations of knowledge are themselves unknown. That the soul is the sole percipient, which alone hath animadversion and sense properly so called, and that the body is only the receiver and conveyer of corporeal impressions, is as certain, as philosophy can make it. Aristotle himself teacheth so much in that maxim of his *Νοῦς ορα, καὶ νοῦς ἀκούει* [Greek: *Nous ora, kai nous akouei*]. And Plato credits this position with his suffrage; affirming, that 'tis the soul that hath life and sense, but the body neither. But this is so largely prosecuted by the great Descartes, and is a truth that shines so clear in the eyes of all considering men; that to go about industriously to prove it, were to light a candle to seek the sun: we'll therefore suppose it, as that which needs not arrest our motion; but yet, what are the instruments of sensible perceptions and particular conveyers of outward motions to the seat of sense, is difficult: and how the pure mind can receive information from that, which is not in the least like itself, and but little resembling what it represents; I think inexplicable. Whether sensation be made by corporal emissions and material *Εἰδῶλα* [Greek: *EIDOLA*], or by notions impressed on the Æthereal matter, and carried by the continuity thereof to the common sense; I'll not revive into a dispute: the ingenuity of the latter hath already given it almost an absolute victory over its rival. But suppose which we will, there are doubts not to be solved by either. For how the soul by mutation made in matter a substance of another kind, should be excited to action; and how bodily alterations and motions should concern that which is subject to neither; is a difficulty, which confidence may sooner triumph on, than conquer. For body cannot act on anything but by motion; motion cannot be received but by quantity and matter; the soul is a stranger to such gross substantiality, and owns nothing of these, but that it is clothed with by our deceived fancies; and therefore how can we conceive it subject to material impressions? And yet the importunity of pain, and unavoidableness of sensations strongly persuade, that we are so.

Besides, how is it, and by what art doth it read that such an image or stroke in matter (whether that of her vehicle, or of the brain, the case is the same) signifies such an object, did we learn an alphabet in our embryo-state? And how comes it to pass, that we are not aware of any such congenite apprehensions? We know what we know; but do we know any more? That by diversity of motions we should spell out figures, distances, magnitudes, colours, things not resembled by them; we must attribute to some secret deduction. But what this deduction should be, or by what mediums this knowledge is advanced; is as dark, as ignorance. One, that hath not the knowledge of letters, may see the figures; but comprehends not the meaning included in them: an infant may hear the sounds, and see the motion of the lips; but hath no conception conveyed by them, no knowing what they are intended to signify. So our souls, though they might have perceived the motions and images themselves by simile sense; yet without some implicit inference it seems inconceivable, how by that means they should apprehend their archetypes.

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Moreover, images and motions are in the brain in a very inconsiderable latitude of space, and yet they represent the greatest magnitudes. The image of an hemisphere of the upper globe cannot be of a wider circumference, than a walnut: and how can such petty impressions notify such vastly expanded objects, but through some kind of scientific method, and geometry in the principle? Without this it is not conceivable how distances should be perceived, but all objects would appear in a cluster, and lie in as narrow a room as their images take up in our scanted craniums. Nor will the philosophy of the most ingenious Descartes help us out: for, the striking of divers filaments of the brain, cannot well be supposed to represent distances, except some such kind of inference be allotted us in our faculties: the concession of which will only steer us as a refuge for ignorance: where we shall meet, what we would seem to shun.

Chap. VI.

The nature of the memory unaccountable. 'Tis considered particularly according to the Aristotelian, Cartesian, Digbean and Hobbian hypothesis.

§. 5. The memory also is a faculty whose nature is as obscure, and hath as much of riddle in it as any of the Former: it seems to be an organical power, because bodily distempers often mar its ideas, and cause a total oblivion: but what instruments the soul useth in her review of past impressions, is a question which may drive enquiry to despair. There are four principal hypotheses by which a resolution hath been attempted.

The Peripatetic, the Cartesian, the Digbean, and the Hobbian. We'll examine these accounts of the Magnale. And I begin with that which will needs have itself believed the most venerable for antiquity and worth.

(i) then according to Aristotle and his Peripatum, objects are conserved in the memory by certain intentional species, beings, which have nothing of matter in their essential constitution, but yet have a necessary subjective dependence on it, whence they are called material. To this briefly.

Besides that these species are made a medium between body and spirit, and therefore partake of no more of being, than what the charity of our imaginations affords them; and that the supposition infers a creative energy in the object their producent, which philosophy allows not to creature-efficients; I say, beside these, it is quite against their nature to subsist, but in the presence and under the actual influence of their cause; as being produced by an emanative causality, the effects whereof die in the removal of their origin. But this superannuated conceit deserves no more of our remembrance, than it contributes to the apprehension of it. And therefore I pass on to the Cartesian which speaks thus:

The *glandula pinealis*, in this philosophy made the seat of common sense, doth by its motion impel the spirits into divers parts of the brain; till it find those wherein are some tracks of the object we would remember; which consists in this, viz. That the pores of the brain, through which the spirits before took their course, are more easily opened to the spirits which demand re-entrance; so that finding those pores, they make their way through them sooner than through others: whence there ariseth a special motion in the *glandula*, which signifies this to be the object we would remember.

But I fear there is no security neither in this hypothesis; for if memory be made by the easy motion of the spirits through the opened passages, according to what hath been noted from Descartes; whence have we a distinct remembrance of such diversity of objects, whose images without doubt pass through the same apertures? And how should we recal the distances of bodies which lie in a line? Or, is it not likely, that the impelled spirits might light upon other pores accommodated to their purpose, by the motion of other bodies through them? Yea, in such a pervious substance as the brain, they might find an easy either entrance, or exit, almost everywhere; and therefore to shake every grain of corn through the same holes of a sieve in repeated winnowings, is as easy to be performed, as this to be perceived. Besides, it's difficult to apprehend, but that these avenues should in a short time be

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stopped up by the pressure of other parts of the matter, through its natural gravity, or other alterations made in the brain: and the opening of other vicine passages might quickly obliterate any tracks of these; as the making of one hole in the yielding mud, defaces the print of another near it; at least the accession of enlargement, which was derived from such transitions, would be as soon lost, as made.

We are still to seek then for an Oedipus for the riddle; wherefore we turn our eyes to the Digbean account, of which this is the sum; that things are reserved in the memory by some corporeal *exuviae* and material images; which having impinged on the common sense, rebound thence into some vacant cells of the brain, where they keep their ranks and postures in the same order that they entred, till they are again stirred up; and then they slide through the fancy, as when they were first presented.

But, how is it imaginable, that those active particles which have no cement to unite them, nothing to keep them in the order they were set, yea, which are ever and anon jostled by the occursion of other bodies, whereof there is an infinite store in this repository, should so orderly keep their cells without any alteration of their site or posture, which at first was allotted them? And how is it conceivable, but that carelessly turning over the ideas of our mind to recover something we would remember, we should put all the other images into a disorderly floating, and so raise a little chaos of confusion, where nature requires the exactest order. According to this account, I cannot see, but that our memories would be more confused than our midnight compositions: for is it likely, that the divided atomes which presented themselves together, should keep the same ranks in such a variety of tumultuary agitations, as happen in that liquid medium? An heap of ants on an hillock will more easily be kept to an uniformity in motion; and the little bodies which are incessantly playing up and down the air in their careless postures, are as capable of regularity as these.

The last account of the faculty we are inquiring of is the Hobbian, according to which hypothesis; memory is nothing else but the knowledge of decaying sense, made by the reaction of one body against another; or as the author expresses it in his *Human Nature*, a missing of parts in an object. The foundation of which principle (as of many of its fellows) is totally reversed by the most ingenious commentator upon immaterial beings, Dr. H. More in his book *Of Immortality*. I shall therefore leave that cause in the hands of that most learned undertaker, and only observe two things to my present purpose. (i) neither the brain, nor spirits, nor any other material substance within the head can for any considerable space of time conserve motion. The former is of such a clammy consistency, that it can no more retain it than a quagmire: and the spirits for their liquidity are more uncapable than the fluid medium, which is the conveyer of sounds, to persevere in the continued repetition of vocal airs. And if there were any other substance within us, as fitly tempered to preserve motion, as the author of the opinion could desire: yet (2) which will equally press against either of the former, this motion would be quickly deadened by counter-motions; and we should not remember anything, but till the next impression. Much less can this principle give an account, how such an abundance of motions should orderly succeed one another, as things do in our memories: and to remember a song or tune, it will be required, that our souls be an harmony more than in a metaphor, continually running over in a silent whisper those musical accents which our retentive faculty is preserver of. Which could we suppose in a single instance; yet a multitude of musical consonancies would be as impossible, as to play a thousand tunes on a lute at once. One motion would cross and destroy another; all would be clashing and discord: and the musician's soul would be the most disharmonious: for, according to the tenor of

this opinion, our memories will be stored with infinite variety of divers, yea contrary motions, which must needs interfere, thwart, and obstruct one another: and there would be nothing within us, but ataxy and disorder.

§. 6. Much more might be added of the difficulties, which occur concerning the understanding, pliancy, will, and affections. But the controversies hereabout, are so hotly managed by the divided schools, and so voluminously everywhere handled; that it will be thought better to say nothing of them, than a little. The sole difficulties about the will, its nature, and sequency to the understanding, &c. have almost quite baffled inquiry, and shown us little else, but that our understandings are as blind as it is. And the grand question depending hereon, Ποθεν το κακον[Greek: Pothen to kakon]; I think will not be ended, but by the final abolition of its object. They, that would lose their knowledge here, let them diligently inquire after it. Search will discover that ignorance, which is as invincible, as its cause. These controversies, like some rivers, the further they run, the more they are hid. And it may be a poorer account is given to them now, than some centuries past, when they were a subject of debate to the pious fathers.

Chap. VII.

How our bodies are formed unexplicable. The plastic signifies nothing: the formation of plants, and animals unknown, in their principle. Mechanism solves it not. A new way profounded, which also fails of satisfaction. (2.) No account is yet given how the parts of matter are united. Some consideration on Descartes his hypothesis, it fails of solution. (3.) The question is unanswerable, whether matter be compounded of divisibles, or indivisibles.

But from these I pass to the second general, the consideration of bodies, our own and others. For our own, though we see, and feel, and continually converse with them; yet their constitution, and inward frame is an america, a yet undiscovered region. And the saying of the kingly prophet, I am wonderfully made, may well be understood of that admiration, which is the daughter of ignorance. Three things I'll subjoin concerning this sensible matter, the other part of our composition.

§. 1. That our bodies are made according to the most curious artifice, and orderly contrivance, cannot be denied even by them, who are least beholden to nature. The elegance of this composure, Saved Galen from atheism. And I cannot think that the branded Epicurus, Lucretius, and their fellows were in earnest, when they resolved this composition into a fortuitous range of atoms. To suppose a watch, or any other the most curious automaton by the blind hits of chance, to perform diversity of orderly motions, to show the hour, day of the month, tides, age of the moon, and the like, with an unparalleled exactness, and all without the regulation of art; this were the more pardonable absurdity. And that this admirable engine of our bodies, whose functions are carried on by such a multitude of parts, and motions, which neither interfere, nor impede one another in their operations; but by an harmonious sympathy promote the perfection and good of the whole: that this should be an undesigned effect, is an assertion, that is more than *Melancholies Hyperbole*. I say therefore, that if we do but consider this fabric with free and unpossessed minds; we shall easily grant, that it was some skilful archeus who delineated those comely proportions, and hath expressed such exactly geometrical elegancies in its compositions. But what this hidden architect should be, and by what instruments and art this frame is erected; is as unknown to us, as the thoughts of our cradles. The plastic faculty is a fine word, and will do well in the mouth of a puzzled empiric: but what it is, how it works, and whose it is, we cannot learn; no, not by a return into the womb; neither will the Platonic principles unriddle the doubt: for though the soul be supposed to be the body's maker, and the builder of its own house; yet by what kind of knowledge, method, or means, is unknown: and that we should have a knowledge which we know not of, is an assertion which hath no commission from our faculties. The great Descartes will allow it to be no better, than a downright absurdity. But yet should we suppose it, it would be evidence enough of what we aim at.

§. 2. Nor is the composition of our own bodies the only wonder: we are as much nonplussed by the most contemptible worm, and plant, we tread on. How is a drop of dew organized into an insect? Or, a lump of clay into a more perfect animal? how are the glories of the field spun, and by what pencil are they limned in their unaffected bravery? By whose direction is the nutriment so regularly distributed unto

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the respective parts, and how are they kept to their specific uniformities? If we attempt mechanical solutions, we shall never give an account, why the woodcock doth not sometimes borrow colours of the magpie; why the lily doth not exchange with the daysie; or why it is not sometime painted with a blush of the rose? Can unguided matter keep itself to such exact conformities, as not in the least spot to vary from the species? That divers limners at a distance without either copy or design should draw the same picture to an undistinguishable exactness, both in form, colour, and features; is more conceivable, than that matter, which is so diversified both in quantity, quality, motion, site, and infinite other circumstances, should frame itself so unerringly according to the idea of its kind. And though the fury of that Apelles, who threw his pencil in rage upon the picture he had essayed to draw, once casually effected those lively representations, which his art could not describe; yet 'tis not likely, that one of a thousand such precipitancies should be crowned with so an unexpected an issue. For though blind matter might reach some elegancies in individual effects; yet specific conformities can be no unadvised productions, but in greatest likelihood, are regulated by the immediate efficiency of some knowing agent: which whether it be seminal forms, according to the Platonical principles, or whatever else we please to suppose; the manner of its working is to us unknown: or if these effects are merely mechanical; yet to learn the method of such operations may, and hath indeed been, ingeniously attempted; but I think cannot be performed to the satisfaction of severer examination.

That all bodies both animal, vegetable and inanimate, are formed out of such particles of matter, which by reason of their figures, will not cohere or lie together, but in such an order as is necessary to such a specifical formation, and that therein they naturally of themselves concur, and reside, is a pretty conceit, and there are experiments that credit it. If after a decoction of herbs in a winter night, we expose the liquor to the frigid air; we may observe in the morning under a crust of ice, the perfect appearance both in figure, and colour, of the plants that were taken from it. But if we break the aqueous crystal, those pretty images disappear and are presently dissolved.

Now these airy vegetables are presumed to have been made, by the reliques of these plantal emissions whose avolation was prevented by the condensed inclosure. And therefore playing up and down for a while within their liquid prison, they at last settle together in their natural order, and the atom of each part finding out their proper place, at length rest in their methodical situation; till by breaking the ice they are disturbed, and those counterfeit compositions are scattered into their first indivisibles.

This hypothesis may yet seem to receive further confirmation, from the artificial resurrection of plants from their ashes, which chemists are so well acquainted with: and besides, that salt dissolved upon fixation, returns to its affected cubes, the regular figures of minerals, as the hexagonal of crystal, the hemi-spherical of the fairy-stone, the stellar figure of the stone asteria, and such like, seem to look with probability upon this way of formation. And I must needs say 'tis handsomly conjectured. But yet what those figures are, that should be thus mechanically adapted, to fall so unerringly into regular compositions, is beyond our faculties to conceive or determine. And now those heterogenous atoms (for such their figures are supposed) should by themselves hit so exactly into their proper residence in the midst of such tumultuary motions, cross thwartings, and arietations of other particles, especially when for one way of hitting right, there are thousands of missing; there's no hypothesis yet extant can resolve us. And yet had heaven afforded that miracle of

men, the illustrious Descartes a longer day on Earth, we might have expected the utmost of what ingenuity could perform herein: but his immature fate hath unhappily disappointed us; and prevented the most desirable complement of his not to be equalled philosophy.

§. 3.(2) It's no less difficult to give an account, how the parts of matter and bodies are united: for though superficial enquirers may easily satisfy themselves by answering, that it is done by muscles, nerves, and other like strings, and ligaments, which nature hath destined to that office; yet, if we seek for an account how the parts of these do cohere, we shall find ourselves lost in the enquiry. Nothing with any show of success hath yet appeared on the philosophic stage, but the opinion of Descartes; that the parts of matter are united by rest. Neither can I conceive, how anything can be substituted in its room, more congruous to reason; since rest is most opposite to motion, the immediate cause of disunion. But yet I cannot see, how this can account for the almost indissoluble coherence of some bodies, and the fragility and solubility of others: for if the union of the parts consist only in rest; it would seem, that a bag of dust would be of as firm a consistence as that of marble or adamant: a bar of iron will be as easily broken as a tobacco-pipe; and Bajazet's cage had been but a sorry prison. The Egyptian pyramids would have been sooner lost, than the names of them that built them; and as easily blown away, as those inversed ones of smoke. Nor can it be pretended for a difference, that the parts of solid bodies are held together by hooks, and angulous involutions; since the coherence of the parts of these will be of as difficult a conception, as the former: and we must either suppose an infinite of them holding together on one another; or at last come to parts, that are united by a mere juxtaposition: yea, could we suppose the former, yet the coherence of these, would be like the hanging together of an infinite such of dust: which hypothesis would spoil the proverb, and a rope of sand, should be no more a phrase for labour in vain: for unless there be something, upon which all the rest may depend for their cohesion; the hanging of one by another, will signify no more than the mutual dependence of causes and effects in an infinite series, without a first: the admission of which, atheism would applaud. But yet to do the master of mechanics right; somewhat of more validity in the behalf of this hypothesis may be assigned: which is, that the closeness and compactness of the parts resting together, doth much confer to the strength of the union: for every thing continues in the condition, wherein it is, except something more powerful alter it: and therefore the parts, that rest close together, must continue in the same relation to each other, till some other body by motion disjoin them. Now then, the more parts, there are pent together, the more able they will be for resistance; and what hath less compactness, and by consequence fewer parts, according to the laws of motion will not be able to effect any alteration in it. According to what is here presented, what is most dense, and least porous, will be most coherent, and least discernible. And if this help not, I cannot apprehend what can give an account of the former instances. And yet even this is confuted by experience; since the most porous spangle bodies are oft-times the most tough in consistence. 'Tis easier to break a tube of glass or crystal, than of elm or ash: and yet as the parts of the former are more, so they are more at rest; sin(The liquid juice, which is diffused through the parts of the wood, is in a continual agitation, which in Descartes his philosophy is the cause of fluidity; and a proportioned humidity confers much to union (Sir K. Digby makes it the cement itself); a dry stick will be easily broken, when a green one will maintain a strong resistance: and yet in the moist substance there is less rest, than in what is dryer and more fragile. Much more might be added: but I'll content myself with what's mentioned; and, notwithstanding what hath been said, I judge this account of

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that miraculous wit to be the most ingenious and rational, that hath or (it may be) can be given. I shall not therefore conclude it false; though I think the emergent difficulties, which are its attendants, unanswerable; proof enough of the weakness of our now reasons, which are driven to such straits and puzzles even in things which are most obvious, and have so much the advantage of our faculties.

§ 4.(3.) The composition of bodies, whether it be of divisibles or indivisibles, is a question which must be ranked with the indissolubles: for though it hath been attempted by the most illustrious wit of all philosophic ages; yet they have done little else, but shown their own divisions to be almost as infinite, as some suppose those of their subject. And notwithstanding all their shifts, subtleties, newly invented words and modes, sly subterfuges, and studied evasions; yet the product of all their endeavours, is but as the birth of the labouring mountains, wind, and emptiness. Do what they can; actual infinite extension everywhere, equality of all bodies, impossibility of motion, and a world more of the most palpable absurdities will press the assertors of infinite divisibility. Neither can it be avoided, but that all motions would be equal in velocity; the lines drawn from side to side in a pyramid, may have more parts than the basis, all bodies would be swallowed up in a point, and endless more inconsistencies, will be as necessarily consequential to the opinion of indivisibles. But intending only to instance in difficulties, which are not so much taken notice of; I shall refer the reader, that would see more of this, to Oviedo, Pontius, Ariaga, Carelton, and other Jesuits: whose management of this subject with equal force on either side, is a strong presumption of what we drive at.

Chap. VII.**Difficulties about the motion of a wheel, which admit of no solution.**

Besides the already mentioned difficulties, even the most ordinary trivial occurrents, if we contemplate them in the theory, will as much puzzle us, as any of the former. Under this head I'll add three things concerning the motion of a wheel, and conclude this branch of my subject.

