

Philosophical conjectures on aerial influences, the probable origin of diseases: with an unusual cure in the scurvy / Address'd to Dr. Shaw, by E-m-d L-tt-n [i.e. Edmund Litton].

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Philosophical Conjectures
ON
AERIAL INFLUENCES,
The probable Origin of
DISEASES:
With an unusual CURE in the
SCURVY.

Address'd to Dr. SHAW, By E—M—D L—T—N.

LITTON

*Desine quapropter, novitate exterritus ipsa,
Expuere ex animo rationem ; sed magis acri
Judicio perpende & si tibi vera videtur,
Dede manus ; aut, si falsa est, accingere contra.*

Lucret. Lib. II.

Fly no Opinion, Friend, because 'tis new :
But strictly search ; and, after, careful view :
Reject, if false ; embrace it, if 'tis true. }

As we have Opportunity, let us do Good unto all Men.

Gal. vi. 10.

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Philosophical Conjectures

O N

Aerial Influences, &c.

UNembodied Spirits, and Beings of a superior Class, may have an immediate Perception of the Essence of Things, may be able instantaneously to collect the most distant Ideas. But we, as looking through a dark and clouded Atmosphere, distinguish by Marks, Characters, and Analogy; consequently must be liable to Error Deception, and Confusion, from the great Similitude of external Phases. Are not our Senses fallible, their Informations unreasonable, their Determinations unjust? Is not this

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mani-

manifest from the Figure, Motion, and Magnitude of Bodies? Has not this laid the Foundation of Scepticism, and staggered the Reasoning of the Curious and Inquisitive?

Looking back into the Source and Original of Things, we shall find Inventions the most useful, important, and beneficial to Mankind, have been casual and unlabour'd. We shall find the great, wonderful, and stupendous Discoveries of *Kepler*, *Galileo*, and *Newton*, owing to an optic Contrivance accidentally hit upon. Lands and Continents have been unexpectedly discover'd. Magnetic and Electrical Phænomena have surpris'd the Thoughtful and Contemplative. I omit the fatal Productions of Chemic Accidents, and a thousand Things, whose fortuitous Exertion betrays their Properties, and indicates the Use. A Detail of these to you, Worthy Sir,
 inti-

intimately acquainted with the universal History of Men and Things, must be needless, troublesome, or offensive *

The present Darknefs of the human Intellect may proceed, in some measure, from the Corruption and Degeneracy of the corporeal Organs; and these again from the unhappy Mutations of our ruinous Planet.

When the Life of Man, in a State of uninterrupted Health, was near a thousand Years; when the spontaneous Productions were nearly sufficient, † when a pure unmix'd homogeneous Æther subtilized the animal Juices, and rendered the nervous Fluid infinitely finer, con-

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sequently

* *Theocritus* indeed ascribes the Invention of Arts to Necessity. Ἀπενία, Διόφαντε, μόνα τὰς τέχνας ἐγείρει

Αὐτὰ τῷ μόχθῳ διδάσκει.

Magister artis, ingenique largitor.

Venter. Prol. Perf.

† Mulcebant Zephyri natos sine semine flores.
Ver erat æternum, placidique tepentibus auris

frequently the intellectual Faculties proportionably strong, vigorous, and sprightly ; in Life, I say, thus circumstanced, Nature might be examined, her Laws investigated, and wonderful Discoveries effected.

But we, the Postdiluvian Race, as soon as landed on the unknown Shore of the World, find ourselves oppressed with Want, and tormented with Pain.

These damp the generous Sallies of audacious Youth ; these spoil the well weighed Projects of experienced Age. Add to this, the noblest Part of Man sunk, stupified, and immersed in animal Nature, Operations of the Soul entangled, and confused with various powerful and distracting Passions, whose imperious Dictates, and tyrannic Sway, are violent and uncontroulable, especially till the animal and often intellectual Faculties are broken, spoiled, and debilitated. What-

Whatever might have been the animal or moral Advantages of Man in his Original and unlapſed State, the now viſible Infirmary and Imperfection in every Claſs of Creatures declares them not the finiſh'd, uncorrupted Make of an infinitely wiſe, good, and powerful Being. The Strength and Durability of antediluvian Bodies was preſently worn out or impaired; cloſely followed the Deluge; a ſurpriſing Deduction from human Life, no innate Strength, no Vigour of Conſtitution, nor ſtricteſt Regimen, could retard the Flow of Life, or withſtand the deſtructive Influence of inconstant Seaſons, a corrupted heterogeneous Air: Theſe are the Origin of human Maladies, and haſten the Diſſolution of all created Beings.