§. I. First then in the abstract consideration, it seems impossible that a wheel should move: I mean not the progressive, but that motion which is merely on its own centre. And were it not for the information of experience, it's most likely that philosophy had long ago concluded it impossible: for let's suppose the wheel to be divided according to the alphabet. In motion then there is a change of place, and in the motion of a wheel there is a succession of one part to another in the same place; so that it seems unconceivable that A. should move until B. hath left his place: for A. cannot move, but it must acquire some place or other. It can acquire none but what was B's, which we suppose to be most immediate to it. The same space cannot contain them both. And therefore B. must leave its place, before A. can have it; yea, and the nature of succession requires it. but now B. cannot move, but into the place of C.; and C. must be out, before B. can come in.: so that the motion of C. will be pre-required likewise to the motion of A.; and so onward till it comes to Z. Upon the same accounts Z. will not be able to move, till A. Moves, being the part next to it: neither will A. be able to move (as hath been shown) till Z. hath. And so the motion of every part will be pre-required to itself. Neither can one evade, by saying, that all the parts move at once. For (1.) We cannot conceive in a succession but that something should be first, and that motion should begin somewhere. (2.) If the parts may all change places with one another at the same time without any respect of priority and posteriority to each others motion: why then may not a company of bullets closely crowded together in a box, as well move together by a like mutual and simultaneous exchange? Doubtless the reason of this ineptitude to motion in this position is, that they cannot give way one to another, and motion can nowhere begin because of the plenitude. The case is just the same in the instance before us; and therefore we need go no further for an evidence of its inconceivableness. But yet to give it one ouch more according to the Peripatetic niceness, which says, that one part enters in the same instant that the other goes out; I'll add this in brief: in the instant that B. leaves its place, it's in it, or not: if so; then A. cannot be in it in the same instant without a penetration. If not; then it cannot be said to leave it in that instant, but to have left it before. These difficulties, which pinch so in this obvious experiment, stand in their full force against all motion on the hypothesis of absolute plenitude. Nor yet have the defenders hereof need to take notice of them, because they equally press a most sensible truth. Neither is it fair, that the opposite opinion of interspersed vacuities should be rejected as absurd upon the account of some inextricable perplexities which attend it. Therefore let them both have fair play; and whichsoever doth with most ease and congruity solve the phenomena, that shall have my vote for the most philosophic hypothesis.

§. 2. It's a difficulty no less desperate than the former, that the parts vicine to the centre, which it may be pass not over the hundredth part of space which those do of the extreme circumference, should describe their narrower circle but in equal time

with those other, that trace so great a round if they move but in the same degree of velocity; here is then an equality in time and motion, and yet a vast inequality in the acquired space. A thing which seems flatly impossible: for is it conceivable, that of two bodies setting forth together, and continuing their motion in the same swiftness, the one should so far out-go its fellow, as to move ten mile an hour, while the other moves but a furlong? If so, 'twill be no wonder, that the race is not to the swift, and the furthest way about may well be the nearest way home. There is but one way that can be attempted to untie this knot; which is, by saying, that the remoter and more out-side parts move more swiftly than the central ones. But this likewise is as unconceivable as what it would avoid: for suppose a right line drawn from the centre to the circumference, and it cannot be apprehended, but that the line should be inflected, if some parts of it move faster than others. I say if we do abstractedly from experience contemplate it in the theory, it is hard to conceive, but that one part moving, while the other rests, or at least moves slower (which is as rest to a swifter motion) should change its distance from it, and the respect, which it had to it; which one would think should cause an incurvation in the line.

§. 3. Let there be two wheels fixed on the same axle in diameter ten inches apiece. Between them let there be a little wheel, of two inches diameter, fixed on the same axle. Let them be moved together on a plane, the great ones on the ground suppose, and the little one on a table (for because of its parvitude it cannot reach to the same floor with them) and you'll find that the little wheel will move over the same space in equal time, with equal arculations, with the great ones, and describe as long a line. Now this seems big of repugnancies, though sense itself suffragate to its truth: for since every part of the greater wheels make a proportionable part of the line, as do the parts of the little one, and the parts of those so much exceeding in multitude the parts of this: it will seem necessary that the line made by the greater wheels should have as many parts more than the line made by the less, as the wheels themselves have in circumference, and so the line would be as much longer as the wheels are bigger: so that one of these absurdities seems unavoidable, either that more parts of the greater wheels go to the making one part of their lines, which will infer a penetration of dimensions; or that the little wheel hath as many parts as the great ones, though five times in diameter exceeded by them, since the lines they describe are of equal length; or the less wheel's line will have fewer parts than the others, though of equal extent with them, since it can have no more parts than the less circle, nor they fewer than the greater. What offers have been made towards the resolving this difficulty, by the ingenious Tacquett and others, and with what success; will be considered in the appendix; to which, that I may pursue other matters, I remit the inquisitive reader.

Should I have enlarged on this subject to the taking in of all things that claim a share in't, it may be few things would have been left unspoken to, but the Creed. Philosophy would not have engrossed our pen, but we must have been forced to anger the intelligences of higher orbs. But intending only a glance at this rugged theme, I shall forbear to insist more on it, though the consideration of the mysteries of motion, gravity, light, colours, vision, sound, and infinite such like (things obvious, yet unknown) might have been plentiful subject. I come now to trace some of the causes of our ignorance and intellectual weakness: and among so many it's almost as great a wonder as any of the former; that we can say, we know.

Chap. IX.

Men's backwardness to acknowledge their own ignorance and error, though ready to find them in others. The (i) cause of the shortness of our knowledge, viz. The depth of verity discoursed of, as of its admixtion in mens opinions with falsehood, and the connexion of truths, and their mutual dependence: a second reason of the shortness of our knowledge, viz. Because we can perceive nothing but by proportion to our senses.

The disease of our intellectuals is too great, not to be its own evidence: and they that feel it not, are not less sick, but stupidly so. The weakness of human understanding, all will confess: yet the confidence of most in their own reasonings, practically disowns it: and 'tis easier to persuade them it from others lapses than their own; so that while all complain of our ignorance and error, every one exempts himself. It is acknowledged by all, while every one denies it. If the foregoing part of this discourse have not universally concluded our weakness I have one item more of mine. If knowledge can be found in the particulars mentioned; I must lose that, which I thought I had, that there is none. But however, though some should pick a quarrel with the instances I alleged; yet the conclusion must be owned in others. And therefore beside the general reason I gave of our intellectual disabilities, the fall; it will be worth our labour to descend to a more particular account: since it is a good degree of knowledge to be acquainted with the causes of our ignorance. And what we have to say under this head, will equally concern our misapprehensions and errors. And the particulars I intend are causes and evidences of both.

§. I. (1) Then we owe much of our ignorance to the depth of knowledge; which is not the acquist of superficials and supine enquirers. Democritus his well hath a Βαθος [Greek; Bathos], and truth floats not. The useless froth swims on the surface; but the pearl lies covered with a mass of waters. Verisimilitude and opinion are an easy purchase: But true Knowledge is dear and difficult. Like a point or line, it requires an acuteness and intention to its discovery ; while verisimilitude, like the expanded superficies, is an obvious sensible, and affords a large and easie field for loose inquiry. And 'tis the more difficult to find out Truth, because it is in such inconsiderable proportions scattered in a mass of opinionative uncertainties; like the Silver in Hiero's Crown of Gold : And it is no easie piece of Chemistry to reduce these minutes to their unmixed selves. The Elements are nowhere pure in these lower Regions ; and if there is any free from the admixtion of another, sure 'tis above the concave of the Moon: Neither can any boast a knowledge depurate from the defilement of a contrary, within this atmosphere of flesh ; it dwels nowhere in unblended proportions, on this side the Emyreum. All Opinions have their Truth, and all have what is not so; and to say all are true and none, is no absurdity. So that to crown ourselves with sparks, which are almost lost in such a world of heterogeneous natures, is as difficult as desirable. Besides, Truth is never single; to know one will require the knowledge of many. They hang together in a chain of mutual dependence; you cannot draw one link without attracting others. Such an harmony cannot commence from a single string; diversity of strokes makes it. The beauty of a face is not known by the eye, or nose; it consists in a symmetry, and 'tis the comparative faculty which votes it: thus is truth relative, and little considerable can be obtained by

catches. The painter cannot transcribe a face upon a transient view; it requires the information of a fixed and observant eye: and before we can reach an exact sight of truth's uniform perfections, this fleeting transitory our life, is gone. So that we see the face of truth, but as we do one another's, when we walk the streets, in a careless pass-by; and the most diligent observers, view but the back-side o' th' hangings; the right one is on the other side the grave: and our knowledge is but like those broken ends; at best a most confused adumbration. Nature, that was veiled to Aristotle, hath not yet uncovered, in almost two thousand years. What he sought on the other side of Euripus, we must not look for on this side immortality. In easy disquisitions we are often left to the uncertainty of a guess: yea after we have triumphed in a supposed Εὐρηκα [Greek: Eureka]; a new-sprung difficulty mars our ovations, and exposeth us to the torment of a disappointment: so that even the great master of dogmatists himself concludes the scene with an *Anxius vixi, dubius morior*.

§.2 Another reason of our ignorance and the narrowness of our apprehensions is; that we cannot perceive the manner of any of nature's operations, but by proportion to our senses, and return to material phantasms. A blind man conceives not colours, but under the notion of some other sensible; and more perfect apprehenders as grossly misconceive immaterials our imaginations painting souls and angels in as little agreeing a resemblance. And had there not been any night, shadow, or opacity; we should never have had any determinate conceit of darkness; that would have been as inconceivable to us, as its contrary is to him that never saw it.

But now our senses being scant and limited, and natures operations subtle and various; they must needs transcend, and out-run our faculties. They are only natures grosser ways of working, which are sensible;

Her finer threads are out of the reach of our dull percipient. Yea questionless she hath many hidden energies, no ways imitated in her obvious pieces: and therefore it is no wonder that we are so often at a loss; an infirmity beyond prevention, except we could step by step follow the tracks and methods of infinite wisdom, which cannot be done but by him that owns it.

Chap. X.**A third reason of our ignorance and error, viz. The impostures and deceits of our senses. The way to rectify these misinformations propounded. Descartes his method the only way to science. The difficulty of exact performance.**

§. 3. Another reason is the imposture and fallacy of our senses, which impose not only on common heads, who scarce at all live to the higher principle; but even more refined Mercuries, who have the advantages of an improved reason to disabuse them, are yet frequently captivated to these deceiving prepossessions: appealing to a judicature both uncommissioned and unjust; and when the clearest truth is to be tried by such judges, its innocence will not secure it from the condemning award of that unintelligent tribunal: for since we live the life of brutes, before we grow into man; and our understandings in this their nonage, being almost merely passive to sensible impressions, receiving all things in an uncontroverted and promiscuous admission: it cannot be, that our knowledge should be other, than an heap of misconception and error, and conceits as impertinent as the toys we delight in. All this while we have no more reason, than the ΕΙΔΩΛΟΝ ΨΥΧΗΣ [Greek: EIDOLON PSYCHES](as Plotinus calls it) amounts to. And besides this our easy submission to sophistications of sense, and inability to prevent the miscarriages of our junior reasons; and that which strikes the great stroke toward our after-deceptions, is the pertinacious adherence of many of these first impressions, to our advanced understandings. That which is early received, if in any considerable strength of imfiress, as it were grows into our tender natures, and is therefore of difficult remove. Thus a fright in minority, or an antipathy then contracted, is not worn out but with its subject. And it may be more than a story, that Nero derived much of his cruelty from the nurse that suckled him. Now though our coming judgements do in part undeceive us, and rectify the grosser errors which our unwary sensitive hath engaged us in; yet others are so fleshed in us, that they maintain their interest upon the deceptibility of our decayed natures, and are cherished there, as the legitimate issues of our reasonable faculties.

Indeed sense itself detects its more palpable deceits, by a counter-evidence; and the more ordinary impostures seldom outlive the first experiments. If our sight represent a staff as crooked in the water; the same faculty rectifies both it, and us, in the thinner element. And if a square tower seem round at a distance; the eye, which mistook in the circumstance of its figure, at that remove, corrects the mistake in a due approach: yea, and befriends those who have learned to make the advantage of its informations, in more remote and difficil discoveries. And though his sense occasion the careless rustic to judge the sun no bigger than a cheese-fat; yet sense too by a frugal improvement of its evidence, grounds the astronomers knowledge, that it's bigger than this globe of earth and water. Which it doth not only by the advantageous assistance of a tube, but by less industrious experiments, showing in what degrees distance minorates the object. But yet in infinite other cases, wherein sense can afford none, or but very little help to disentangle us; our first deceptions lose no ground, but rather improve in our riper years: so that we are not weaned from our childhood, till we return to our second infancy; and even our grey heads outgrow not those errors, which we have learned before the alphabet.

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Thus our reasons being inoculated on sense, will retain a relish of the stock they grew on: and if we would endeavour after an unmixed knowledge; we must unlive our former lives, and (inverting the practice of Penelope) undo in the day of our more advanced understandings, what we had spun in the night of our infant-ignorance. He that would rebuild a decayed structure, must first pluck down the former ruins. A fabric, though high and beautiful, if founded on rubbish, is easily made the triumph of the winds: and the most pompous seeming knowledge, that's built on the unexamined prejudices of sense, stands not, but till the storm ariseth; the next strong encounter discovers its weakness, in a shameful over-throw. Since then, a great part of our scientific treasure is most likely to be adulterate, though all bears the image and superscription of truth; the only way to know what is sophisticate, and what is not so, is to bring all to the examen of the touchstone: for the prepossessions of sense having (as is shoven) so mingled themselves with our genuine truths, and being as plausible to appearance as they, we cannot gain a true assurance of any, but by suspending our assent from all, till the deserts of each, discovered by a strict enquiry, claim it. Upon this account I think the method of the most excellent Descartes not unworthy its author; and (since dogmatical ignorance will call it so) a skepticism, that's the only way to science. But yet this is so difficult in the impartial and exact performance, that it may be well reckoned among the bare possibilities, which never commence into a futurity: it requiring such a free, sedate, and intent minde, as it may be is nowhere found but among the Platonical ideas. Do what we can, prejudices will creep in, and hinder our intellectual perfection: and though by this means we may get some comfortable allay to our distempers; yet can it not perfectly cure us of a disease, that sticks as close to us as our natures.

Chap. XI.

Two instances of sensitive deceptions. (1) of the quiescence of the Earth. Sense is the great inducement to its belief; its testimony deserves no credit in this case, though it do move, sense would present it as immovable. The sun to sense is as much devoid of motion as the Earth. The cases wherein motion is insensible, applied to the Earth's motion. The unwieldiness of its bulk is no argument of its immobility.

To illustrate the particular I am discoursing of, I'll endeavour to detect the unlucky influence of sensitive prejudice by a double instance; the free debate of which I conceive to be of importance, though hitherto for the most part obstructed, by the peremptory conclusion of a faculty which I shall make appear to have no suffrage in the case of either: and the pleasantness and concernment of the theories, if it be one, I hope will atone the digression.

§. 2. First, it is generally opinioned that the Earth rests as the world's centre, while the heavens are the subject of the universal motions; and, as immovable as the Earth, is grown into the credit of being proverbial. So that for a man to go about to counter-argue this belief, is as fruitless as to whistle against the winds. I shall not undertake to maintain the paradox, that confronts this almost Catholic opinion. Its assertion would be entertained with the hoot of the rabble: the very mention of it as possible, is among the most ridiculous; and they are likely most severely to judge it, who least understand what it is they censure. But yet the patronage of as great wits, as it may be ere we saw the sun, such as Pythagoras, Descartes, Copernicus, Galileo, More, Kepler, and generally the virtuosi of the awakened world, hath gained it a more favourable censure with learned mankind; and advanced it far above either vain, or contemptible. And if it be a mistake, it's only so: there's no heresy in such a harmless aberration; at the worst, with the ingenuous, the probability of it will render it a lapse of easy pardon.

Now whether the Earth move or rest, I undertake not to determine. My work is to prove, that the common inducement to the belief of its quiescence, the testimony of sense, is weak and frivolous: to the end, that if upon an unprejudiced trial, it be found more consonant to the astronomical phenomena; its motion may be admitted, notwithstanding the seeming contrary evidence of unconcerned senses. And I think what follows will evince, that this is no so absurd an hypothesis, as vulgar philosophers account it; but that, though it move, its motion must needs be as insensible, as if it were quiescent; and the assertion of it would then be as uncouth and harsh to the sons of sense, that is, to the generality of mankind, as now it is.

That there is a motion, which makes the vicissitudes of day and night, and constitutes the successive seasons of the year; sense may assure us; or at least the comparative judgment of an higher faculty, made upon its immediate evidence: but whether the sun, or Earth, be the common movent, cannot be determined but by a further appeal. If we will take the literal evidence of our eyes, the ethereal coal moves no more than this inferior cloud doth: for wherever in the firmament we see it, it's represented to us, as fixed in that part of the enlightened hemisphere. And though an after account discover, that he hath changed its site and respect to this our globe; yet

whether that were caused by its translation from us, or ours from it, sense leaves us in an ignoramus: so that if we are resolved to stand to its verdict, it must be by as great a miracle if the sun ever move, as it was that it once rested, or what ever else was the subject of that supernal change. And if upon a mere sensible account we will deny motion to the Earth; upon the same inducement we must deny it the sun; and the heavens will lose their first moveable. But to draw up closer to our main design, we may the better conceive that, though the Earth move, yet its motion must needs be insensible; if we consider that in these cases relating to our purpose, motion strikes not the sense.

(1.) Then if the motion be very slow, we perceive it not. We have no sense of the accretive motion of plants or animals; and the sly shadow steals away upon the dial; and the quickest eye, can discover no more but that 'tis gone. Which insensibility of slow motions I think may thus be accounted for; motion cannot be perceived without the perception of its terms, viz. The parts of space which it immediately left, and those which it next acquires. Now the space left and acquired in every sensible moment in such slow progressions, is so inconsiderable, that it cannot possibly move the sense; (which by reason either of its constitutional dulness, or the importunity of stronger impressions, cannot take notice of such parvitudes) and therefore neither can the motion depending thereon, be any more observable, than we find it.

2. If the sentient be carried *passibus equis* with the body, whose motion it would observe; (supposing that it be regular and steady) in this case the remove is insensible, at least in its proper subject. We perceive not a ship to move, while we are in it; but our sense transfers its motion to the neighbouring shores, as the poet, *littis campiq; recedunt*. And I question not, but if any were born and bred under deck, and had no other information but what his sense affords; he would without the least doubt or scruple, opinion, that the house he dwelt in, was as stable and fixed as ours. To express the reason according to the philosophy of Descartes, I suppose it thus: motion is not perceived, but by the successive strikings of the object upon divers filaments of the brain; which diversify the representation of its site and distance. But now when the motion of the object is common with it, to ourselves; it retains the same relation to our sense, as if we both rested: For striking still on the same strings of the brain, it varies not its site or distance from us; and therefore we cannot possibly perceive its motion: nor yet upon the same account our own; least of all, when we are carried without any *conamen* and endeavour of ours, which in our particular progressions betrays them to our notice.

Now then, the Earth's motion (if we suppose it to have any) hath the concurrence of both, to render it insensible; and therefore we need no more proof to conclude the necessity of its being so.

For though the first seems not to belong to the present case, since the supposed motion will be near a thousand miles an hour under the equinoctial line; yet it will seem to have no velocity to the sense any more than the received motion of the sun and for the same reason. Because the distant points in the celestial expanse (from a various and successive respect to which the length, and consequently the swiftness of this motion must be calculated) appear to the eye in so small a degree of elongation from one another, as bears no proportion to what is real. For since the margin of the visible horizon in the heavenly globe is parallel with that in the earthly, accounted. But 120 miles diameter; sense must needs measure the azimuths, or petical circles, by triplication of the same diameter of 120. So that there will be no

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more proportion betwixt the sensible and real celerity of the terrestrial motion, than there is between the visible and rational dimension of the celestial hemisphere, which is none at all.

But if sensitive prejudice will yet confidently maintain the impossibility of the hypothesis, from the supposed unwieldiness of its massy bulk, grounded on our experience of the ineptitude of great and heavy bodies to motion: I say this is a mere imposture of our senses, the fallacy of which we may avoid, by considering; that the Earth may as easily move, notwithstanding this pretended indisposition of its magnitude, as those much vaster orbs of sun and stars. He that made it, could as well give motion to the whole, as to the parts; the constant agitation of which is discovered in natural productions: and to both, as well as rest to either: neither will it need the assistance of an intelligence to perpetuate the begun rotation: since according to the indispensable law of nature (that every thing should continue in the state wherein it is, except something more powerful hinder it) it must persevere in motion, unless obstructed by a miracle. Neither can gravity, which makes great bodies hard of remove, be any hindrance to the earths motion: since even the Peripatetic maxime, *nihil gravitat in suo loco*, will exempt it from the indisposition of that quality; which is nothing but the tendency of its parts, which are ravished from it, to their desired centre.

And the French philosophy will inform us, that the Earth as well as other bodies is indifferent in itself to rest, or its contrary.

Chap. XII.

Another instance of the deceptions of our senses: which is of translating the idea of our passions to things without us. Properly and formally heat is not in the fire, but is an expression of our sentiment. Yet in propriety of speech the senses themselves are never deceived, but only administer an occasion of deceit to the understanding: proved by reason, and the authority of St. Austin.

Secondly the best philosophy (the deserved title of the Cartesian) derives all sensitive perception from motion, and corporal impress; some account of which we have above given. Not that the formality of it consists in material reaction, as Master Hobbes affirms, totally excluding any immaterial concurrence: but that the representations of objects to the soul, the only animadversive principle, are conveyed by motions made upon the immediate instruments of sense. So that the diversity of our sensations ariseth from the diversity of the motion or figure of the object; which in a different manner affect the brain, whence the soul hath its immediate intelligence of the quality of what is presented. Thus the different effects, which fire and water, have on us, which we call heat and cold, result from the so differing configuration and agitation of their particles; and not from, I know not what chimerical beings, supposed to inhere in the objects, their cause, and thence to be propagated by many petty imaginary productions to the seat of sense. So that what we term heat and cold, and other qualities, are not properly according to philosophical rigour in the bodies, their efficient: but are rather names expressing our passions; and therefore not strictly attributable to anything without us, but by extrinsic denominations, as vision to the wall.

This I conceive to be an hypothesis, well worthy a rational belief: and yet is it so abhorrent from the vulgar, that they would as soon believe Anaxagoras, that snow is black, as him that should affirm, it is not white; and if any should in earnest assert, that the fire is not formally hot, it would be thought that the heat of his brain had fitted him for Anticyra, and that his head were so to madness: for it is conceived to be as certain, as our faculties can make it, that the same qualities, which we resent within us, are in the object, their source. And yet this confidence is grounded on no better foundation, than a delusory prejudice, and the vote of misapplied sensations, which have no warrant to determine either one or other. I may indeed conclude, that I am formally hot or cold; I feel it. But whether these qualities are formally, or only eminently in their producent; is beyond the knowledge of the sensitive. Even the Peripatetic philosophy will teach us, that heat is not in the body of the sun, but only virtually, and as in its cause; though it be the fountain and great distributor of warmth to the neather creation: and yet none urge the evidence of sense to disprove it: neither can it with any more justice be alleged against this hypothesis. For if it be so as Descartes would have it; yet sense would constantly present it to us, as now. We should feel heat as constantly from fire; it would increase in the same degrees, in our approach, and we should find the same excess within the flame: which yet I think to be the chief inducements to the adverse belief: for fire (I retain the instance, which yet may be applied to other cases) being constant in its specifical motions in those smaller derivations of it, which are its instruments of action, and therefore in the same manner striking the sentient, though gradually varying according to the proportions of

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more or less quantity or agitation, &c. will not fail to produce the same effect in us, which we call heat, when ever we are within the orb of its activity. So that the heat must needs be augmented by proximity, and most of all within the Flame, because of the more violent motion of the particles there, which therefore begets in us a stronger sentiment. Now if this motive energy, the instrument of this active element, must be called heat; let it be so, I contend not. I know not how otherwise to call it: to impose names is part of the People's Charter, and I fight not with words, only I would not that the idea of our passions should be applied to anything without us, when it hath its subject nowhere but in ourselves. This is the grand deceit, which my design is to detect, and if possible, to rectify.

We have seen then two notorious instances of sensitive deception, which justify the charge of Petron. Arbiter.

Fallunt nos oculi, vagiq; sensus
oppressa ratione mentiuntur.

And yet to speak properly, and to do our senses right, simply they are not deceived, but only administer an occasion to our forward understandings to deceive themselves: and so though they are some way accessory to our delusion; yet the more principal faculties are the capital offenders. If the senses represent the Earth as art and immoveable; they give us the truth of their sentiments. To sense, it is so, and it would be deceit to present it otherwise. For (as we have shown) though it do move in itself; it rests to us, who are carried with it. And it must needs be to sense unalterably quiescent, in that our own rotation prevents the variety of successive impress; which only renders motion sensible. And so if we erroneously attribute our particular incommunicable sensations to things, which do no more resemble them than the effect doth its equivocal cause; our senses are not in fault, but our precipitate judgments. We feel such, or such a sentiment within us, and herein is no cheat or misprision: 'tis truly so, and our sense concludes nothing of its rise or origin. But if hence our understandings falsly deduct, that there is the same quality in the external impressor; 'tis it is criminal, our sense is innocent. When the ear tingles, we really hear a sound: if we judge it without us, it's the fallacy of our judgments. The apparitions of our frightened fancies are real sensibles: but if we translate them without the compass of our brains, and apprehend them as external objects; it's the unwary rashness of our understanding deludes us. And if our disaffected palates resent nought but bitterness from our choicest viands, we truly taste the unpleasing quality, though falsly conceive it in that, which is no more than the occasion of its production. If any find fault with the novelty of the notion; the learned St. Austin stands ready to confute the charge: and they who revere antiquity, will derive satisfaction from so venerable a suffrage. He tells us, *si quis remum frangi in aqua opinatur, & cum aufertur, integrari; non malum habet internuncium, sed malus est judex*. And onward to this purpose, the sense could not otherwise perceive it in the water, neither ought it: for since the water is one thing, and the air another; 'tis requisite and necessary, that the sense should be as different as the medium: wherefore the eye sees aright; if there be a mistake; 'tis the judgment's the deceiver. Elsewhere he saith, that our eyes misinform us not, but faithfully transmit their resentment to the mind. And against the Sceptics, that it's a piece of injustice to complain of our senses, and to exact from them an account, which is beyond the sphere of their notice: and resolutely determines, *quicquid possunt videre oculi, verum vident*. So that what we have said of the senses' deceptions, is rigidly to be charged only on our careless understandings,

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misleading us through the ill management of sensible informations. But because such are commonly known by the name of the senses deceits (somewhat the more justifiably in that they administer the occasion) I have thought good to retain the usual way of speaking, though somewhat varying from the manner of apprehending.

Chap. XIII.

A fourth reason of our ignorance and error, viz. The fallacy of our imaginations; an account of the nature of that faculty; instances of its deceptions; spirits are not in a place; intellection, volition, decrees, &c. cannot properly be ascribed to God. It is not reason that opposeth faith, but fancy: the interest which imagination hath in many of our opinions, in that it impresses a persuasion without evidence.

Fourthly, we err and come short of science, because we are so frequently misled by the evil conduct of our imaginations; whose irregular strength and importunity doth almost perpetually abuse us. Now to make a full and clear discovery of our fancy's deceptions; 'twill be requisite to look into the nature of that mysterious faculty. In which survey we must trace the soul in the ways of her intellectual actions; whereby we may come to the distinct knowledge of what is meant by imagination, in contradistinction to some other powers. But first premising, that the soul's nature (at least as far as concerns our inquiry) consists in intelligibility: and secondly, that when we speak of powers and faculties of the soul, we intend not to assert with the schools, their real distinction from it, or each other, but only a modal diversity. Therefore I shall distribute intellectual operations according to the known triple division, though with some difference of representation.

The first is simple apprehension, which denotes no more, than the soul's naked intellection of an object, without either composition or deduction. The foundation of this act, as to materials, is sensitive preception. Now our simple apprehension of corporal objects, if present, we call sense; if absent, we properly name it imagination. When we would conceive a material object, our fancies present us with its idea. But in our notion of spirituals, we, as much as we can, strip them of all material phantasmes; and thus they become the object of our intellects, properly so called; all this while the soul is, as it were, silent; and in a more passive way of reception.

But the second act advanceth propositions from simple intellections: and hereby we have the knowledge of the distinctions or identities of objects. Now here, as in the former, where they are purely material; the judgment is made by the imagination: if otherwise, we refer it to the understanding.

The third act, is that which connects propositions and deduceth conclusions from them: and this the schools call discourse; and we shall not miscall it, if we name it, reason. This as it supposeth the two former, so is it grounded on certain congenite propositions; which I conceive to be the very essentials of rationality. Such are, *quodlibet est, vel non est; impossibile est idem esse, non esse; non entis nulla sunt predicata*, and such like. Not that every one hath naturally a formal and explicit notion of these principles: for the vulgar use them, without knowledge of them, under any such express consideration; but yet there was never any born to reason without them. Now when the conclusion is deduced from the unerring dictates of our faculties; we say the inference is rational: but when from misapprehended, or ill-compounded phantasms; we ascribe it to the imagination. So we see, there is a triple operation of the fancy as well as intellect; and these powers are only circumstantially

different. In this method we intend a distinct, though short account, how the imagination deceives us.

First then, the imagination, which is of simple perception, doth never of itself and directly mislead us; as is at large declared in our former discourse of sense. Yet is it the almost fatal means of our deception, through the unwarrantable compositions, divisions, and applications, which it occasions the second act to make of the simple images. Hence we may derive the visions, voices, revelations of the enthusiast: the strong ideas of which, being conjured up into the imagination by the heat of the melancholized brain, are judged exterior realities; when as they are but motions within the cranium. Hence story is full of the wonders, it works upon hypochondriacal imaginants; to whom the grossest absurdities are infallible certainties, and free reason an impostor. That groom, that conceited himself an emperor, thought all as irrational as disloyal, that did not acknowledge him: and he, that supposed himself made of glass, thought them all mad, that disbelieved him. But we pity, or laugh at those fatuous extravagants; while yet ourselves have a considerable dose of what makes them so: and more sober heads have a set of misconceits, which are as absurd to an unpassioned reason, as those to our unabused senses. And as the greatest counter-evidence to those distempered fancies is none: so in the more ordinary deceits, in which our imaginations insensibly engage us, we give but little credit to the uncorrupted suggestions of the faculty, that should disabuse us.

That the soul and angels are devoid of quantity and dimension, hath the suffrage of the most; and that they have nothing to do with grosser locality, is as generally opinioned: but who is it, that retains not a great part of the imposture, by allowing them a definitive *Ubi*, which is still but imagination? He that said, a thousand might dance on the point of a needle, spake but grossly; and we may as well suppose them to have wings, as a proper *Ubi*. We say, spirits are where they operate: but strictly to be in a place, or *Ubi*, it may be is a material attribute, and incompatible with so pure a nature. We ask not, in what place a thought is, nor are we solicitous for the *Ubi* of virtue, or any other immaterial accidents. Relations, ubications, duration, the vulgar philosophy admits to be something; and yet to enquire in what place they are, were gross and incongruous. So that, if to be, and to be in a place be not reciprocal; I know not why spirits may not be exempted, having as much to plead from the purity of their essence, as anything in nature. And yet imagination stands so strongly against the notion, that it cannot look for the favour of a very diffusive entertainment.

But we are more dangerously deceived, when judging the infinite essence by our narrow selves; we ascribe intellections, volitions, decrees, purposes, and such like immanent actions to that nature, which hath nothing in common with us, as being infinitely above us. Now to use these as hypotheses, as himself in his word, is pleased to low himself to our capacities, is allowable: but a strict and rigorous imputation is derogatory to him, and arrogant in us. To say, that God doth eminently contain all those effects in His glorious simple essence, that the creature can produce or act by such a faculty, power, or affection; is to affirm him to be what He is, infinite. Thus, to conceive that He can do all those things in the most perfect manner, which we do upon understanding, willing, and decreeing; is an apprehension suteable to His idea: but to fix on Him the formality of faculties, or affections; is the imposture of our fancies, and contradictory to His divinity. 'Tis this deception misleads the contending world; and is the author of most of that darkness and confusion, that is upon the face of the controversies of dart. We being then thus obnoxious to fallacy in our

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apprehensions and judgments, and so often imposed upon by these deceptions; our inferences and deductions must needs be as unwarrantable, as our simple and compound thoughts are deceitful. So that the reason of the far greatest part of mankind, is but an aggregate of mistaken phantasms; and in things not sensible, a constant delusion. Yea the highest and most improved spirits, are frequently caught in the entanglements of a tenacious imagination; and submit to its obstinate, but delusory suggestions. Thus we are involved in inextricable perplexities about the divine nature, and attributes; and in our reasonings about those sublimities are puzzled with contradictions, which are but the toyings of our fancies, no absurdities to our more defecate faculties. What work do our imaginations make with eternity and immensity? And how are we gravelled by their cutting dilemmas? I'm confident many have thus imagined themselves out of their religion; and run a ground on that more desperate absurdity, atheism. To say, reason opposeth faith, is to scandalize both: 'tis imagination is the rebel; reason contradicts its impious suggestions. Nor is our reason any more accountable for the errors of our opinions; than our holiness for the immoralities of our lives: and we may as well say, that the sun is the cause of the shadow, which is the effect of the intercepting opacity, as either. Reason and faith are at perfect unisons: the disharmony is in the fancy. Το λογικον εστι θειον [Greek: Το λογικον εστι θειον], is a saying of Plato's; and well worthy a Christian subscription, reason being the image of the creator's wisdom copied out in the creature. Though indeed, as 'tis now in the subject, 'tis but an amassment of imaginary conceptions, prejudices, ungrounded opinions, and infinite impostures; and 'tis no wonder, if these are at odds with the principles of our belief: but all this is but apish sophistry, and to give it a name so divine and excellent, is abusive and unjust.

There is yet another as deplorable a deceit of our imaginations, as any: which is, its impressing a strong persuasion of the truth of an opinion, where there is no evidence to support it. And if it be such, as we never heard questioned or contradicted, 'tis then unsuspected. The most of mankind is led by opinionative impulse, and imagination is predominant. An ungrounded credulity is cried up for faith; and the more vigorous impressions of pliancy, for the spirit's motions. These are the grand delusions of our age, and the highest evidence of the imaginations deceptions. This is the spirit, that works in the children of fancy; and we need not seek to remoter resolutions. But the excellent Dr. H. More hath followed enthusiastic effects to their proper origin, and prevented our endeavours of attempting it. His discourse of enthusiasm completely makes good the title; and 'tis as well a victory, as a triumph.

Chap. XIV. A fifth reason, the precipitancy of our understandings; the reason of it. The most close engagement of our minds requisite to the finding of truth; the difficulties of the performance of it. Two instances of our precipitating; as the concluding things impossible, which to nature are not so; and the joining causes with irrelative effects.

§. 5. Again, another account of the shortness of our reasons and easiness of deception, is, the forwardness of our understanding's assent, to slightly examined conclusions, contracting many times a firm and obstinate belief from weak inducements; and that not only in such things, as immediately concern the sense, but in almost every thing that falls within the scope of our enquiry. For the declaiment of this, we are to observe, that every being uncessantly aspires to its own perfection, and is restless till it obtain it; as is the trembling needle, till it find its beloved North. Now the perfection of a faculty is union with its object, to which its respective actions are directed, as the scope and term of its endeavours. Thus our understanding being perfected by truth, with all the impatience, which accompanies strong desire, breaths after its enjoyment. But now the good and perfection of being, which every thing reacheth at, must be known, and that in the particular instances thereof; or else 'tis not attained: and if it be mistaken, that being courts deceit and its own delusion. This knowledge of their good, was at first as natural to all things, as the desire on't: otherwise this innate propension would have been as much a torment and misery to those things that are capable of it, as a needless impertinency to all others. But nature shoots not at rovers. Even inanimates, though they know not their perfection themselves, yet are they not carried on by a blind unguided impetus: but that which directs them, knows it.

The next orders of being have some sight of it themselves: and man most perfectly had it, before his unhappy defection. So then beside this general propensity to truth, the understanding must know what is so, before it can assent. The former we possess (it may be) as entirely as when nature gave it us: but of the latter, little but the capacity: so that herein have we made ourselves of all creatures the most miserable. And now, such an infinite of uncertain opinions, bare probabilities, specious falsehoods, spreading themselves before us, and soliciting our belief, and we being thus greedy of truth, and yet so unable to discern it: it cannot be, that we should reach it any otherwise, than by the most close meditation and engagement of our minds; by which we must endeavour to estrange our assent from every thing, which is not clearly and distinctly evidenced to our faculties. But this is so difficult; and as hath been intimated, so almost infeasable; that it may well drive modesty to despair of science. For though possibly assiduity in the most fixed cogitation be no trouble or pain to immaterialized spirits; yet is it more, than our embodied souls can bear without lassitude or distemper. For in this terrestrial state there are few things transacted, even in our intellectual part, but through the help and furtherance of corporal instruments; which by more than ordinary usage lose their edge and fitness for action, and so grow inept for their respective destinations. Upon this account our senses are dulled and spent by any extraordinary intention; and our very eyes will ache, if long fixed upon any difficultly discerned object. Now though meditation be to be reckoned among the most abstracted operations of our minds; yet can it not be

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performed without a considerable proportion of spirits to assist the action, though indeed such as are furnished out of the body's purer store. Which I think to be clear from hence, in that fixed seriousness herein, heats the brain in some to distraction, causeth an aching and dizziness in sounder heads, hinders the works of nature in its lower and animal functions, takes away or lessens pain in distempered parts, and seldom leaves any but under a wearisome dulness, and inactivity: arguments of sufficient validity to justify our assent to this, that the spirits are employed in our most intense cogitations, yea in such, whose objects are least material. Now the managing and carrying on of this work by the spirit's instrumental co-efficiency requires, that they be kept together without distraction or dissipation; that so they may be ready to receive and execute the orders and commissions of the commanding faculty. If either of these happen, all miscarries: as do the works of nature, when they want that heat, which is requisite for their intended perfection. And therefore, for the prevention of such inconveniences in meditation, we choose recess and solitude.

But now if we consider the volatile nature of those officious assistants, and the several causes which occur continually, even from the mere mechanism of our bodies to scatter and disorder them, besides the excursions of our roving fancies (which cannot be kept to a close attendance); it will be found very hard to retain them in any long service, but do what we can, they'll get loose from the mind's regimen. So that it's no easy matter to bring the body to be what it was intended for, the soul's servant; and to confine the imagination, of as facile a performance, as the Gotham's design of hedging in the cuckoo. And though some constitutions are genially disposed to this mental seriousness; yet they can scarce say, *nos numeri sumus*: yea in the most advantaged tempers, this disposition is but comparative; when as the most of men labour under disadvantages, which nothing can rid them of, but that which loosens them from this mass of flesh. Thus the boiling blood of youth, fiercely agitating the fluid air, hinders that serenity and fixed staidness, which is necessary to so severe an intentness: and the frigidity of decrepit age is as much its enemy, not only through penury of spirits, but by reason of its dulling moisture. And even in the temperate zone of our life, there are few bodies at such an equipoise of humours; but that the prevalency of some one indisposeth the spirits for a work so difficult and serious: for *temperamentum ad pondus*, may well be reckoned among the philosophical unattainables. Besides, the bustle of business, the avocations of our senses, and external pleasures, and the noise and din of a clamorous world, are impediments not to be mastered by feeble endeavours. And to speak the full of my sentiments, I think never man could boast it, without the precincts of Paradise; but He, that came to gain us a better Eden than we lost.

So then, to direct all this to our end, the mind of man being thus naturally amorous of, and impatient for truth, and yet averse to, and almost incapacitated for that diligent and painful search, which is necessary to its discovery; it must needs take up short, of what is really so, and please itself in the possession of imaginary appearances, which offering themselves to its embraces in the borrowed attire of that, which the enamoured intellect is in pursuit of, our impatient minds entertain these counterfeits, without the least suspicion of their couzenage. For as the will, having lost its true and substantial good, now courts the shadow, and greedily catches at the vain spews of superficial bliss: so our no less degenerate understandings having suffered as sad a divorce from their dearest object, are as forward to defile themselves with every meretricious semblance, that the variety of opinion presents them with. Thus we see the inconsiderate vulgar, prostrating their assent to every shallow

appearance: and those, who are beholden to Prometheus for a finer mould, are not furnished with so much truth as otherwise they might be owners of, did not this precipitancy of concluding prevent them: as 'tis said of the industrious chemist, that by catching at it too soon, he lost the long expected treasure of the philosophical elixir. Now this precipitancy of our understandings is an occasion of a double error, very injurious to the encrease of knowledge. To instance,

(1.) Hence we conclude many things impossibilities, which yet are easy feasables. For by an unadvised transiliency leaping from the effect to its remotest cause, we observe not the connexion through the interposal of more immediate causalities; which yet at last bring the extremes together without a miracle. And hereupon we hastily conclude that impossible, which we see not in the proximate capacity of its efficient. That a single hair should root up an oak (which the mathematics teach us to be possible) by common heads will be thought an absurd and extravagant expectation. And the relation of Archimedes's lifting up the ships of Marcellus, among many finds but little more credit, than that of the giants shouldering mountains: and yet mathematicians know, that by multiplying of mechanical advantages, any power may conquer any resistance, and the great Syracusian wit wanteth but tools, and a place to stand on, to remove the Earth. So that the brag of the Ottoman, [that he would throw Malta into the sea] might be performed at an easier rate, than by the shovels of his Janissaries.

And (2.) From this last noted head, ariseth that other of joining causes with irrelative effects, which either refer not at all unto them, or in a remoter capacity. Hence the Indian conceived so grossly of the letter, that discovered his theft; and that other, who thought the watch an animal. From hence grew the impostures of charms, and amulets, and other insignificant ceremonies; which to this day impose upon common belief, as they did of old upon the barbarism of the incultivate heathen. Thus effects unusual, whose causes run under ground, and are more remote from ordinary discernment, are noted in the book of vulgar opinion, with *digitus dei*, or *demonis*; though they owe no other dependence to the first, than what is common to the whole syntax of beings, nor yet any more to the second, than what is given it by the imagination of those unqualified judges. Thus every unwonted meteor is portentous; and the appearance of any unobserved star, some divine prognostick. Antiquity thought thunder the immediate voice of Jupiter, and impleaded them of impiety, that referred it to natural causalities. Neither can there happen a storm, at this remove from antique ignorance, but the multitude will have the devil in't.