Such were the fatal Changes in the Earth and Atmosphere, ſuch
the

the fatal Consequences of the grand Catastrophe, that, assign what Degree you please of Fluidity in the vital Liquors, what Degree of Tension and Elasticity in the animal Solids, choose the Diameters of the secretory Organs, ransack Physic and Philosophy for Rules and Medicines, yet still our Expectations are frustrated, our Attempts are baffled ; nothing will be found adequate, but a new Constitution of Things.

At different Periods of the Year are evident various Irregularities in the animal Oeconomy, which, tho' not causing Diseases immediately mortal, the Consequences may be lasting and dangerous : Sometime immersed and steeped in Water, our Solids grow lax, our Fluids vapid, the intellectual Powers veiled and obscured, attended with Confusion, Despondence, and in-
sup-

supportable Melancholy ; Effects too visible in the Nervous, Studious, and Sedentary. Again, the Fibres frozen and constringed, the Blood condensed and briskly accelerated, may yield a temporary Gaiety and Sprightliness ; yet these Advantages from Fermentations and Resolutions, occasioned from an ensuing Thaw and Warmth, are infinitely preponderated by Diseases of the most malignant Nature, or Dejection of Mind the most frightful and intolerable. Such are frequently the Combination or Succession of Seasons, as must necessarily render our Medium pestiferous and unhealthful,

Intempestivis pulvisque & solibus icta.

Lucret.

From the Concurrence of History, whether natural, sacred, or profane, from the Contemplation of the Site, Position, and Orbit of
our

our Earth, from the discordant and inharmonious Combination of Elements, the disorderly and irregular Range of the component Strata, with other numberless Marks of Deteriority, particularly in the intellectual and moral World, a Conjecture is drawn, bold indeed, but not altogether groundless and improbable; *viz.* That all the Beings, whether sentient or intelligent, that ever were or will be upon the Face of the Earth, thus modified, are for some anterior Lapse, confined and fettered in this Planetary Prison, and are now in a State of Purgation, Expiation, and progressive Perfection.

Yet, thro' the whole System of inanimate Beings, notwithstanding our Lapse from original Purity and Virtue, are the most evident Vestiges of providential Care, a wonderful Commixture of Kindness and
Severity,

Severity, intended, no doubt, for our Preservation and Correction, and this often effected by a Counteraction of Causes, singly destructive to the whole animated Race.

From Fermentation, Corruption, or Putrefaction, are generated Salts, the most violent, alkaline, and pernicious ; which, diffusing around Contagion, and mortal Sicknes, must presently render the Earth barren and uninhabited, a Scene of Woe and Desolation, if not dissipated, dissolved, and precipitated, by Winds and Rains ; and then may not only serve the Purposes of Vegetation, but perhaps by various Transmutations may be converted into necessary Elements, or perhaps the vital Pabulum.

The Experiments of *Boyle*, and Phænomena of *Halley's* Engine, render it probable, that some Principle resides in the Air, necessary to

C Life

Life and Flame; for tho' the Elasticity remain, so as to carry off the fuliginous Steams; yet, upon a Consumption of this vivifying Something, the vital and common Flame are with Difficulty preserved; and as there must be a perpetual Consumption of this animating Matter, it is necessary it be some-how repaired, from the universal Rounds of Generation and Corruption. Ἡ τῶδε φθορὰ ἄλλα γίνεσσι, ἢ τῶδε γίνεσσι ἄλλα φθορὰ' *Arist. Lib. 1. de Gen. Corrupt.*

The Air seems to be a Chaos of infinite and numberless Materials, the common Seminary of enlivening Principles, every-where impregnated with the Particles of subjacent Mines and Minerals; the active and volatile Parts of poisonous and salubrious Plants; every-where replete with a Variety of Seeds, Eggs, and Animalcules; which, tho' latent in their wandering and unsettled Condition;

dition; yet the Seeds fertilizing the Virgin-Earth, and the others lighting upon, fixing, and adhering to a proper Matrix, afford spontaneous Productions, and Generations seemingly equivocal.