Chap. XV.

The sixth reason discoursed of, viz. the interest which our affections have in our dijudications. The cause why our affections mislead us: several branches of this mentioned; and the first, viz. constitutional inclination largely insisted on.

Again (6.) We owe much of our error and intellectual scarcity to the interest in, and power which our affections have over our so easy seducible understandings. And 'tis a truth well worthy the pen, from which it dropt; *perit judicium, ubi res transit in affectum*. That Jove himself cannot be wise and in love; may be understood in a larger sense, than antiquity meant it. Affection bribes the judgement to the most notorious inequality; and we cannot expect an equitable award, where the judge is made a party: so that, that understanding only is capable of giving a just decision, which is, as Aristotle saith of the law, *Νοῦς ἀνεῦ ὀρεξεως* [Greek: *Noys aney orecheos*]: but where the will, or passion hath the casting voice, the case of truth is desperate. And yet this is the miserable disorder, into which we are lapsed: the lower powers are gotten uppermost; and we see like men on our heads, as Plato observed of old, that on the right hand, which indeed is on the left. The woman in us, still prosecutes a deceit, like that begun in the garden: and our understandings are wedded to an Eve, as fatal as the mother of our miseries. And while all things are judged according to their suitableness, or disagreement to the gusto of the fond feminine; we shall be as far from the tree of knowledge, as from that which is guarded by the cherubin. The deceiver soon found this soft place of Adam's; and innocency itself did not secure him from this way of seduction. The first deception entered in at this postern, and hath ever since kept it open for the entry of Legion: so that we scarce see anything now but through our passions, the most blind, and sophisticate things about us. The monsters which story relates to have their eyes in their breasts, are pictures of us in our invisible selves. Our love of one opinion induceth us to embrace it; and our hate of another, doth more than fit us, for its rejection: and, that love is blind, is extensible beyond the object of poetry. When once the affections are engaged, there's but a short step to the understanding: and, *facile credimus quod volumus*, is a truth, that needs not plead authority to credit it.

The reason, I conceive, is this: love as it were uniting the object to the soul, gives it a kind of identity with us; so that the beloved idea is but ourselves in another name: and when self is at the bar, the sentence is not like to be impartial: for every man is naturally a Narcissus, and each passion in us, no other but self-love sweetned by milder epithets. We can love nothing, but what we find agreeable to ourselves; and our desire of what is so, hath its first inducement from within us: yea, we love nothing but what resembleth us; and whatever we applaud as good or excellent, is but self in a transcript, and *e contra*. Thus to reach the highest of our amours, and to speak all at once: we love our friends, because they are our image; and we love our God, because we are his. So then, the beloved opinion being thus wedded to the intellect; the case of our espoused self becomes our own: and when we weigh ourselves, justice doth not use to hold the balance.

Besides, all things being double-handed, and having the appearances both of truth, and falsehood; where our affections have engaged us, we attend only to the former, which we see through a magnifying medium: while looking on the latter,

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through the wrong end of the perspective, which scants their dimensions, we neglect and condemn them. Yea, and as in corrupt judicial proceedings, the fore-stalled understanding passes a peremptory sentence upon the single hearing of one party; and so though it may chance to be right in the conclusion; is yet unjust and mistaken in the method of inference.

But to give a more particular account of this imposture; our affections engage us either,

- (1.) By our love to ourselves: or,
- (2.) By our love to others.

The former, in the instances of,

- (1.) Natural disposition.
- (2.) Custom and education.
- (3.) Interest. And
- (4.) Love of our own productions.

The latter, in the homage which is paid to antiquity, and authority.

These are causes of our mistakes, and arguments that we can scarce do otherwise. And therefore I speak to them in their order.

1. Congruity of opinions, whether true or false, to our natural constitution, is one great incentive to their reception; for in a sense the completion of the mind, as well as manners, follows the temperament of the body. On this account some men are genially disposed to some opinions, and naturally as averse to others. And we love and hate without a known cause of either. Some faces both of persons and things, we admire and dote on: others, in our impartial apprehensions no less deserving our esteem, we can not behold without resentment; yea it may be with an invincible disregard. And I question not, but intellectual representations are received by us, with as unequal a fate upon a bare temperamental relish or disgust: the understanding also hath its idiosyncrasies, as well as other faculties. So that the great stirs of the disputing world, are but the conflicts of the humours. Superstition, atheism, and enthusiasm, are tempers; not mere infusions of education, and opinion. Indeed the dull and unactive spirits that concern not themselves in theory, follow the swinge of the common belief in which they were first instructed: but the more vigorous and stirring will fall into that of their particular *crasis*. And when the humour is awakened, all the bonds of custom and education cannot hold them. The opinions which are suited to their respective tempers will make way to their assent, in spite of accidental preengagements. Thus opinions have their climes and national diversities: and as some regions have their proper vices, not so generally found in others; so have they their mental depravities, which are drawn in with the air of their country. And perhaps this is a considerable cause of the diversity of lawes, customs, religions, natural and moral doctrines, which is to be found in the divided regions of the inhabited Earth. Wherefore I wonder not at the idolatry of the Jews of old, or of the several parts of the world to this day, at the sensual expectation of the Musselmen, the circumstantial follies of the Papists, or the antic devotions of the barbarous Indians; since that the most senseless conceits and fooleries cannot miss of harbour, where affection grown upon the stock of a depraved constitution, hath endeared them.

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And if we do but more nearly look into our faculties, beginning our survey from the lowest dregs of sense, even those which have a nearer commerce with matter, and so by steps ascend to our more spiritualized selves: we shall throughly discover how constitutional partiality sways us. To begin then at the senses; that to one palate is sweet, and delicious, which to another, is odious and distastful; or more compendiously in the proverb, one man's meat, is another's poison. What to one is a most grateful odour, to another is noxious and displeasent; and 'twere a misery to some to lie stretched on a bed of roses: that's a welcome touch to one, which is disagreeing to another; the same aires which some entertain with most delightful transports, to others are importune; and the objects which this man can't see without an extasy, that is no more moved at than a statue. If we pass further, the fancies of men are so immediately diversisied by the individual *crasis*, that every man is in this a phoenix; and owns something wherein none are like him: and these are as many, as human nature hath singulars. Now the fancies of the most, like the index of a clock, are moved but by the inward springs and wheels of the corporal machine; which even on the most sublimed intellectuals is dangerously influential. And yet this sits at the helm of the world's belief; and vulgar reason is no better than a more refined imagination. So then the senses, fancy, and what we call reason itself, being thus influenced by the body's temperament, and little better than indications of it; it cannot be otherwise, but that this love of ourselves should strongly incline us in our most abstracted dijudications.

Chap. XVI.

A second thing whereby our affections in-gage us in error; is the prejudice of custom and education. A third, interest. The fourth, love to our own productions.

2. Another branch of this selfish fondness, by reason of which we miscarry of science, is the almost insuperable prejudice of custom, and education: by which our minds are encumbered, and the most are held in a fatal ignorance. Yea could a man be composed to such an advantage of constitution, that it should not at all adulterate the images of his mind; yet this second nature would alter the *crasis* of the understanding, and render it as obnoxious to aberrances, as now. And though in the former regard, the soul were a pure *αγραφον γραμματειον* [Greek: *agraphon grammateion*]; yet custom and education would scribe into an incapacity of new impressions. Thus we judge all things by our anticipations; and condemn or applaud them, as they agree or differ from our first receptions. One country laughs at the laws, customs, and opinions of another, as absurd and ridiculous; and the other is as charitable to them, in its conceit of theirs. This confirms the most sottish idolaters in their accustomed adorations, beyond the conviction of anything but doomsday. The impressions of a barbarous education are stronger in them, than nature; when in their cruel worships they lance themselves with knives, and expose their harmless infants to the flames as a sacrifice to their idols. And 'tis on this account, that there's no religion so irrational, but can boast its martyrs. This is it, which befriends the Talmud and Alcoran; and did they not owe their credit more to customary and preengaged assent, than to any rational inducement, we might expect their ashes: whereas education hath so rooted these misbelievers in their ungrounded faith, that they may as soon be plucked from themselves, as from their obstinate adherencies; and to convert a Turk, or Jew, may be well a phrase for an attempt impossible. We look for it only from him, to whom our impossibles are none. And 'tis to be feared that Christianity itself by most, that have espoused it, is not held by any better tenure. The best account that many can give of their belief, is, that they were bred in it; and the most are driven to their religion by custom and education, as the Indians are to baptism; that is, like a drove of cattle to the water. So that had providence determined our nativities among the enemies of the cross, and theirs under a Christian horoscope; in all likelihood we should have exchanged the scene of our belief with that of our abode and breeding. There is nothing so absurd, to which education cannot form our ductile minority; it can lick us into shapes beyond the monstrosities of Africa. And as King James would say of parliaments, it can do anything but make a man a woman. For our initial age is like the melted wax to the prepared seal, capable of any impression from the documents of our teachers. The half-moon or cross, are indifferent to its reception; and we may with equal facility write on this *rasa tabula*, Turk, or Christian. To determine this indifferency, our first task is to learn the creed of our country; and our next to maintain it, we seldom examine our receptions more than children do their catechisms; but by a careless greediness swallow all at a venture. For implicit faith is a virtue, where orthodoxy is the object. Some will not be at the trouble of a trial: others are scared from attempting it. If we do, 'tis not by a sun-beam or ray of universal light; but by a flame that's kindled by our affections, and fed by the fuel of our anticipations. And thus like the hermit, we think the sun shines nowhere, but in our cell; and all the world to be darkness but ourselves. We judge truth to be

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circumscribed by the confines of our belief, and the doctrines we were brought up in: and with as ill manners, as those of China, repute all the rest of the world monoculous. So that what some astrologers say of our fortunes and the passages of our lives; may by the allowance of a metaphor be said of our opinions: that they are written in our stars, being to the most as fatal as those involuntary occurrences, and as little in their power as the placets of destiny. We are bound to our country's opinions, as to its laws: and an accustomed assent is tantamount to an infallible conclusion. He that offers to dissent, shall be an outlaw in reputation: and the fears of guilty Cain, shall be fulfilled on him, who ever meets him shall slay him. Thus custom and education have sealed the canon; and he that adds or takes away from the book of orthodox belief; shall be more than in danger of an anathema: and the Inquisition is not confined to the jurisdiction of the Triple-crown. The rankest follies are sacred, if customary; and the fashion is handsome, and agreeable, though never so uncouth to an unconcerned beholder. Their antic deckings with feathers is as comely in the account of those barbarous nations, which use them; as the ornaments of lace, and riband, are in ours. And the plucking off the shoe is to the Japonians as decent a salutation, as the uncovering of the head is to us, and their abhorred neighbours. And as we are fond of every thing with which custom hath acquainted us; so on the other hand we start and boggle at every unusual appearance, and cannot endure the sight of the bugbear, novelty. On this account very innocent truths are often affixed with the reproach of heresie; and made terrible things in the imaginations of their misinformed and frighted enemies; who like children scared in the dark, fly the monsters of their fancies, and dare not stay to take a true account of the object of their fears. So that there is scarce any truth, but its adversaries have made it an ugly vizard; by which it's exposed to the hate and disesteem of superficial examiners: for an opprobrious title with vulgar believers is as good as an argument. And 'tis but writing the name that customary receptions have discredited, under the opinions we dislike; and all other refutation is superfluous. Thus shallow apprehenders are frighted from many sober verities; like the King of Arabs, who ran away from the smoking mince-pie, apprehending some dangerous plot in the harmless steam.

So then, while we thus mistake the infusions of education, for the principles of universal nature; we must needs fail of a scientific theory. And therefore the two nations differing about the antiquity of their language, made appeal to an undecisive experiment; when they agreed upon the trial of a child brought up among the wild inhabitants of the desert. The language it spake, had no reason to be accounted the most ancient and natural: and the lucky determination for the Phrygians by its pronouncing the word beek, which signified bread in the dialect of that country, they owed not to nature, but the goat-herd; from which the exposed infant, by accompanying that sort of animals, had learnt it.

Again (3.) Interest is another thing, by the magnetism of which our affections are almost irresistibly attracted. It is the pole, to which we turn, and our sympathizing judgements seldom decline from the direction of this impregnant. Where interest hath engaged men; they'll find a way to truth, or make one. Anything is good and true, to one whose interest it is, to have it so. And therefore self-designers are seldom disappointed, for want of the speciousness of a cause to warrant them; in the belief of which, they do oft as really impose upon themselves, as they industriously endeavour it upon others. With what an infinite of lawsuits, controversies, and litigious cases doth the world abound? And yet every man is confident of the truth and goodness of his own. And it may be as Master Hobbes observes, one reason that mathematical

demonstrations are uncontroverted, is, because interest hath no place in those unquestionable verities: when as, did the advantage of any stand against them, perhaps Euclid's elements would not pass with so universal a suffrage. Sir H. Blunt tells us, that temporal expectations bring in droves to the Mahometan faith; and we know the same holds thousands in the Romish. The eagles will be, where the carcass is; and that shall have the faith of most, which is best able to pay them for't. An advantageous cause never wanted proselytes. I confess, I cannot believe all the learned Romanists profess against their conscience; but rather, that their interest brings their consciences to their profession: and self-advantage can as easily incline some, to believe a falsehood, as profess it. A good will, helped by a good wit, can find truth any where: and, what the chemists brag of their elixir, it can translate any metal into gold, in the hand of a skilful artificer, in spite of the adage, *ex quolibet ligno Mercurius*. Though yet I think, that every religion hath its bare nominals: and that pope was one with a witness, whose saying it was, *quantum nobis lucri peperit illa fabula de Christo!*

4. Besides, fourthly, self-love engageth us for anything, that is a Minerva of our own. And thereby detains us in the snares of ignorance and folly. We love the issues of our brains, no less than those of our bodies: and fondness of our own begotten notions, though illegitimate, obligeth us to maintain them. We hug intellectual deformities, if they bear our names; and will hardly be persuaded they are so, when ourselves are their authors. If their dam may be judge, the young apes are the most beautiful things in nature; and if we might determine it, our proper conceptions would be all voted axioms. Thus then the female rules, and our affections wear the breeches: while our understandings govern, as the story saith Themistocles did Athens. So that to give the sum of all, most of the contests of the litigious world pretending for truth, are but the bandyings of one man's affections against another's: in which, though their reasons may be foiled, yet their passions lose no ground, but rather improve by the antiperistasis of an opposition.

Chap. XVII.

5. Our affections are enaged by our reverence to antiquity and authority. This hath been a great hinderer of theoretical improvements, and it hath been an advantage to the mathematics, and mechanic's arts, that it hath no place in them. Our mistake of antiquity. The unreasonableness of that kind of pedantic adoration. Hence the vanity of affecting impertinent quotations. The pedantry on't is derided; the little improvement of science through its successive derivations, end whence that hath happened.

Another thing, that engageth our affections to unwarrantable conclusions, and is therefore fatal to science; is our doting on antiquity, and the opinion of our fathers. We look with a superstitious reverence upon the accounts of preterlapsed ages: and with a supercilious severity, on the more deserving products of our own. A vanity, which hath possessed all times as well as ours; and the golden age was never present. For as in static experiment, an inconsiderable weight by virtue of its distance from the centre of the balance, will preponderate much greater magnitudes; so the most slight and chaffy opinion, if at a greater remove from the present age, contracts such an esteem and veneration, that it outweighs what is infinitely more ponderous and rational, of a modern date. And thus, in another sense, we realize what Archimedes had only in hypothesis; weighing a single grain against the globe of Earth. We reverence gray-headed doctrines; though feeble, decrepit, and within a step of dust: and on this account maintain opinions, which have nothing but our charity to uphold them. While the beauty of a truth, as of a picture is not acknowledged but at a distance; and that wisdom is nothing worth, which is not fetched from afar: wherein yet we oft deceive ourselves, as did that mariner, who mistaking them for precious stones, brought home his ship fraught with common pebbles from the remotest Indies. Thus our eyes, like the preposterous animals, are behind us; and our intellectual motions retrograde. We adhere to the determinations of our fathers, as if their opinions were entailed on us as their lands; or (as some conceive) part of the parent's soul were portioned out to his offspring, and the conceptions of our minds were *ex traduce*. The sages of old live again in us; and in opinions there is a metempsychosis. We are our reanimated ancestors, and antedate their resurrection.

And thus, while every age is but another show of the former; 'tis no wonder, that science hath not outgrown the dwarfishness of its pristine stature, and that the intellectual world is such a microcosm. For while we account of some admired authors, as the Seth's Pillars, on which all knowledge is engraven; and spend that time and study in defence of their placets, which with more advantage to science might have been employed upon the books of the more ancient, and universal author: 'tis not to be admired, that knowledge hath received so little improvement from the endeavours of many pretending promoters, through the continued series of so many successive ages. For while we are slaves to the dictates of our progenitors; our discoveries, like water, will not run higher than the fountains, from which they own their derivation. And while we think it so piculous, to go beyond the ancients; we must necessarily come short of genuine antiquity, truth; unless we suppose them to have reached perfection of knowledge in spite of their own acknowledgements of ignorance.

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Now if we enquire the reason, why the mathematics, and mechanic arts, have so much got the start in growth of other sciences: we shall find it probably resolved into this, as one considerable cause: that their progress hath not been retarded by that reverential awe of former discoveries, which hath been so great an hindrance to theoretical improvements. 'Twas never an heresy to out-limn Apelles; nor criminal to out-work the obelisks. Galileus without a crime out-saw all antiquity, and was not afraid to believe his eyes, in spite of the optics of Ptolemy and Aristotle. 'Tis no discredit to the telescope that antiquity ne'er saw in't: nor are we shy of assent to those celestial informations, because they were hid from ages. We believe the verticity of the needle, without a certificate from the days of old: and confine not ourselves to the sole conduct of the stars, for fear of being wiser than our fathers. Had authority prevailed here, the Earth's fourth part had to us been none, and Hercules his pillars had still been the worlds *non ultra*: Seneca's prophesy had been an unfulfilled prediction, and one moiety of our globes, an empty hemisphere.

In a sense, Τα αρχαια κρατειω [Greek: Ta archaia krateito], is a wholesome instruction; and becoming the vote of a synod: but yet, in common acceptation, it's an enemy to verity, which can plead the antiquity of above six thousand; and bears date from before the chaos. For, as the noble Lord Verulam hath noted, we have a mistaken apprehension of antiquity; calling that so, which in truth is the world's nonage. *Antiquitas seculi est juvenus mundi*. So that in such appeals, we fetch our knowledge from the cradle; which though it be nearest to innocence, it is so too to the fatal ruins which followed it. Upon a true account, the present age is the worlds grandevity; and if we must to antiquity, let multitude of days speak. Now for us to supersede further disquisition, upon the immature acquirements of those juvenile endeavours, is foolishly to neglect the nobler advantages we are owners of, and in a sense to disappoint the expectations of Him that gave them. Yet thus hath the world prevented itself of science. And aged knowledge, is still an infant. We superstitiously sit down in the acquisitions of our fathers; and are discouraged from attempting further than they have gone before us. So that, but for the undertakings of some glorious persons, who now and then shine upon the world, Plato's year might have found us, where the days of Aristotle left us. For my part, I think it no such arrogance, as some are pleased to account it, that almost two thousand years elapsed since, should weigh with the sixty three of the Stagirite. If we owe it to him, that we know so much; 'tis perhaps long of his fond adorers that we know so little more. I can see no ground, why his reason should be textuary to ours; or that God, or nature, ever intended him an universal headship. 'Twas this vain idolizing of authors, which gave birth to that silly vanity of impertinent citations; and inducing authority in things neither requiring, nor deserving it. That saying was much more observable, that men have beards, and women none; because quoted from Beza: and that other, *pax res bona est*; because brought in with a, "said St. Augustine." But these ridiculous fooleries, signify nothing to the more generous discerners, but the pedantry of the affected sciolist. 'Tis an inglorious acquist to have our heads or volumes laden, as were cardinal Campeius his mules, with old and useless luggage: and yet the magnificence of many high pretenders to science, if laid open by a true discovery, would amount to no more than the old boots and shooes, of that proud, and exposed ambassador. Methinks 'tis a pitiful piece of knowledge, that can be learnt from an Index; and a poor ambition to be rich in the inventory of another's treasure. To boast a memory (the most that these pedants can aim at) is but an humble ostentation. And of all the faculties, in which some brutes out-vie us, I least envy them an excellence in that; desiring rather to be a fountain than an hogshead. 'Tis better to own a judgment,

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though but with a *curta supellex* of coherent notions; than a memory, like a sepulchre, furnished with a load of broken and discarnate bones. Authorities alone with me make no number, unless evidence of reason stand before them: for all the cyphers of arithmetic, are no better than a single nothing. And yet this rank folly of affecting such impertinencies, hath overgrown our times; and those that are candidates for the repute of scholars, take this way to compass it. When as multiplicity of reading, the best it can signify, doth but speak them to have taken pains for it: and this alone is but the dry and barren part of knowledge, and hath little reason to denominate. A number of receipts at the best can but make an empiric, but again, to what is more perpendicular to our discourse, if we impartially look into the remains of antique ages; we shall find but little to justify so groundless a tyranny, as antiquity hath imposed on the enslaved world. For if we take an account of the state of science, beginning as high as history can carry us; we shall find it still to have lain under such unhappy disadvantages, as have hindered its advance in any considerable degrees of improvement. And though it hath oft changed its channel, by its remove from one nation to another; yet hath it been little more altered, than a river in its passage through differing regions, viz, in name and method. For the succeeding times still subscribing to, and copying out those, who went before them, with little more than verbal diversity; science hath still been the same pitiful thing, though in a various livery. The Grecian learning was but a transcript of the Chaldean and Egyptian; and the Roman of the Grecian. And though those former days have not wanted brave wits, that have gallantly attempted, and made essays worthy immortality; yet by reason either of the unqualified capacities of the multitude, (who dote on things slight and trivial; neglecting what is more rare and excellent) or the clamorous assaults of envious and more popular opposers, they have submitted to fate, and are almost lost in oblivion. And therefore, as that great man, the Lord Bacon hath observed, time as a river, hath brought down to us what is more light and superficial; while things more solid and substantial have been immersed. Thus the Aristotelian philosophy hath prevailed; while the more excellent and more ancient atomical hypothesis hath long lain buried in neglect and darkness; and for ought I know, might have slept for ever, had not the ingenuity of the present age, recalled it from its urn and silence. But it is somewhat collateral to my scope, as well as disproportioned to my abilities, to fall upon particular instances of the defects and errors of the philosophy of the ancients. The forementioned noble advancer of learning, whose name and parts might give credit to any undertaking; hath handsomely performed it, in his ingenious *Novum Organum*. And yet, because it may confer towards the discovery of how little our adherence to antiquity befriends truth, and the encrease of knowledge; as also how groundless are the dogmatists high pretensions to science: I shall adventure some considerations on the Peripatetic philosophy; which hath had the luck to survive all others, and to build a fame on their ruines.

Chap. XVIII.

REFLECTIONS ON THE PERIPATETIC PHILOSOPHY

The generality of its reception, no argument of its deserts; the first charge against that philosophy; that it is merely verbal. *Materia prima* in that philosophy signifies nothing. A parallel drawn between it and imaginary space: this latter pleads more for its reality. Their *form* also is a mere word, and *potentia Materiae* insignificant. Privation no principle. An essay to detect Peripatetic verbosity, by translating some definitions.

How Aristotle's philosophy came so universally to obtain in these later ages, to the silencing the Zoroastrian, Pythagorean, Platonical, and Epicurean learning, is not my business here to inquire. Worth is nor to be judged by success, and retinue; only we may take notice, that the generality of its reception is with many the persuading argument of its superlative desert. And common judges measure excellency by name and numbers. But Seneca's determination, *argumentum pessimi turba est*, is more deserving our credit: and the fewest, that is the wisest, have always stood contradictory to that ground of belief; vulgar applause by severer wisdom being held a scandal. If the numerousness of a train must carry it; virtue may go follow Astrea, and vice only will be worth the courting. The philosopher deservedly suspected himself of vanity, when cried up by the multitude: and discreet apprehenders will not think the better of that philosophy, which hath the common cry to vouch it. He that writ counter to the astrologer in his almanac, did with more truth foretell the weather: and he that shall write *foul*, in the place of the vulgars' *fair*; passes the juster censure. Those in the fable, who were wet with the shower of folly, hooted at the wise men that escaped it, and pointed at their actions as ridiculous; because unlike their own, that were truly so. If the major vote may cast it, wisdom and folly must exchange names; and the way to the one will be by the other. Nor is it the rabble only, which are such perverse discerners; we are now a sphere above them: I mean the *το πολυ* [Greek: to poly] of pretended philosophers, who judge as oddly in their way, as the rascality in theirs; and many a professed retainer to philosophy, is but an *ignoramus* in a suit of second notions. 'Tis such, that most revere the reliques of the adored Sophy; and, as Artemesia did those of Mausolus, passionately drink his ashes. Whether the remains of the Stagirite deserve such veneration, we'll make a brief enquiry.

In the conduct of which design, 6 things I offer against that philosophy, viz. (1.) That 'tis merely verbal, and (2.) Litigious. That (3.) It gives no account of the phenomena. Nor (4.) Doth it make any discoveries for the use of common life. That (5.) 'Tis inconsistent with divinity, and (6.) With itself. Which charges how just they are, I think will appear in the sequel.

To the first then. That the Aristotelian philosophy is an huddle of words and terms insignificant, hath been the censure of the wisest: and that both its basis and superstructure are chimerical; cannot be unobserved by them, that know it, and are free to judge it. To detect the verbal emptiness of this philosophy, I'll begin at the foundation of the hypothesis. For I intend but few, and those shall be signal instances.

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(1.) Therefore the *Materia prima* of this philosophy, shall be that of my reflections. In the consideration of which I shall need no more than the notion wherein Aristotle himself hath dressed it; for evidence of what I aim at; for, *nec quid, nec quale, nec quantum*, is as opposite a definition of nothing, as can be. So that if we would conceive this imaginary matter, we must deny all things of it, that we can conceive; and what remains is the thing we look for. And allowing all which its assertors assign it, viz. quantity interminate; 'tis still but an empty extended capacity, and therefore at the best, but like that space, which we imagine was before the beginning of time, and will be after it. 'Tis easy to draw a parallelism between that ancient, and this more modern, nothing; and in all things to make good its resemblance to that commentitious inanity. The Peripatetic matter is a pure unactuated power: and this conceited vacuum a mere receptibility. Matter is supposed indeterminate: and space is so, the pretended first matter is capable of all forms: and the imaginary space is receptive of any body. Matter cannot naturally subsist uninformed: and nature avoids vacuity in space. The matter is ingenerate, and beyond corruption: and the space was before, and will be after either. The matter in all things is but one: and the space most uniform. Thus the foundation-principle of Peripateticism is exactly parallel to an acknowledged nothing: and their agreement in essential characters makes rather an identity than a parity; but that imaginary space hath more to plead for its reality, than the matter hath, and in this consists the greatest dissimilitude. For that hath no dependence on the bodies which possess it; but was before them, and will survive them: whereas this essentially relies on the form and cannot subsist without it. Which yet, methinks, is little better than an absurdity: that the cause should be an eleemosynary for its subsistence to its effect, and a nature posterior to, and dependent on itself. This *dependentia a posteriori*, though in a diverse way of causality, my reason could never away with: yea, a sectator of this philosophy, Oviedo a Spanish Jesuit, hath effectually impugned it. So then there's nothing real, answering this imaginary Proteus; and *Materia prima* hath as much of being, as *Mons aureus*.

(2.) The Peripatetic forms are as obnoxious, and on the same account liable to our reflections as the former principle. I'll not spend time in an industrious confutation of what the votaries of that philosophy themselves can scarce tell what to make of: and the subject being dry and less suitable to those more mercurial tempers for whom I intend these papers: I'll only pass a reflection on it, and proceed to what may be less importunate.

The form then, according to this hypothesis, is a new substance produced in all generations to actuate the matter and passive principle; out of whose power 'tis said to be *educed*. And were it supposed to contain anything of the form pre-existing in it, as the seed of the being to be produced; 'twere then sense to say, it was *educed* from it; but by *educing*, the affirmers only mean a producing in it, with a subjective dependence on its recipient: a worthy signification of *education*; which answers not the question whence 'tis derived, but into what it is received. The question is of the *terminus a quo*, and the answer of the subject. So that all that can be made of this power of the matter, is merely a receptive capacity: and we may as well affirm that the world was *educed* out of the power of the imaginary space; and give that as a sufficient account of its original. And in this language, to grow rich were to *educer* money out of the power of the pocket. Wherefore, notwithstanding this imaginary *education* out of the power of the matter; we are still to seek whether these forms be produced out of something, or nothing; either of which supposed, bids defiance to the

hypothesis. For according to the first, all possible forms will be actually latent in the matter; which is contrary to the stream of the Peripatetic doctors. And the latter as opposite to their master's *ex nihilo nihil*, and he acknowledged no creation.

(3.) The third principle of bodies according to the Aristotelian philosophy is privation; concerning which, I'll add nothing but the words of the excellent Lord Montaigne, *qu'est il plus vain que de faire l'inanité mesme, cause de la production des choses? La privation c'est une negative: de quel humeur en a-il peu faire la cause & origine des choses qui sont?*

But yet further, to give an hint more of the verbosities of this philosophy, a short view of a definition or two will be sufficient evidence; which, though in Greek or Latin they amuse us; yet a translation unmasks them. And if we make them speak English, the cheat is transparent.

Light is ΕΝΕΡΓΙΑ ΤΟΥ ΔΙΑΦΑΝΟΥ [Greek:ENERGIA TOY DIAPHANOY] saith that philosophy: in English, the act of a perspicuous body. Sure Aristotle here transgressed his own topics, and if this definition be clearer and more known than the thing defined, midnight may vie for conspicuity with noon. Is not light more known than this insignificant energy? And what's a diaphanous body, but the light's medium the air? So that light is the act of the air. And if *Lux* be *Umbra Dei*, this definition is *Umbra Lucis*. Thus is light darkened by an illustration, and the symbol of evidence, clothed in the livery of midnight: as if light were best seen by darkness, as light inaccessible is best known by ignorance.

Again (2.) That motion is ΕΝΤΕΛΕΧΙΑ ΤΟΥ ΟΝΤΟΣ ΕΝ ΔΥΝΑΜΕΙ [Greek: ENTELECHIA TOY ONTOS TOY DYNAMEI] &c. Is a definition of Aristotle's, and as culpable as the former. For, by the most favourable interpretation of that unintelligible entelechy: it is but, an act of a-being in power, as it is in power; the construing of which into palpable sense or meaning would pose a critic. Sure that definition is not very conspicuous, whose genus puzzled the Devil. The philosopher that proved motion by walking, did in that action better define it: and that puzzled candidate, who being asked what a circle was, described it by the rotation of his hand; gave an account more satisfying. In some things we must indeed give an allowance for words of art: but in defining obvious appearances, we are to use what is most plain and easy; that the mind be not misled by amphibologies, or ill conceived notions, into fallacious deductions: which whether it be not the method of Peripatetic philosophy let the indifferent determine. To give an account of all the insignificancies, and verbal nothings of this philosophy, would be almost to transcribe it. 'Tis a philosophy, that makes most accurate inspections into the creatures of the brain; and gives the exactest topography of the extramundane spaces. Like our late politicians, it makes discoveries, and their objects too; and deals in beings, that owe nothing to the primitive fiat. The same undivided essence, from the several circumstances of its being and operations, is here multiplied into legion, and improved to a number of smaller entities; and these again into as many modes and insignificant formalities. What a number of words here have nothing answering them? And as many are imposed at random. To wrest names from their known meaning to senses most alien, and to darken speech by words without knowledge; are none of the most inconsiderable faults of this philosophy: to reckon them in their particular instances, would puzzle Archimedes. Now hence the genuine ideas of the mind are adulterate: and the things themselves lost in a crowd of names, and intentional nothings. Besides,

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these verborities emasculate the understanding; and render it slight and frivolous, as its objects.

Methinks, the late voluminous Jesuits, those Laplanders of Peripateticism, do but subtly trifle, and their philosophic understandings are much like his, who spent his time in darting cummin-seed through the eye of a needle. One would think they were impregnated, as are the mares in Cappadocia; they are big of words: their tedious volumes have the tympany, and bring forth nought but wind, and vapour. To me, a *cursus philosophicus*, is but an impertinency in folio; and the studying them a laborious idleness. 'Tis here, that things are crumbled into notional atoms; and the substance evaporated into an imaginary Ether. The intellect that can feed on this air, is a chameleon; and a mere inflated skin. From this stock grew school-divinity, which is but Peripateticism in a theological livery. A school-man is the ghost of the Stagirite, in a body of condensed air: and Thomas but Aristotle sainted.

Chap. XIX.

2. Peripatetic philosophy is litigious; it hath no settled constant signification of words; the inconveniences hereof. Aristotle intended the cherishing controversies; proved by his own double testimony. Some of his impertinent arguings instanced in. Disputes retard, and are injurious to knowledge. Peripatetics are most exercised in the controversial parts of philosophy, and know little of the practical and experimental. A touch at school-divinity.

But (2.) This philosophy is litigious, the very spawn of disputations and controversies as undecisive as needless. This is the natural result of the former: storms are the products of vapours. For where words are imposed arbitrarily, having no stated real meaning; or else distorted from their common use, and known significations; the mind must needs be led into confusion and misprision; and so things plain and easy in their naked natures, made full of intricacy and disputable uncertainty. For we cannot conclude with assurance, but from clearly apprehended premises; and these cannot be so conceived, but by a distinct comprehension of the words out of which they are elemented. So that, where these are unfixed or ambiguous; our propositions must be so, and our deductions can be no better. One reason therefore of the uncontroverted certainty of mathematical science is; because 'tis built upon clear and settled significations of names, which admit of no ambiguity or insignificant obscurity. But in the Aristotelian philosophy it's quite otherwise: words being here carelessly and abusively admitted, and as inconstantly retained; it must needs come to pass, that they will be diversly apprehended by contenders, and so made the subject of controversies, that are endless both for use and number. And thus being at their first step out of the way to science, by mistaking in simple terms; in the progress of their enquiries they must needs lose both themselves, and the truth, in a verbal labyrinth. And now the entangled disputants, as master Hobbes ingeniously observeth, like birds that came down the chimney; betake them to the false light, seldom suspecting the way they entered: but attempting by vain, impertinent, and coincident distinctions, to escape the absurdity that pursues them; do but weary themselves with as little success, as the silly bird attempts the window. The mis-stated words are the original mistake; and every other essay is a new one.

Now these canting contests, the usual entertainment of the Peripatum, are not only the accidental vitiosities of the philosophers; but the genuine issues of the philosophy itself. And Aristotle seems purposely to intend the cherishing of controversial digladiations, by his own affectation of an intricate obscurity. Himself acknowledged, when he said; his physics were published, and not so: and by that double advice in his topics 'tis as clear as light. In one place, he adviseth his sectators in disputations to be ambiguous: and in another, to bring forth anything that occurs, rather than give way to their adversary: counsel very well becoming an enquirer into truth and nature. Nor did he here advise them to anything, but what he followeth himself, and exactly copies out in his practice: the multitudes of the lame, abrupt, equivocal, self-contradicting expressions, will evidence it as to the first part: which who considers, may be satisfied in this; that if Aristotle found nature's face under covert of a veil, he hath not removed the old, but made her a new one. And for the latter, his frequent slightness in arguing doth abundantly make it good. To instance:

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He proves the world to be perfect, because it consists of bodies; and that bodies are so, because they consist of a triple dimension; and that a triple dimension is perfect, because three are all; and that three are all, because when 'tis but one or two, we can't say all, but when 'tis three, we may: is not this an absolute demonstration? We can say all at the number three: therefore the world is perfect. Tobit went forth and his dog followed him; therefore there's a world in the Moon, were an argument as apodictical. In another place (2.) He proves the world to be but one: for were there another, our Earth would fall unto it. Which is but a pitiful deduction, from the mere prejudice of sense; and not unlike theirs, who thought, if there were antipodes, they must needs (as it's said of Erasmus) in *coelum descendere*. As if, were there more worlds, each of them would not have its proper centre. Elsewhere (3.) Showing, why the heavens move this way rather than another, he gives this for a reason: because they move to the more honourable; and before is more honourable than after. This is like the gallant, who sent his man to buy an hat, that would turn up behind. As if, had the heavens moved the other way; that term had not been then before, which is now the contrary. This inference is founded upon a very weak supposition, viz. That those alterable respects are realities in nature; which will never be admitted by a considerate discerner. Thus Aristotle acted his own instructions; and his obsequious sectators have supererogated in observance. They have so disguised his philosophy by obscuring comments, that his revived self would not own it: and were he to act another part with mortals, heed be but a pitiful Peripatetic; every sophister would out-talk him.

Now the disputing way of enquiry is so far from advancing science; that 'tis no inconsiderable retarder: for in scientific discoveries many things must be considered, which the hurry of a dispute indisposeth for; and there is no way to truth, but by the most clear comprehension of simple notions, and as wary an accuracy in deductions. If the fountain be disturbed, there's no seeing to the bottom; and here's an exception to the proverb, 'tis no good fishing for verity in troubled waters. One mistake of either simple apprehension, or connection, makes an erroneous conclusion. So that the precipitancy of disputation, and the stir and noise of passions, that usually attend it, must needs be prejudicial to verity: its calm insinuations can no more be heard in such a bustle, than a whisper among a crowd of sailors in a storm. Nor do the eager clamours of contending disputants, yield any more relief to eclipsed truth; than did the sounding brass of old to the labouring moon. When it's under question, 'twere as good slip cross and pile, as to dispute for't: and to play a game at chess for an opinion in philosophy (as myself and an ingenious friend have sometimes sported) is as likely a way to determine. Thus the Peripatetic procedure is inept for philosophical solutions: the lot were as equitable a decision, as their empty loquacities.

'Tis these ungracious disputations that have been the great hindrance to the more improvable parts of learning: and the modern retainers to the Stagirite have spent their sweat and pains upon the most litigious parts of his philosophy; while those, that find less play for the contending genius, are incultivate. Thus logic, physics, and metaphysics, are the burden of volumes, and the daily entertainment of the disputing schools: while the more profitable doctrines of the heavens, meteors, minerals, animals; as also the more practical ones of politics, and economics, are scarce so much as glanced at. And the indisputable mathematics, the only science heaven hath yet vouchsafed humanity, have but few votaries among the slaves of the Stagirite. What, the late promoters of the Aristotelian philosophy, have writ on all

these so fertile subjects, can scarce compare with the single disputes about *Materia prima*.

Nor hath human science monopolized the damage, that hath sprung from this root of evils: theology hath been as deep a sharer. The volumes of the schoolmen, are deplorable evidence of Peripatetic depravations: and Luther's censure of that divinity, *quam primum apparuit theologia scholastica, evanuit theologia crucis*, is neither uncharitable, nor unjust. This hath mudded the fountain of certainty with notional and ethnic admixtions, and plaited the head of evangelical truth, as the Jews did its author's, with a crown of thorns: here, the most obvious verity is subtleized into niceties, and spun into a thread indiscernible by common optics, but through the spectacles of the adored heathen. This hath robbed the Christian world of its unity and peace, and made the church, the stage of everlasting contentions: and while Aristotle is made the center of truth, and unity, what hope of reconciling? And yet most of these scholastic controversies are ultimately resolved into the subtleties of his philosophy: whereas methinks an athenian should not be the best guide to the ΘΕΣ ΑΓΝΩΣΤΩΣ[Greek: THEOS AGNOSTOS]; nor an idolater to that God he neither knew nor owned. When I read the eager contests of those notional theologues, about things that are not; I cannot but think of that pair of wise ones, that fought for the middle: and methinks many of their controversies are such, as if we and our antipodes, should strive who were uppermost; their title to truth is equal. He that divided his text into one part; did but imitate the schoolmen in their coincident distinctions: and the best of their curiosities are but like paint on glass, which intercepts and dyes the light the more desirable splendor. I cannot look upon their elaborate trifles, but with a sad reflexion on the degenerate state of our lapsed intellects; and as deep a resentment, of the mischiefs of this school-philosophy.

Chap. XX.

3. It gives no account of the phenomena; those that are remoter, it attempts not. It speaks nothing pertinent in the most ordinary: its circular, and general way of solution. It resolves all things into occult qualities. The absurdity of the Aristotelian hypothesis of the heavens. The galaxy is no meteor: the heavens are corruptible. Comets are above the moon. The sphere of fire derided. Aristotle convicted of several other false assertions.

3. The Aristotelian hypotheses give a very dry and jejune account of nature's phenomena.

For (1.) As to its more mysterious reserves, Peripatetic enquiry hath left them unattempted; and the most forward notional dictators sit down here in a contented ignorance: and as if nothing more were knowable than is already discovered, they put stop to all endeavours of their solution. Qualities, that were occult to Aristotle, must be so to us; and we must not philosophize beyond sympathy and antipathy: whereas indeed the rarities of nature are in these recesses, and its most excellent operations cryptic to common discernment. Modern ingenuity expects wonders from magnetic discoveries: and while we know but its more sensible ways of working; we are but vulgar philosophers, and not likely to help the world to any considerable theories. Till the fountains of the great deeps are broken up, knowledge is not likely to cover the earth as the waters the sea.