All the Bodies in Nature, of whatever Contexture, emit Effluvia; and in different Seasons, or Places, have a greater or less Degree of Exhalability, proportionable to subterraneous or aerial Causes. Evaporations, Avolutions, and Diminutions, are perceptible in the lax and volatile; and Causes or Effects, Impressions or Alterations, sensible and manifest, are only deducible from the firm and ponderous. Descending into the subterraneous Caverns, we find Agents the most violent, fiery, and ungovernable, whose Coalitions and Colluctations rend, shake, and threaten universal Dissolution; we find Steams that destroy, corrode,

or suffocate, in an Instant. *Stygian*, pestiferous, and indeterminable Compositions have issued out of the Earth, spread ther Malignity, and depopulated half the Globe. The Dews are sometimes volatile and explosive, again poisonous and mortal. It is certain, whatever might have been the salutiferous Restrictions of Motion, there is an absolute Necessity for a Contrariety of Action, the Result of which must be Dissolution and Decay.

The Meteors and Explosions of the Atmosphere, the surprising Velocity and Penetrability of aereal Fire, arise from the Actions of terrestrial Emissions, of infinite Tenuity, and specific Gravity, inconceivably small. But in minute Bodies what are the Laws of Motion? what are their Attractions, Repulsions, and Cohesions? Is there not an attractive Force greater than that by which
the

the Squares of their Distances decrease ?

Several modern pretended Discoveries were well known to the ancient Philosophers. In their Speculations, whether natural, moral, or metaphysic, are Vestiges of the profoundest Thought, scarce derivable from human Reason, and the Light of Nature ; particularly their Knowledge of our lapsed State, the *λύσις*, the *φυγή*, an Account of the Creation coincident with the *Mosaic* History, and something like our Doctrine of the Trinity: These certainly must be the Remains of primeval Tradition, or immediate Revelation. That the Generation of Animals was from a Distention, Evolution, and Repletion, is only a modernized Opinion. The *Pythagoreans* and *Platonists* knew the true System of the World : Some taught the Stars were fiery Worlds ; others,

others, that the Moon was habitable ; others, that the Planets were opaque Bodies revolving round the Sun. *Pythagoras* (as *Gregory* has shewn) knew that the Gravities of the Planets were reciprocally as the Squares of their Distances. That congenial Things approach, and dissimilar recede, was the Foundation of *Hippocrates's* Philosophy, probably learnt from his great Master or Contemporary *Democritus*, who first divulged the Doctrine of Atoms, the Fruit of his *Asiatic* Travels, to the Conjunctions, Unions, and Combinations of which *Epicurus* ascribes the Formation of the World*, *Plutarch de Placitis Philosoph.* Not

* But a vast Heap ; and from this mighty Mass
Each Part retir'd, and took its proper Place ;
Agreeing Seeds combin'd, each Atom ran,
And sought his Like, and so the Frame began.
From disagreeing Seeds the World did rise,
Because their various Motions, Weight, and Size,
And Figure, would not let 'em all combine,
Together lie, nor friendly Motions join :
Thus Skies, and thus the Sun first rais'd his
Head :

Thus Stars, thus Seas o'er proper Places spread.
Lucret. Lib. V.

Not only in animal Nutrition, but upon every Occasion, he introduces this Attraction into the animal Oeconomy. In the Sixth of *Epidemics*, illustrated by *Galen's* Interpretation, are these Words,

Σαρξὸς ὅλην καὶ ἐκ κοιλίας, καὶ ἔξωθεν· δηλὸν, ἢ αἰσθησις, ὡς ἐκπνεον καὶ εἰσπνεον ὅλον τὸ σῶμα. “ The

“ Flesh draws both from the Belly

“ and from without; and it is mani-

“ fested to the Senses, that the whole

“ Body both expires and inspires,” *Ga-*

len de usu pulsuum. Μεταλαμβάνει ὃ εἰς ἐαυτὰς

ἐκ τῆς περιέχοντός· ἡμᾶς αἶρ· ἐκ ὀλίγην μοῖραν· καὶ τὸτ'

ἐστὶ τὸ πρὸς Ἰσποκράτες λεγόμενον, ὡς ἐκπνεον καὶ εἰσπνεον

ἐν ὅλον τὸ σῶμα. “ But they” (the Pores

or Extremities of the Arteries) “draw

“ no small Part from the surrounding

“ Air : And this we find in *Hippo-*

“ crates, that the whole Body both

“ expires and inspires.”