Nor (2.) Is the Aristotelian philosophy guilty of this sloth and philosophic penury, only in remoter abstrusities: but in solving the most ordinary causalities, it is as defective and unsatisfying. Even the most common productions are here resolved into celestial influences, elemental combinations, active and passive principles, and such generalities; while the particular manner of them is as hidden as sympathies. And if we follow manifest qualities beyond the empty signification of their names; we shall find them as occult, as those which are professedly so. That heavy bodies descend by gravity, is no better an account than we might expect from a rustick: and again, that gravity is a quality whereby an heavy body descends, is an impertinet circle, and teacheth nothing. The feigned central alliciency is but a word, and the manner of it still occult. That the fire burns by a quality called heat; is an empty dry return to the question, and leaves us still ignorant of the immediate way of igneous solutions. The accounts that this philosophy gives by other qualities, are of the same gender with these: so that to say the loadstone draws iron by magnetic attraction, and that the sea moves by flux and reflux; were as satisfying as these hypotheses, and the solution were as pertinent. In the qualities, this philosophy calls manifest, nothing is so but the effects. For the heat, we feel, is but the effect of the fire; and the pressure, we are sensible of; but the effect of the descending body. And effects, whose causes are confessedly occult, are as much within the sphere of our senses; and our eyes will inform us of the motion of the steel to its attrahent. Thus Peripatetic philosophy resolves all things into occult qualities; and the dogmatists are the only skeptics. Even to them, that pretend so much to science, the world is circumscribed with a Gyges his ring; and is intellectually invisible: and, ΟΥ ΚΑΤΑΛΑΜΒΑΜΩ [Greek: ΟΥ ΚΑΤΑΛΑΜΒΑΝΟ], is a fit motto for the Peripatum. For by their way of disquisition

there can no more be truly comprehended, than what's known by every common ignorant. And ingenious inquiry will not be contented with such vulgar frigidities.

But further, (3.) If we look into the Aristotelian comments on the largest volumes of the universe: the works of the fourth day are there as confused and disorderly, as the chaos of the first: and more like that, which was before the light, than the completely finished, and gloriously disposed frame. What a romance is the story of those impossible concamerations, intersections, involutions, and feigned rotations of solid orbs? All substituted to salve the credit of a broken ill-contrived system. The belief of such disorders above, were an advantage to the oblique atheism of Epicurus: and such irregularities in the celestial motions, would lend an argument to the apotheosis of fortune. Had the world been coagmented from that supposed fortuitous jumble; this hypothesis had been tolerable. But to entitle such abrupt, confused motions to almighty wisdom, is to degrade it below the size of human forecast and contrivance. And could the doctrine of solid orbs, be accommodated to astronomical phenomena; yet to ascribe each sphere an intelligence to circumsolve it, were an unphilosophical desperate refuge: and to confine the blessed genii to a province, which was the Hell of Ixion, were to rob them of their felicities. That the galaxy is a meteor, was the account of Aristotle: but the telescope hath autoptically confuted it: and he, who is not Pyrrhonian to the disbelief of his senses, may see, that it's no exhalation from the earth, but an heap of smaller luminaries. That the heavens are void of corruption, is Aristotle's supposal: but the tube hath betrayed their impurity; and neoteric astronomy hath found spots in the sun. The discoveries made in Venus, and the moon, disprove the antique quintessence; and evidence them of as course materials, as the globe we belong to. The perspicil, as well as the needle, hath enlarged the habitable world; and that the moon is an earth, is no improbable conjecture. The inequality of its surface, mountainous protuberance, the nature of its maculae, and infinite other circumstances (for which the world's beholding to Galileo) are items not contemptible: Hevelius hath graphically described it: that comets are of nature terrestrial, is allowable: but that they are material of vapours, and never flamed beyond the moon; were a concession unpardonable. That in Cassiopea was in the firmament, and another in our age above the sun. Nor was there ever any as low as the highest point of the circumference, the Stagyrice allows them. So that we need not be appalled at blazing stars, and a comet is no more ground for astrological presages than a flaming chimney. The unparalleled Descartes hath unriddled their dark physiology, and to wonder solved their motions. His philosophy gives them transcursions beyond the vortex we breathe in; and leads them through others, which are only known in an hypothesis. Aristotle would have fainted before he had flown half so far, as that eagle-wit; and have lighted on a hard name, or occult quality, to rest him. That there is a sphere of fire under the concave of the moon, is a dream: and this, may be, was the reason some imagined hell there, thinking those flames the ignis rota. According to this hypothesis, the whole lunar world is a torrid zone; and on a better account, than Aristotle thought ours was, may be supposed inhabitable, except they are salamanders which dwell in those fiery regions. That the reflexion of the solar rays, is terminated in the clouds; was the opinion of the Grecian sage: but lunar observations have convicted it of falsehood; and that planet receives the dusky light, we discern in its sextile aspect, from the Earth's benignity. That the rainbow never describes more than a semicircle, is no credible assertion; since experimental observations have confuted it. Gassendus saw one at sun-setting, whose supreme arch almost reached our zenith, while the horns stood in the oriental tropics. And that noble wit reprehends the school-idol, for assigning fifty years at least between every

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lunar iris. That Caucasus enjoys the sunbeams three parts of the nights vigils; that Danubius ariseth from the Pyrenean hills: that the Earth is higher towards the north: are opinions truly charged on Aristotle by the restorer of Epicurus; and all easily confutable falsities. To reckon all the Aristotelian aberrances, and to give a full account of the lameness of his hypotheses, would swell this digression into a volume. The mentioned shall suffice us.

Chap. XXI.

4. Aristotle's philosophy inept for new discoveries; it hath been the author of no one invention: it's founded on vulgarities, and therefore makes nothing known beyond them. The knowledge of natures outside confers not to practical improvements. Better hopes from the new philosophy. The directing all this to the design of the discourse. A caution, viz, that nothing is here intended in favour of novelty in divinity; the reason why we may embrace what is new in philosophy, while we reject them in theology.

4. The Aristotelian philosophy is inept for new discoveries; and therefore of no accommodation to the use of life. That all arts, and professions are capable of mature improvements; cannot be doubted by those, who know the least of any. And that there is an America of secrets, and unknown Peru of nature, whose discovery would richly advance them, is more than conjecture. Now while we either sail by the land of gross and vulgar doctrines, or direct our enquiries by the cynosure of mere abstract notions; we are not likely to reach the treasures on the other side the Atlantic: the directing of the world the way to which, is the noble end of true philosophy. That the Aristotelian physiology cannot boast itself the proper author of any one invention; is pregnant evidence of its infecundous deficiency: and 'twould puzzle the Schools to point at any considerable discovery, made by the direct, sole manuduction of Peripatetic principles. Most of our rarities have been found out by casual emergency; and have been the works of time, and chance, rather than of philosophy. What Aristotle hath of experimental knowledge in his books of animals, or elsewhere; is not much transcending vulgar observation: and yet what he hath of this, was never learnt from his hypotheses; but forcibly fetched in to suffrage to them. And 'tis the observation of the noble St. Alban; that that philosophy is built on a few vulgar experiments: and if upon further enquiry, any were found to refragate, they were to be discharged by a distinction. Now what is founded on, and made up but of vulgarities, cannot make known anything beyond them. For nature is set a going by the most subtle and hidden instruments; which it may be have nothing obvious which resembles them. Hence judging by visible appearances, we are discouraged by supposed impossibilities which to nature are none, but within her sphere of action. And therefore what spews only the outside, and sensible structure of nature; is not likely to help us in finding out the magnalia. 'Twere next to impossible for one, who never saw the inward wheels and motions, to make a watch upon the bare view of the circle of hours, and index: and 'tis as difficult to trace natural operations to any practical advantage, by the sight of the cortex of sensible appearances. He were a poor physician, that had no more anatomy, than were to be gathered from the physnomy. Yea, the most common phenomena can be neither known, nor improved, without insight into the more hidden frame. For nature works by an invisible hand in all things: and till Peripateticism can shew us further, than those gross solutions of qualifies and elements; 'twill never make us benefactors to the world, nor considerable discoverers. But its experienced sterility through so many hundred years, drives hope to desperation.

We expect greater things from neoteric endeavours. The Cartesian philosophy in this regard hath shown the world the way to be happy. And methinks this age seems resolved to bequeath posterity somewhat to remember it: the glorious undertakers, wherewith heaven hath blest our days, will leave the world better

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provided than they sound it. And whereas in former times such generous free-spirited worthies were as the rare newly observed stars, a single one the wonder of an age: in ours they are like the lights of the greater size that twinkle in the starry firmament: and this last century can glory in numerous constellations. Should those heroes go on, as they have happily begun, they'll fill the world with wonders. And I doubt not but posterity will find many things, that are now but rumors, verified into practical realities. It may be some ages hence, a voyage to the southern unknown tracts, yea possibly the moon, will not be more strange than one to America. To them, that come after us, it may be as ordinary to buy a pair of wings to fly into remotest regions; as now a pair of boots to ride a journey. And to confer at the distance of the Indies by sympathetic conveyances, may be as usual to future times, as to us in a literary correspondence. The restoration of gray hairs to juvenility, and renewing the exhausted marrow, may at length be effected without a miracle: and the turning of the now comparative desert world into a paradise, may not improbably be expected from late agriculture.

Now those, that judge by the narrowness of former principles and successes, will smile at these paradoxical expectations: but questionless those great inventions, that have in these later ages altered the face of all things; in their naked proposals, and mere suppositions, were to former times as ridiculous. To have talked of a new Earth to have been discovered, had been a romance to antiquity: and to sail without sight of stars or shores by the guidance of a mineral, a story more absurd than the flight of Dedalus. That men should speak after their tongues were ashes, or communicate with each other in differing hemispheres, before the invention of letters; could not but have been thought a fiction. Antiquity would not have believed the almost incredible force of our cannons; and would as coldly have entertained the wonders of the telescope. In these we all condemn antique incredulity; and 'tis likely posterity will have as much cause to pity ours. But yet notwithstanding this straightness of shallow observers, there are a set of enlarged souls that are more judiciously credulous: and those, who are acquainted with the fecundity of Cartesian principles, and the diligent and ingenious endeavours of so many true philosophers; will despair of nothing.

Chap. XXII.**(5.) The Aristotelian philosophy inconsistent with divinity; and (6.)
With itself. The conclusion of the reflections.**

But again (5.) The Aristotelian philosophy is in some things impious, and inconsistent with divinity. That the resurrection is impossible: that God understands not all things: that the world was from eternity: that there's no substantial form, but moves some orb: that the first mover moves by an eternal, immutable necessity: that, if the world and motion were not from eternity, than God was idle: were all the assertions of Aristotle, and such as theology pronounceth impieties. Which yet we need not strange at from one, of whom a father saith, *nec deum coluit nec curavit*: especially, if it be as Philoponus affirms, that he philosophized by command from the Oracle. But besides those I have mentioned, I might present to view a larger catalogue of Aristotle's impious opinions; of which take a few:

He makes one God the first mover, but 56 others, movers of the orbs. He calls God an animal: and affirms, that he knows not particulars. He denies that God made anything, or can do anything but move the heavens. He affirms, that 'tis not God but nature, chance, and fortune that rule the world. That he is tied to the first orb; and preserves not the world, but only moves the heavens; and yet elsewhere, that the world and heavens have infinite power to move themselves. He affirms, the soul cannot be separated from the body, because 'tis its form. That prayers are to no purpose, because God understands not particulars. That God hears no prayers, nor loves any man. That the soul perisheth with the body: and that there is neither state, nor place of happiness after this life is ended. All which dogmata, how contrary they are to the fundamental principles of reason and religion, is easily determined and perhaps, never did any worse drop from the pens of the most vile contemners of the deity. So that the great and most learned Origen, was not unjust in preferring Epicurus before the adored Stagyrite. And possibly there have been few men in the world have deserved less of religion, and those that profess it. How it is come about then, that the assertor of such impieties, should be such an oracle among divines and Christians; is I confess to me, matter of some astonishment. And how Epicurus became so in-famous, when Aristotle who spake as ill, and did worse, hath been so sacred, may well be wondred at.

Again (6.) The Peripatetic philosophy is repugnant to itself; as also it was contrary to the more ancient wisdom. And Therefore the learned Patritius saith of Aristotle, *ob eam rem multos e patribus habuit opfiugnatores, celebratorem neminem*. And within the same period of sense affirms, *Ipse sibi ipsi non constat; immo saepissime, immo semper secum pugnat*. Of the Aristotelian contradictions, Gassendus hath presented us with a catalogue: we'll instance in a few of them. In one place He saith, the planets' scintillation is not seen, because of their propinquity; but that of the rising and setting sun is, because of its distance: and yet in another place he makes the sun nearer us, than they are. He saith, that the elements are not eternal, and seeks to prove it; and yet he makes the world so, and the elements its parts. In his meteors he saith, no dew is produced in the wind; and yet afterwards admits it under the south, and none under the north. In one place he defines a vapour humid and cold; and in another humid and hot. He saith, the faculty of speaking is a sense; And yet before he allowed but five. In one place, that nature doth all things best; and in

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another, that it makes more evil than good. And somewhere he contradicts himself within a line; saying, that an immoveable mover hath no principle of motion. 'Twould be tedious to mention more; and the quality of a digression will not allow it.

Thus we have, as briefly as the subject would bear, animadverted on the so much admired philosophy of Aristotle. The nobler spirits of the age, are disengaged from those detected vanities: and the now adorers of that philosophy are few, but such as know no other: or if any of them look beyond the leaves of their master, yet they try other principles by a jury of his, and scan Descartes by genus and species. From the former sort I may hope, they'll pardon this attempt; since nothing but the authors weakness kindred his obliging them. And for the latter, I value not their censure.

We may conclude upon the whole then, that the stamp of authority can make leather as current as gold; and that there's nothing so contemptible, but antiquity can render it august, and excellent. But, because the fooleries of some affected novelists have discredited new discoveries, and rendered the very mention suspected of vanity at least; and in points divine, of heresy: it will be necessary to add, that I intend not the former discourse, in favour of any new-broached conceit in divinity: for I own no opinion there, which cannot plead the prescription of above sixteen hundred. There's nothing I have more sadly resented, than the crazy whimsies with which our age abounds, and therefore am not likely to patron them. In theology, I put as great a difference between our new lights, and ancient truths, as between the sun, and an unconcocted evanid meteor. Though I confess, that in philosophy I'm a seeker; yet cannot believe that a skeptic in philosophy must be one in divinity. Gospel-light began in its zenith; and, as some say the sun, was created in its meridian strength and lustre. But the beginnings of philosophy were in a crepusculous obscurity; and it's not yet scarce past the dawn. Divine truths were most pure in their source; and time could not perfect what eternity began: our divinity, like the grand-father of humanity, was born in the fulness of time, and in the strength of its manly vigour: but philosophy and arts commenced embryos, and are by times gradual accomplishments. And therefore, what I cannot find in the leaves of former inquisitors: I seek in the modern attempts of nearer authors. I cannot receive Aristotle's ΠΙΣΤΟΤΑΤΟΙ ΠΑΛΑΙΟΙ [Greek:PISTOTATOI PALAIOI], in so extensive an interpretation, as some would enlarge it to and that discouraging maxim, *nil dictum quod non dictum prius*, hath little room in my estimation. Nor can I tie up my belief to the letter of Solomon: except Copernicus be in the right, there hath been something new under the sun; I'm sure, later times have seen novelties in the heavens above it. I do not think, that all science is tautology: the last ages have shown us, what antiquity never saw; no not in a dream.

Chap. XXIII.

It's queried whether there be any science in the sense of the dogmatists: (1.) We cannot know anything to be the cause of another, but from its attending it; and this way is not infallible; declared by instances, especially from the philosophy of Descartes. All things are mixed; and 'tis difficult to assign each cause its distinct effects. (2.) There's no demonstration but where the contrary is impossible. And we can scarce conclude so of any thing.

Confidence of science is one great reason, we miss it: for on this account presuming we have it everywhere, we seek it not where it is; and therefore fall short of the object of our enquiry. Now to give further check to dogmatical pretensions, and to discover the vanity of assuming ignorance; we'll make a short enquiry, whether there be any such thing as science in the sense of its assertors. In their notion then, it is the knowledge of things in their true, immediate, necessary causes: upon which I'll advance the following observations.

1. All knowledge of causes is deductive: for we know none by simple intuition; but through the mediation of their effects. So that we cannot conclude, anything to be the cause of another; but from its continual accompanying it: for the causality itself is insensible. But now to argue from a concomitancy to a causality, is not infallibly conclusive: yea in this way lies notorious delusion. For suppose, for instance, we had never seen more sun, than in a cloudy day; and that the lesser lights had ne'er appeared: let us suppose the day had alway broke with a wind, and had proportionably varied, as that did: had not he been a notorious skeptic, that should question the causality? But we need not be beholding to so remote a supposition: the French philosophy furnishes us with a better instance. For, according to the principles of the illustrious Descartes, there would be light, though the sun and stars gave none; and a great part of what we now enjoy, is independent on their beams. Now if this seemingly prodigious paradox, can be reconciled to the least probability of conjecture, or may it be made but a tolerable supposal; I presume, it may then win those that are of most difficult belief, readily to yield, that causes in our account the most palpable, may possibly be but uninfluential attendants; since that there is not an instance can be given, wherein we opinion a more certain efficiency. So then, according to the tenor of that concinnous hypothesis, light being caused by the *conamen* of the matter of the vortex, to recede from the centre of its motion: it is an easy inference, that were there none of that fluid Ether, which makes the body of the sun in the centre of our world, or should it cease from action; yet the *conatus* of the circling matter would not he considerably less, but according to the indispensable laws of motion, must press the organs of sense as now; though it may be, not with so smart an impulse. Thus we see, how there might be light before the luminaries; and evening and morning before there was a sun. So then we cannot infallibly assure ourselves of the truth of the causes, that most obviously occur; and therefore the foundation of scientific procedure, is too weak for so magnificent a superstructure.

Besides, that the world's a mass of heterogeneous subsistencies, and every part thereof a coalition of distinguishable varieties; we need not go far for evidence: and that all things are mixed, and causes blended by mutual involutions; I presume, to the

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intelligent will be no difficult concession. Now to profound to the bottom of these diversities, to assign each cause its distinct effects, and to limit them by their just and true proportions; are necessary requisites of science: and he that hath compassed them, may boast he hath out-done humanity. But for us to talk of knowledge, from those few indistinct representations, which are made to our grosser faculties, is flatulent vanity.

2. We hold no demonstration in the notion of the dogmatist, but where the contrary is impossible: for necessary is that, which cannot be otherwise. Now, whether the acquisitions of any on this side perfection, can make good the pretensions to so high strained an infallibility, will be worth a reflection. And methinks, did we but compare the miserable scantness of our capacities, with the vast profundity of things; both truth and modesty would teach us a more wary and becoming language. Can nothing be otherwise, which we conceive impossible to be so? Is our knowledge, so adequately commensurate with the nature of things, as to justify such an affirmation, that that cannot be, which we comprehend not? Our demonstrations are levied upon principles of our own, not universal nature: and, as my Lord Bacon notes, we judge from the analogy of ourselves, not the universe. Now are not many things certain by one man's principles, which are impossible to the apprehensions of another? Some things our juvenile reasons tenaciously adhere to; which yet our maturer judgements disallow of: and that to mere sensible discerners is impossible, which to the enlarged principles of more advanced intellects is an easy variety: yea, that's absurd in one philosophy, which is a worthy truth in another; and that is a demonstration to Aristotle, which is none to Descartes. That every fixed star is a sun; and that they are as distant from each other, as we from some of them: that the sun, which lights us, is in the centre of our world, and our Earth a planet that wheels about it: that this globe is a star, only crusted over with the grosser element, and that its centre is of the same nature with the sun: that it may recover its light again, and shine amidst the other luminaries: that our sun may be swallowed up of another, and become a planet: all these, if we judge by common principles, or the rules of vulgar philosophy, are prodigious impossibilities, and their contradictories, as good as demonstrable: but yet to a reason informed by Cartesianism, these have their probability. Thus, it may be, the grossest absurdities to the philosophies of Europe, may be justifiable assertions to that of China: and tis not unlikely, but what's impossible to all humanity, may be possible in the metaphysics, and physiology of angels. For the best principles, excepting divine, and mathematical, are but hypotheses; within the circle of which, we may indeed conclude many things, with security from error but yet the greatest certainty, advanced from supposal, is still but hypothetical. So that we may affirm, that things are thus and thus, according to the principles we have espoused: but we strangely forget ourselves, when we plead a necessity of their being so in nature, and an impossibility of their being otherwise.

Chap. XXIV.

**Three instances of reputed impossibilities, which likely are not so, as
(1.) Of the power of imagination. (2.) Secret conveyance. (3.)
Sympathetic cures.**

Now to show how rashly we use to conclude things impossible; I'll instance in some reputed impossibilities, which are only strange and difficult performances. And the instances are three: (1.) The power of one man's imagination upon another's. (2.) Momentous conveyance at almost any distance. (3.) Sympathetic cures.

(1) That the fancy of one man should bind the thoughts of another, and determine them to their particular objects, will be thought impossible: which yet, if we look deeply into the matter, wants not its probability. By the power of advanced imagination it may very probably be effected; and history abounds with instances. I'll trouble the reader but with one; and the hands from which I had it, make me secure of the truth on't. There was very lately a lad in the University of Oxford, who being of very pregnant and ready parts, and yet wanting the encouragement of preferment; was by his poverty forced to leave his studies there, and to cast himself upon the wide world for a livelihood. Now, his necessities growing daily on him, and wanting the help of friends to relieve him; he was at last forced to join himself to a company of vagabond Gypsies, whom occasionally he met with, and to follow their trade for a maintenance. Among these extravagant people, and by the insinuating subtlety of his carriage, he quickly got so much of their love, and esteem; as that they discovered to him their mystery: in the practice of which, by the pregnancy of his wit and parts he soon grew so good a proficient, as to be able to out-do his instructors.

After he had been a pretty while exercised in the trade; there chanced to ride by a couple of scholars who had formerly been of his acquaintance. The Scholars had quickly spied out their old friend, among the Gypsies; and their amazement to see him among such society, had well-nigh discovered him: but by a sign he prevented their owning him before that Crew: and taking one of them aside privately, desired him with his friend to go to an Inn, not far distant thence, promising there to come to them. They accordingly went thither, and he follows: after their first salutations, his friends enquire how he came to lead so odd a life as that was, and to join himself with such a cheating beggarly company. The Scholar-Gypsy having given them an account of the necessity, which drove him to that kind of life; told them, that the people he went with were not such impostors as they were taken for, but that they had a traditional kind of learning among them, and could do wonders by the power of imagination, and that himself had learnt much of their art, and improved in further than themselves could. And to evince the truth of what he told them, he said, he'd remove into another room, leaving them to discourse together; and upon his return tell them the sum of what they had talked of: which accordingly he performed, giving them a full account of what had passed between them in his absence. The Scholars being amazed at so unexpected a discovery, earnestly desired him to unriddle the mystery. In which he gave them satisfaction, by telling them, that what he did was by the power of imagination, his fancy binding theirs; and that himself had dictated to them the discourse, they held together, while he was from them: That there were warrantable ways of heightening the imagination to that pitch, as to bind another's;

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and that when he had compassed the whole secret, some parts of which he said he was yet ignorant of, he intended to give the world an account of what he had learned.

The judicious naturalist my Lord Bacon, speaks not unfavourably of this way of secret influence: and that the spirit of one man hath sometimes a power over that of another, I think is well attested by experience. For some presences daunt and discourage us, when others raise us to a brisk assurance. And I believe there are few but find that some companies benumb and cramp them, so that in them they can neither speak nor do anything that is handsome: whereas among more congruous and suitable tempers they find themselves very lucky and fortunate both in speech and action. Which things seem to me pretty considerable evidence of immaterial intercourses between our spirits. And that this kind of secret influence may be advanced to so strange an operation in the imagination of one upon another, as to fix and determine it.

Now that this strange power of the imagination is no impossibility; the wonderful signatures in the foetus caused by the imagination of the mother, is no contemptible item. The sympathies of laughing and gaping together, are resolved into this principle: and I see not why the fancy of one man may not determine the cogitation of another rightly qualified, as easily as his bodily motion. Nor doth this influence seem more unreasonable, than that of one string of a lute upon another, when a stroke on it causeth a proportionable motion in the sympathizing consort, which is distant from it and not sensibly touched. And if there be truth in this notion; 'twill yield us a good account how angels inject thoughts into our minds, and know our cogitations: and here we may see the source of some kinds of fascination.

Now, though in our inquiry after the reason of this operation, we can receive no assistance from the common philosophy; yet the Platonical hypothesis of a mundane soul will handsomely relieve us. Or if any would rather have a mechanical account; I think it may probably be made out some such way as follows. Imagination is inward sense; to sense is required a motion of certain filaments of the brain; and consequently in imagination there's the like: they only differing in this, that the motion of the one proceeds immediately from external objects; but that of the other hath its immediate rise within ourselves. Now then, when any part of the brain is strongly agitated; that which is next and most capable to receive the motive impress, must in like manner be moved. And we cannot conceive anything more capable of motion, than the fluid matter, that's interspersed among all bodies, and contiguous to them. So then, the agitated pars of the brain begetting a motion in the proxime Ether; it is propagated through the liquid medium; as we see the motion is which is caused by a stone thrown into the water. And when the thus moved matter meets with anything like that, from which it received its primary impress; it will in like manner move it; as it is in musical strings tuned unisons. And thus the motion being conveyed, from the brain of one man to the fancy of another; it is there received from the instrument of conveyance, the subtle matter; and the same kind of strings being moved, and much what after the same manner as in the first imaginant; the soul is awakened to the same apprehensions, as were they that caused them. I pretend not to any exactness or infallibility in this account, foreseeing many scruples that must be removed to make it perfect: 'tis only an hint of the possibility of mechanically solving the phenomenon; though very likely it may require many other circumstances completely to make it out. But 'tis not my business here to follow it: I leave it therefore to receive accomplishment from maturer inventions.

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But (2.) To advance another instance. That men should confer at very distant removes by an extemporary intercourse, is another reputed impossibility; but yet there are some hints in natural operations, that give us probability that it is feasible, and may be compassed without unwarrantable correspondence with the people of the air. That a couple of needles equally touched by the same magnet, being set in two dials exactly proportioned to each other, and circumscribed by the letters of the alphabet, may effect this magnale, hath considerable authorities to avouch it. The manner of it is thus represented. Let the friends that would communicate, take each a dial: and having appointed a time for their sympathetic conference, let one move his impregnate needle to any letter in the alphabet, and its affected fellow will precisely respect the same. So that would I know what my friend would acquaint me with; 'tis but observing the letters that are pointed at by my needle, and in their order transcribing them from their sympathizing index, as its motion direct's: and I may be assured that my friend described the same with his: and that the words on my paper, are of his indicting. Now though there will be some ill contrivance in a circumstance of this invention, in that the thus impregnate needles will not move to, but avert from each other (as ingenious Dr. Browne in his *Pseudodoxia Epidemica* hath observed:) yet this cannot prejudice the main design of this way of secret conveyance: since 'tis but reading counter to the magnetic informer; and noting the letter which is most distant in the abecedarian circle from that which the needle turns to, and the case is not altered. Now though this pretty contrivance possibly may not yet answer the expectation of inquisitive experiment; yet 'tis no despicable item, that by some other such way of magnetic efficiency, it may hereafter with success be attempted, when magical history shall be enlarged by riper inspections: and 'tis not unlikely, but that present discoveries might be improved to the performance.

Besides this there is another way of secret conveyance that's whispered about the world, the truth of which I vouch not, but the possibility: it is conference at distance by sympathized hands. For say the relators of this strange secret: the hands of two friends being allied by the transferring of flesh from one into another, and the place of the letters mutually agreed on; the least prick in the hand of one, the other will be sensible of, and that in the same part of his own. And thus the distant friend, by a new kind of chiromancy, may read in his own hand what his correspondent had set down in his. For instance, would I in London acquaint my intimate in Paris, that I am well: I would then prick that part where I had appointed the letter [I] and doing so in another place to signify that word was done, proceed to [A] thence to [M] and so on, till I had finished what I intended to make known.

Now if these seemingly prodigious fancies of secret conveyances prove to be but possible, they will be warrantable presumption of the verity of the former instance: since 'tis as easily conceivable, that there should be communications between the fancies of men, as either the impregnate needles, or sympathized hands.

And there is an instance still behind, which is more credible than either, and gives probability to them all.

(3.) Then there is a magnetic way of curing wounds by anointing the weapon, and that the wound is affected in like manner as is the extravenate blood by the sympathetic medicine, as to matter of fact is with circumstances of good evidence asserted by the noble Sir K. Digby in his ingenious discourse on the subject. The reason of this magnale he attempts by mechanism, and endeavours to make it out by atomical aporrhæas, which passing from the cruentate cloth or weapon to the wound,

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and being incorporated with the particles of the salve carry them in their embraces to the affected part: where the medicinal atoms entering together with the effluvioms of the blood, do by their subtle insinuation better effect the cure, than can be done by any grosser application. The particular way of their conveyance, and their regular direction is handsomely explicated by that learned knight, and recommended to the ingenious by most witty and becoming illustrations. It is out of my way here to enquire whether the *anima mundi* be not a better account, than any mechanical solutions. The former is more desperate; the latter perhaps hath more of ingenuity, than good ground of satisfaction. It is enough for me that *de facto* there is such an intercourse between the magnetic unguent and the vulnerated body, and I need not be solicitous of the cause. These theories I presume will not be importunate to the ingenious: and therefore I have taken the liberty (which the quality of a essay will well enough allow of) to touch upon them, though seemingly collateral to my scope. And yet I think, they are but seemingly so, since they do pertinently illustrate my design, viz. That what seems impossible to us, may not be so in nature; and therefore the dogmatist wants this to complete his demonstration, that 'tis impossible to be otherwise.

Now I intend not anything here to invalidate the certainty of truths either mathematical or divine. These are superstructed on principles that cannot fail us, except our faculties do constantly abuse us. Our religious foundations are fastened at the pillars of the intellectual world, and the grand articles of our belief as demonstrable as geometry. Nor will ever either the subtle attempts of the resolved atheist, or the passionate hurricanes of the wild enthusiast, any more be able to prevail against the reason our faith is built on, than the blustering winds to blow out the sun. And for mathematical sciences, he that doubts their certainty, hath need of a dose of hellebore. Nor yet can the dogmatist make much of these concessions in favour of his pretended science; for our discourse comes not within the circle of the former: and for the later, the knowledge we have of the mathematics, hath no reason to elate us; since by them we know but numbers, and figures, creatures of our own, and are yet ignorant of our maker's.

Chap. XXV.

(3.) We cannot know anything in nature without knowing the first springs of natural motions; and these we are ignorant of. (4.) Causes are so connected that we cannot know any without knowing all; declared by instances.

But (3.) We cannot know anything of nature but by an analysis of it to its true initial causes: and till we know the first springs of natural motions, we are still but ignorants. These are the alphabet of science, and nature cannot be read without them. Now who dares pretend to have seen the prime motive causes, or to have had a view of nature, while she lay in her simple originals? We know nothing but effects, and those but by our senses. Nor can we judge of their causes, but by proportion to palpable causalities, conceiving them like those within the sensible horizon. Now 'tis no doubt with the considerate, but that the rudiments of nature are very unlike the grosser appearances. Thus in things obvious, there's but little resemblance between the mucous sperm, and the completed animal. The egg is not like the oviparous production: nor the corrupted muck like the creature that creeps from it. There's but little similitude betwixt a terreous humidity, and plantal germinations; nor do vegetable derivations ordinarily resemble their simple seminalities. So then, since there's so much dissimilitude between cause and effect in the more palpable phenomena, we can expect no less between them, and their invisible efficientes. Now had our senses never presented us with those obvious seminal principles of apparent generations, we should never have suspected that a plant or animal could have proceeded from such unlikely materials: much less, can we conceive or determine the uncompounded initials of natural productions, in the total silence of our senses. And though the grand secretary of nature, the miraculous Descartes hath here infinitely out-done all the philosophers that went before him, in giving a particular and analytical account of the universal fabric: yet he intends his principles but for hypotheses, and never pretends that things are really or necessarily, as he hath supposed them: but that they may be admitted pertinently to solve the phenomena, and are convenient supposals for the use of life. Nor can any further account be expected from humanity, but how things possibly may have been made consonantly to sensible nature: but infallibly to determine how they truly were effected, is proper to him only that saw them in the chaos, and fashioned them out of that confused mass. For to say, the principles of nature must needs be such as our philosophy makes them, is to set bounds to omnipotence, and to confine infinite power and wisdom to our shallow models.

(4.) According to the notion of the dogmatist, we know nothing; except we knew all things; and he that pretends to science affects an omniscience. For all things being linked together by an uninterrupted chain of causes; and every single motion owning dependence on such a syndrome of prereduced motors: we can have no true knowledge of any, except we comprehend all, and could distinctly pry into the whole method of causal concatenations. Thus we cannot know the cause of any one motion in a watch, unless we were acquainted with all its motive dependences, and had a distinctive comprehension of the whole mechanical frame. And would we know but the most contemptible plant that grows, almost all things that have a being, must contribute to our knowledge: for, that to the perfect science of anything it's necessary

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to know all its causes; is both reasonable in itself, and the sense of the dogmatist. So that, to the knowledge of the poorest simple, we must first know its efficient, the manner, and method of its efformation, and the nature of the plastic. To the comprehending of which, we must have a full prospect into the whole *archidoxis* of nature's secrets, and the immense profundities of occult philosophy: in which we know nothing till we completely ken all magnetic, and sympathetic energies, and their most hidden causes. And (2.) If we contemplate a vegetable in its material principle, and look on it as made of earth; we must have the true theory of the nature of that element, or we miserably fail of our scientific aspirations, and while we can only say, 'tis cold and dry, we are pitiful knowers. But now, to profound into the physics of this heterogeneous mass, to discern the principles of its constitution, and to discover the reason of its diversities, are absolute requisites of the science we aim at. Nor can we tolerably pretend to have those without the knowledge of minerals, the causes and manner of their concretions, and among the rest, the magnet, with its amazing properties. This directs us to the pole, and thence our disquisition is led to the whole system of the heavens: to the knowledge of which, we must know their motions, and the causes, and manner of their rotations, as also the reasons of all the planetary phenomena, and of the comets, their nature, and the causes of all their irregular appearings. To these, the knowledge of the intricate doctrine of motion, the powers, proportions, and laws thereof, is requisite. And thus we are engaged in the objects of geometry and arithmetic; yea the whole mathematics, must be contributory, and to them all nature pays a subsidy. Besides, plants are partly materialed of water, with which they are furnisht either from subterranean fountains, or the clouds. Now to have the true theory of the former, we must trace the nature of the sea, its origin; and hereto its remarkable motions of flux and reflux. This again directs us to the moon, and the rest of the celestial *phaseis*. The moisture that comes from the clouds is drawn up in vapours: to the scientific discernment of which, we must know the nature and manner of that action, their suspense in the middle region, the qualities of that place, and the causes and manner of their precipitating thence again: and so the reason of the spherical figure of the drops; the causes of windes, hail, snow, thunder, lightning, with all other igneous appearances, with the whole physiology of meteors must be enquired into. And again (3.) In our disquisition into the formal causes, the knowledge of the nature of colours, is necessary to complete the science. To be informed of this, we must know what light is; and light being effected by a motion on the organs of sense, 'twill be a necessary requisite, to understand the nature of our sensitive faculties, and to them the essence of the soul, and other spiritual subsistences. The manner how it is materially united, and how it is aware of corporeal motion. The seat of sense, and the place where 'tis principally affected: which cannot be known but by the anatomy of our parts, and the knowledge of their mechanical structure. And if further (4.) we contemplate the end of the effect we instanced in, its principal final cause, being the glory of its maker, leads us into divinity; and for its subordinate, as 'tis designed for alimantal sustenance to living creatures, and medicinal uses to man, we are conducted into zoography, and the whole body of physic. Thus then, to the knowledge of the most contemptible effect in nature, 'tis necessary to know the whole syntax of causes, and their particular circumstances, and modes of action. Nay, we know nothing, till we know ourselves, which are the summary of all the world without us, and the index of the creation. Nor can we know ourselves without the physiology of corporeal nature, and the metaphysics of souls and angels. So then, every science borrows from all the rest; and we cannot attain any single one, without the encyclopaedia. I have been the more diffuse and particular

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upon this head, because it affords a catalogue of the instances of our ignorance; and therefore though it may seem too largely spoken to in relation to the particular I am treating of, yet 'tis not improper in a more general reference to the subject.

Chap. XXVI.**All our science comes in at our senses. Their infallibility inquired into. The authors design in this last particular.**

The knowledge we have comes from our senses, and the dogmatist can go no higher for the original of his certainty. Now let the sciolist tell me, why things must needs be so, as his individual senses represent them. Is he sure, that objects are not otherwise sensed by others, than they are by him? And why must his sense be the infallible criterion? it may be, what is white to us, is black to Negroes, and our angels to them are fiends. Diversity of constitution, or other circumstances varies the sensation, and to them of Java, pepper is cold. And though we agree in a common name, yet it may be, I have the same representation from yellow, that another hath from green. Thus two look upon an alabaster statue; he calls it white, and I assent to the appellation: but how can I discover, that his inward sense on't is the same that mine is? It may be alabaster is represented to him, as jet is to me, and yet it is white to us both. We accord in the name: but it's beyond our knowledge, whether we do so in the conception answering it. Yea, the contrary is not without its probability. For though the images, motions, or whatever else is the cause of sense, may be alike as from the object; yet may the representations be varied according to the nature and quality of the recipient. That's one thing to us looking through a tube, which is another to our naked eyes. The same things seem otherwise through a green glass, than they do through a red. Thus objects have a different appearance, when the eye is violently any way distorted, from that they have, when our organs are in their proper site and figure, and some extraordinary alterations in the brain duplicate that which is but a single object to our undistempred sentient. Thus, that's of one colour to us standing in one place, which hath a contrary aspect in another: as in those versatile representations in the neck of a dove, and folds of scarlet. And as great diversity might have been exemplified in the other senses, but for brevity I omit them. Now then, since so many various circumstances concur to every individual constitution, and every man's senses, differing as much from others in its figure, colour, site, and infinite other particularities in the organization, as any one man's can from itself, through divers accidental variations: it cannot well be supposed otherwise, but that the conceptions conveyed by them must be as diverse. Thus, one man's eyes are more protuberant, and swelling out; another's more sunk and depressed. One man's bright, and sparkling, and as it were swimming in a subtle, lucid moisture; another's more dull and heavy, and destitute of that spirituous humidity. The colour of men's eyes is various, nor is there less diversity in their bigness. And if we look further into the more inward constitution, there's more variety in the internal configurations, than in the visible outside. For let us consider the different qualities of the optic nerves, humours, tumours and spirits; the diverse figurings of the brain; the strings, or filaments thereof; their difference in tenuity and aptness for motion: and as many other circumstances, as there are individuals in human nature; all these are diversified according to the difference of each *crasis*, and are as unlike, as our faces. From these diversities in all likelihood will arise as much difference in the manner of the reception of the images, and consequently as various sensations. So then, how objects are represented to myself, I cannot be ignorant, being conscious to mine own cogitations; but in what manner they are received, and what impresses they make upon the so differing organs of another, he only knows, that feels them.

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There is an obvious, an easy objection, which I have sufficiently caveated against; and with the considerate it will signify no more than the inadvertency of the objectors. 'Twill be thought by sight discerners a ridiculous paradox, that all men should not conceive of the objects of sense alike; since their agreement in the appellation seems so strong an argument of the identity of the sentiment. All, for instance, say, that snow is white, and that jet is black, is doubted by none. But yet 'tis more than any man can determine, whether his conceit of what he calls white, be the same with another's; or whether, the notion he hath of one colour be not the same another hath of a very diverse one. So then, to direct all against the knowing ignorant, what he hath of sensible evidence, the very ground work of his demonstration, is but the knowledge of his own resentment: but how the same things appear to others, they only know, that are conscious to them; and how they are in themselves only he that made them.

Thus have I in this last particular played with the dogmatist in a personated skepticism: and would not have the design of the whole discourse measured by the seeming tendency of this part on't. The sciolist may here see, that what he counts of all things most absurd and irrational, hath yet considerable show of probability to plead its cause, and it may be more than some of his presumed demonstrations. 'Tis irreprehensible in physicians to cure their patient of one disease by casting him into another, less desperate. And I hope, I shall not deserve the frown of the ingenuous for my innocent intentions; having in this only imitated the practice of bending a crooked stick as much the other way, to straighten it. And if by this verge to the other extreme, I can bring the opinionative confident but half the way, viz, that discreet modest equipoise of judgment, that becomes the sons of Adam; I have compassed what I aim at.

Chap. XXVII.

Considerations against dogmatizing. (1.) 'Tis the effect of ignorance. (2.) It inhabits with untamed passions, and an ungoverned spirit. (3.) It is the great disturber of the world. (4.) It is ill manners, and immodesty. (5.) It holds men captive in error. (6.) It betrays a narrowness of spirit.

I expect but little success of all this upon the dogmatist; his opinioned assurance is paramount to argument, and 'tis almost as easy to reason him out of a fever, as out of this disease of the mind. I hope for better fruit from the more generous virtuosi, to such I appeal against dogmatizing, in the following considerations. That's well spent upon impartial ingenuity, which is lost upon resolved prejudice.

(1.) Opinionative confidence is the effect of ignorance, and were the sciolist persuaded so, I might spare my further reasons against it: 'tis affectation of knowledge, that makes him confident he hath it; and his confidence is counter-evidence to his pretensions to knowledge. He is the greatest ignorant, that knows not that he is so: for 'tis a good degree of science, to be sensible that we want it. He that knows most of himself, knows least of his knowledge, and the exercised understanding is conscious of its disability. Now he that is so, will not lean too assuredly on that, which hath so frequently deceived him, nor build the castle of his intellectual security, in the air of opinions. But for the shallow passive intellects, that were never engaged in a thorough search of verity, 'tis such are the confidants that engage their irrepeatable assents to every slight appearance. Thus mere sensible conceivers make every thing they hold a sacrament, and the silly vulgar are sure of all things. There was no theorem in the mathematics more certain to Archimedes, than the Earth's immovable quiescence seems to the multitude: nor than did the impossibility of antipodes, to antique ages. And if great philosophers doubt of many things, which popular dijudicants hold as certain as their creeds, I suppose ignorance itself will not say, it is because they are more ignorant. Superficial pedants will swear their controversial uncertainties, while wiser heads stand *in bivio*. Opinions are the rattles of immature intellects, but the advanced reasons have outgrown them. True knowledge is modest and wary; 'tis ignorance that is so bold, and presuming. Thus those that never travailed beyond one horizon, will not be persuaded that the world hath any country better than their own: while they that have had a view of other regions, are not so confidently persuaded of the precedency of that they were bred in, but speak more indifferently of the laws, manners, commodities, and customs of their native soil: so they that never peeped beyond the common belief in which their easy understandings were at first indoctrinated, are strongly assured of the truth, and comparative excellency of their receptions while the larger souls, that have travelled the divers climates of opinions, are more cautious in their resolves, and more sparing to determine. And let the most confirmed dogmatist profound far into his endeared opinions, and I'll warrant him 'twill be an effectual cure of confidence.

(2.) Confidence in opinions evermore dwells with untamed passions, and is maintained upon the depraved obstinacy of an ungoverned spirit. He's but a novice in the art of autocracy, that cannot castigate his passions in reference to those presumptions, and will come as far short of wisdom as science: for the judgement being the leading power, and director of action, if it be swayed by the over-bearings

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of passion, and stored with lubricous opinions instead of clearly conceived truths, and be peremptorily resolved in them, the practice will be as irregular, as the conceptions erroneous. Opinions hold the stirrup, while vice mounts into the saddle.

(3.) Dogmatizing is the great disturber both of ourselves and the world without us: for while we wed an opinion, we resolutely engage against every one that opposeth it. Thus every man, being in some of his opinionative apprehensions singular, must be at variance with all men. Now every opposition of our espoused opinions furrows the sea within us, and discomposeth the mind's serenity. And what happiness is there in a storm of passions? On this account the skeptics affected an indifferent a quipondious neutrality as the only means to their *ataraxia*, and freedom from passionate disturbances. Nor were they altogether mistaken in the way, to their designed felicity, but came short on't, by going beyond it: for if there be a repose naturally attainable this side the stars, there is no way we can more hopefully seek it in. We can never be at rest, while our quiet can be taken from us by every thwarting our opinions: nor is that content an happiness, which every one can rob us of. There is no felicity, but in a fixed stability. Nor can genuine constancy be built upon rowling foundations. 'Tis true staidness of mind, to look with an equal regard on all things; and this unmoved apathy in opinionative uncertainties, is a warrantable piece of stoicism.

Besides, this immodest obstinacy in opinions, hath made the world a Babel; and given birth to disorders, like those of the chaos. The primitive fight of elements doth fitly emblem that of opinions, and those proverbial contrarities may be reconciled, as soon as peremptory contenders. That hence grow schisms, heresies, and anomalies beyond arithmetic, I could wish were more difficult to be proved. 'Twere happy for a distempered church, if evidence were not so near us. 'Tis zeal for opinions that hath filled our hemisphere with smoke and darkness, and by a dear experience we know the fury of those flames it hath kindled. 'Tis lamentable that *homo homini daemon*, should be a proverb among the professors of the cross; and yet I fear it is as verifiable among them, as of those without the pale of visible Christianity. I doubt we have lost St. John's sign of regeneration: "By this we know that we are passed from death to life, that we love one another," is I fear, to few a sign of their spiritual resurrection. If our returning Lord, shall scarce find faith on earth, where will he look for charity? It is a stranger this side the region of love, and blessedness; bitter zeal for opinions hath consumed it. Mutual agreement and endearments was the badge of primitive believers, but we may be known by the contrary criterion. The union of a sect within itself, is a pitiful charity: it's no concord of Christians, but a conspiracy against Christ; and they that love one another, for their opinionative concurrences, love for their own sakes, not their Lord's: not because they have his image, but because they bear one another's. What a stir is there for mint, anise, and cummin controversies, while the great practical fundamentals are unstudied, unobserved? What eagerness in the prosecution of disciplinarian uncertainties, when the love of God and our neighbour, those evangelical unquestionables, are neglected? 'Tis this hath consumed the nutriment of the great and more necessary verities, and bred differences that are past any accommodation, but that of the last days decisions. The sight of that day will resolve us, and make us ashamed of our petty quarrels.

Thus opinions have rent the world asunder, and divided it almost into indivisibles. Had Heraclitus lived now, he had wept himself into marble, and Democritus would have broke his spleen. Who can speak of such fooleries without a satire, to see aged infants so quarrel at putpin, and the doting world grown child

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again? How fond are men of a bundle of opinions, which are no better than a bag of cherrystones? How do they scramble for their nuts, and apples, and how zealous for their petty victories? Methinks those grave contenders about opinionative trifles, look like aged Socrates upon his boy's hobbyhorse, or like something more ludicrous: since they make things their *seria*, which are scarce tolerable in their sportful intervals.

(4.) To be confident in opinions is ill manners and immodesty; and while we are peremptory in our persuasions, we accuse all of ignorance and error, that subscribe not our assertions. The dogmatist gives the lie to all dissenting apprehenders, and proclaims his judgement fittest, to be the intellectual standard. This is that spirit of immorality, that saith unto dissenters, stand off, I am more orthodox than thou art: a vanity more capital than error. And he that affirms that things must needs be as he apprehends them, implies that none can be right till they submit to his opinions, and take him for their director.

(5.) Obstinacy in opinions holds the dogmatist in the chains of error, without hope of emancipation. While we are confident of all things, we are fatally deceived in most. He that assures himself he never errs, will always err; and his presumptions will render all attempts to inform him, ineffective. We use not to seek further for what we think we are possessed of; and when falsehood is without suspicion embraced in the stead of truth, and with confidence retained, verity will be rejected as a supposed error, and irreconcilably be hated, because it opposeth what is truly so.

(6.) It betrays a poverty and narrowness of spirit, in the dogmatical assertors. There are a set of pedants that are born to slavery. But the more generous spirit preserves the liberty of his judgement, and will not pen it up in an opinionative dungeon; with an equal respect he examines all things, and judgeth as impartially as Rhadamanth: when as the pedant can hear nothing but in favour of the conceits he is amorous of; and cannot see, but out of the grates of his prison; the determinations of the nobler mind, are but temporary, and he holds them, but till better evidence repeal his former apprehensions. He won't defile his assent by prostituting it to every conjecture, or stuff his belief; with the luggage of uncertainties. The modesty of his expression renders him infallible; and while he only saith, he thinks so, he cannot be deceived, or ever assert a falsehood. But the wise Monsieur Charron hath fully discoursed of this universal liberty, and saved me the labour of enlarging. Upon the review of my former considerations, I cannot quarrel with his motto: in a sense *je ne sais*, is a justifiable skepticism, and not misbecoming a candidate of wisdom. Socrates in the judgement of the oracle knew more than all men, who in his own knew the least of all.

An Apology For Philosophy.

It is the glory of philosophy, that ignorance and frenzy are its enemies; and it may seem less needful to defend it against stupid and enthusiastic ignorants. However, lest my discourse should be an advantage in the hands of fancy and folly; or, which is the greater mischief, lest it should discourage any of the more enlarged spirits from modest enquiries into nature; I'll subjoin this brief apology.

If philosophy be uncertain, the former will confidently conclude it vain; and the later may be in danger of pronouncing the same on their pains, who seek it; if after all their labour they must reap the wind, mere opinion and conjecture.

But there's a part of philosophy, that owes no answer to the charge. The skeptics' ΠΑΝΤΑ ΕΣΤΙΝ ΑΟΡΙΣΤΑ[Greek:PANTA ESTIN AORISTA], must have the qualification of an exception; and at least the mathematics must be privileged from the indictment. Neither are we yet at so deplorable a loss, in the other parts of what we call science; but that we may meet with what will content ingenuity, at this distance from perfection, though all things will not completely satisfy strict and rigid enquiry. Philosophy indeed cannot immortalize us, or free us from the inseparable attendants on this state, ignorance, and error. But shall we malign it, because it entitles us not to an omniscience? Is it just to condemn the physician, because Hephestion died? Complete knowledge is reserved to gratify our glorified faculties. We are ignorant of some things from our specific incapacity; of more from our contracted depravities: and 'tis no fault in the spectacles, that the blind man sees not. Shall we, like sullen children, because we have not what we would; condemn what the benignity of heaven offers us? Do what we can, we shall be imperfect in all our attainments; and shall we scornfully neglect what we may reach, because some things are denied us? 'Tis madness, to refuse the largesses of divine bounty on earth, because there is not an heaven in them. Shall we not rejoice at the gladsome approach of day, because it's overcast with a cloud and followed by the obscurity of night? All sublunary vouchsafements have their alloy of a contrary; and uncertainty, in another kind, is the annex of all things this side the Sun. Even crowns and diadems, the most splendid parts of terrene attainments, are akin to that, which to day is in the field, and to morrow is cut down, and withered: he that enjoyed them, and knew their worth, excepted them not out of the charge of universal vanity. And yet the politician thinks they deserve his pains; and is not discouraged at the inconstancy of human affairs, and the lubricity of his subject.

He that looks for perfection, must seek it above the empyreum; it is reserved for glory. It's that alone, which needs not the advantage of a foil: defects seem as necessary to our now happiness, as their opposites. The most refulgent colours are the result of light and shadows: Venus was never the less beautiful for her mole. And 'tis for the majesty of nature, like the Persian kings, sometimes to cover, and not always to prostrate her beauties to the naked view: yea, they contract a kind of splendour from the seemingly obscuring veil; which adds to the enravishments of her transported admirers. He alone sees all things with an unshadowed comprehensive vision, who eminently is all: only the God of nature perfectly knows her: and light without darkness is the incommunicable claim of him, that dwells in light inaccessible. 'Tis no disparagement to philosophy, that it cannot deify us, or make good the impossible

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promise of the primitive deceiver. It is that, which she owns. above her, that must perfectly remake us after the image of our maker.

And yet those raised contemplations of God and nature, wherewith philosophy doth acquaint us; enlarge and ennoble the spirit, and infinitely advance it above an ordinary level. The soul is alway like the objects of its delight and converse. A prince is as much above a peasant in spirit, as condition: and man as far transcends the beasts in largeness of desire, as dignity of nature and employment. While we only converse with earth, we are like it; that is, unlike ourselves: but when engaged in more refined and intellectual entertainments; we are somewhat more, than this narrow circumference of flesh speaks us. And, methinks, those generous vertuosi, who dwell in an higher region than other mortals, should make a middle species between the Platonical ΘΕΟΙ[Greek:THEOI], and common humanity. Even our age in variety of glorious examples, can confute the conceit, that souls are equal: and the only instance of that constellation of illustrious worthies, which compose the The ROYAL SOCIETY, is enough to strike dead the opinion of the world's decay, and conclude it in its prime. Reflecting upon which great persons, methinks I could easily believe, that men may differ from one another, as much as angels do from unbodied souls. And perhaps more can be pleaded for such a metaphysical innovation, than can for a specifical diversity among the beasts. Such as these, being in good part freed from the entanglements of sense and body, are employed iike the spirits above; in contemplating the divine artifice and wisdom in the works of nature; a kind of anticipation of the ethereal happiness and employment. This is one part of the life of souls.

While we indulge to the sensitive or plantal life, our delights are common to us with the creatures beam us: and 'tis likely, they exceed us as much in them as in the senses their subjects; and that's a poor happiness for man to aim at, in which beasts are his superiors. But those Mercurial spirits which were only lent the earth to show men their folly in admiring it; possess delights of a nobler make and nature, which as it were antedate immortality; and at an humble distance, resemble the joys of the world of light and glory. The sun and stars, are not the worlds eyes, but these: the celestial Argus cannot glory in such an universal view. These out-travel theirs, and their monarch's beams: passing into vortexes beyond their light and influence; and with an easy twinkle of an intellectual eye look into the centre, which is obscured from the upper luminaries. This is somewhat like the image of omnipresence: and what the hermetical philosophy saith of God, is in a sense verifiable of the thus ennobled soul, that its centre is everywhere, but its circumference nowhere. This is the ΑΛΗΘΙΝΟΣ ΑΝΘΡΩΠΙΟΣ [Greek: ALETHINOS ANTHROPOS]; and what Plotinus calls so, the divine life, is somewhat more. Those that live but to the lower concupiscible, and relish no delights but sensual; it's by the favour of a metaphor, that we call them men. As Aristotle saith of brutes, they Have but the Μιμηματα ανθρωπινης ζωης [Greek: Minemata anthropines zoes], only some shown and apish imitations of human; and have little more to justify their title to rationality, than those mimic animals, the supposed posterity of Cham: who, had they retained the privilege of speech, which some of the fathers say they owned before the fall; it may be they would plead their cause with them, and have laid strong claim to a parity. Such, as these, are philosophy's maligners, who computing the usefulness of all things, by what they bring to their barns, and treasures; stick not to pronounce the most generous contemplations, needless unprofitable subtleties: and they might with as good reason

say, that the light of their eyes was a superfluous provision of nature, because it fills not their bellies.

Thus the greatest part of miserable humanity is lost in earth: and, if man be an inversed plant; these are inversed men; who forgetting that *sursum*, which nature writ in their foreheads, take their roots in this sordid element. But the philosophical soul is an inverted pyramid; earth hath but a point of this ethereal cone. *Aquila non captat muscas*, the royal eagle flies not but at noble game; and a young Alexander will not play but with monarchs. He that hath been cradled in majesty, and used to crowns and sceptres; will not leave the throne to play with beggars at put-pin, or be fond of tops and cherrystones: neither will a spirit that dwells with stars, dabble in this impurer mud; or stoop to be a play-fellow and co-partner in delights with the creatures that have nought but animal. And though it be necessitated by its relation to flesh to a terrestrial converse; yet 'tis like the sun, without contaminating its beams. For, though the body by a kind of magnetism be drawn down to this sediment of universal dregs; yet the thus impregnate spirit contracts a verticity to objects above the pole: and, like as in a falling torch, though the grosser materials hasten to their element; yet the flame aspires, and, could it master the dulness of its load, would carry it off from the stupid earth it tends to. Thus do those enobled souls justify Aristotle's *Νοῦς θυραθεν και θειος μονον* [Greek: *Noys thyrathen kai theois monon*]; and in alloyed sense that title, which the stoics give it, of *απορπασμα θεου* [Greek: *apospasma theoy*]. If we say, they are not in their bodies, but their bodies in them; we have the authority of the divine Plato to vouch us: and by the favour of an easy simile we may affirm them to be to the body, as the light of a candle to the gross, and feculent snuff; which, as it is not pent up in it, so neither doth it partake of its stench and impurity. Thus, as the roman orator elegantly descants, *erigimur, & latiores fieri videmur; humana despiciamus, contemplantesq; supera & coelestia, hec nostra, ut exigua, & minima, contemnimus*.

And yet there's an higher degree, to which philosophy sublimes us. For, as it teacheth a generous contempt of what the grovelling desires of creeping mortals idolize and dote on; so it raiseth us to love and admire an object, that is as much above terrestrial as infinite can make it. If Plutarch may have credit, the observation of natures harmony in the celestial motions was one of the first inducements to the belief of a God: and a greater than he affirms, that the visible things of the creation declare him, that made them. What knowledge we have of them we have in a sense of their author. His face cannot be beheld by creature-optics, without the allay of a reflexion; and nature is one of those mirrors, that represents him to us. And now the more we know of him, the more we love him, the more we are like him, the more we admire him. 'Tis here, that knowledge wonders; and there's an admiration, that's not the daughter of ignorance. This indeed stupidly gazeth at the unwonted effect: but the philosophic passion truly admires and adores the supreme efficient. The wonders of the almighty are not seen, but by those that go down into the deep. The heavens declare their maker's glory; and philosophy theirs, which by a grateful rebound returns to its original source. The twinkling spangles, the ornaments of the upper world, lose their beauty and magnificence, while they are but the objects of our narrowed senses: by them the half is not told us; and vulgar spectators see them, but as a confused huddle of petty illuminants. But philosophy doth right to those immense spheres, and advantageously represents their glories, both in the vastness of their proportions, and regularity of their motions. If we would see the wonders of the globe

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we dwell in; philosophy must rear us above it. The works of God speak forth his mighty praise: a speech not understood, but by those that know them.

The most artful melody receives but little tribute of honour from the gazing beasts; it requires skill to relish it. The most delicate musical accents of the Indians, to us are but inarticulate hummings; as questionless are ours to their otherwise tuned organs. Ignorance of the notes and proportions, renders all harmony unaffecting. A gay puppet pleaseth children more, than the exactest piece of unaffected art: it requires some degrees of perfection, to admire what is truly perfect, as it's said to be an advance in oratory to relish Cicero. Indeed the unobservant multitude, may have some general confused apprehensions of a kind of beauty, that gilds the outside frame of the universe: but they are natures coarser wares, that lie on the stall, exposed to the transient view of every common eye; her choicer riches are locked up only for the sight of them, that will buy at the expence of sweat and oil. Yea, and the visible creation is far otherwise apprehended by the philosophical inquirer, than the unintelligent vulgar. Thus the physician looks with another eye on the medicinal herb, than the grazing ox, which swoops it in with the common grass: and the swine may see the pearl, which yet he values but with the ordinary muck; it's otherwise prized by the skilful jeweller.

And from this last article, I think, I may conclude the charge, which hot-brained folly layes in against philosophy; that it leads to irreligion, frivolous and vain. I dare say, next after the divine word, it's one of the best friends to piety. Neither is it any more justly accountable for the impious irregularities of some, that have paid an homage to its shrine; than religion itself for the extravagances both opinivative and practic of high pretenders to it. It is a vulgar conceit, that philosophy holds a confederacy with atheism itself, but most injurious: for nothing can better antidote us against it: and they may as well say, that physicians are the only murderers. A philosophic atheist, is as good sense as a divine one: and I dare say the proverb, *ubi tres medici, duo athei*, is a scandal. I think the original of this conceit might be, that the students of nature, conscious to her more cryptic ways of working, resolve many strange effects into the nearer efficiency of second causes; which common ignorance and superstition attribute to the immediate causality of the first: thinking it to derogate from the divine power, that anything which is above their apprehensions, should not be reckoned above nature's activity; though it be but His instrument, and works nothing but as empowered from Him. Hence they violently declaim against all, that will not acknowledge a miracle in every extraordinary effect, as setting nature in the throne of God; and so it's an easy step to say, they deny Him. When as indeed, nature is but the chain of second causes; and to suppose second causes without a first, is beneath the logic of Gotham. Neither can they (who, to make their reproach of philosophy more authentic allege the authority of an apostle to conclude it vain) upon any whit more reasonable terms make good their charge; since this allegation stands in force but against its abuse, corrupt sophistry, or traditionary impositions, which lurked under the mask of so serious a name: at the worst, the text will never warrant an universal conclusion any more; than that other, where the apostle speaks of silly women, (who yet are the most rigid urgers of this) can justly blot the sex with an unexceptionable note of infamy.

Now, what I have said here in this short apology for philosophy, is not so strictly verifiable of any that I know, as the Cartesian. The entertainment of which among truly ingenuous unpossessed spirits, renders an after-commendation superfluous and impertinent. It would require a wit like its authors, to do it right in an

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encomium. The strict rationality of the hypothesis in the main, and the critical coherence of its parts, I doubt not but will bear it down to posterity with a glory, that shall know no term, but the universal ruins. Neither can the pedantry, or prejudice of the present age, any more obstruct its motion in that supreme sphere, wherein its desert hath placed it; than can the howling wolves pluck cynthia from her orb; who regardless of their noise, securely glides through the undisturbed ether. Censure here will disparage itself, not it. He that accuseth the sun of darkness, shames his own blind eyes; not its light. The barking of cynics at that hero's chariot-wheels, will not sully the glory of his triumphs. But I shall supersede this endless attempt: sunbeams best commend themselves.

FINIS