Hippocrates not only esteems the Air the Author of Life and Diseases

eases to mortal Men, but to this ascribes the different Shapes, Complexions, Genius, and Government of different Nations. Moderate Heat and Moisture, in the fertile Regions of *Asia*, render the animals large and comely. But, from the Mildness of the Climate, their Dispositions are soft and cowardly, impatient of Labour and Hardship. The *Asiatics* are weak, dastardly, and servile, easily sliding into Monarchies; with Reluctance they leave their Ease and Families, and hazard their Lives for tyrannic Masters. On the other hand the *Greeks*, and northern *Asiatics*, are bold, hardy, and warlike; without Compulsion they quit their Ease, and voluntarily expose themselves to Toil and Danger, animated with the Hopes, and rewarded with the Fruit of Conquest.

The

The Truth of this depends, not only upon Authority, or ancient Opinion, but is sufficiently evinced from Reason and Fact. So great, variable, and effective, is the Pressure of the circumambient Fluid, that the Æquilibrium, destroyed by an interrupted Communication, must presently extinguish both animal and vegetable Life. So great is the *ἐλαστικὴ* or Spring of the Air, that, without the least adventitious Heat, it is capable of possessing above 13000 times its natural Space or Dimensions. The expansive Centrifugal Force, by which its Parts endeavour to recede, are in a reciprocal Ratio of their Distances, or in a direct subtriplicate Ratio of their Densities *; but as the Air excites a most violent and rapid Motion in the Fire, the Fire rarefies, and increases the expansive Force of the

D Air

* *Newton. Princip. Lib. II.*

Air to above twenty thousand times its natural State.

Hence the wonderful Effects from the irresistible Spring of heated, rarefied, and imprisoned Air.

Not to mention the more obvious Phenomena of Rarefaction *, the learned Jesuit *Cabæus* says, He saw a Marble Pillar so vast, that three Men with display'd Arms could not embrace it, and a thousand Yoke of Oxen drawing several Ways could not have torn it to pieces, quite broken off in the midst by some Wood burnt by the Pillar; the Heat proceeding from the neighbouring Fire so rarefied the Air or spirituous Matter shut up in the Cavities of the Marble, that it broke thro' the solid Stone for Room to expand.

As in the Composition of all Bodies, animate or inanimate, there is wrought up a certain Quantity
of

* Mr. Boyle.

of Æther, or elastic Fluid, capable of Condensation or Expansion proportional to the acting Force, 'tis easy to see, were the Ingress or Egress considerably hindered, that Bodies, particularly animal, would be ruptured and torn in pieces by the confined Fluid. Upon the Ascent of high Mountains, diminish'd Pressure of the Atmosphere, or even the Heat from a common Fire, as the animal Fibres are vastly extensible, and Fluids rarefiable, the Effects ought to be much more sensible and important.

The Pressure of the Air upon a human Body being equal to a Column of Mercury, whose Altitude is thirty-two Inches, and Base equal to the Surface of the Body; then suppose the Pressure to be 32,000 Pounds, as we find there are Diminutions of one Tenth, or even Variations sometimes greater, the Consequence

must be Distentions, Rarefactions, and Effervescence, such as would immediately terminate a miserable Life. Yet, notwithstanding the Utility of this general and extensive Law, there are some, the Formations of whose Parts are so unhappily contrived, that, upon a sudden Descent in the Barometer, Turgidity, Flatulence, and Dejection, mostly ensue.

Tho' the Air, or other ethereal Matter, thus pervading the Pores, and traversing the inmost Recesses, will in time spoil the Elasticity, and shake the Continuity; there are certain *Miasmata*, continually flying ἀπὸ τῶν σωμάτων ὅτι πολλῆς *, of infinitely more Prejudice. Thus it was a laudable Custom among the *Romans*, and worthy the Humanity, Benevolence, and Policy of that great People, to carry their Dead (as

* Laert. Lib. II.

(as the *Athenians* did to the *πρεσβυτέρων*) without the Precincts of the City.

*Experiar quid concedatur in illos,
Quorum Flaminia tegitur cinis atque Latina.*

Juven.

The Reasons of which were, according to *Gyraldus*, not only to inspire the *Viatores*, to whom the Inscriptions were addressed, with the Principles of Virtue, Honour, and a Love of their Country; but to preserve the City free and untainted with noxious and putrefactive Exhalations. The divine Edict, *Deut.* xxiii. 12, 13. was equally beneficial and preservative.

In *Grand Cairo* the Number, Poverty, and Filthiness of the People, the Nearness of the Houses, and Situation of the Place, naturally concur. The excessive and untemper'd Heats exalt the putrefactive Ferments, and impregnate the Air with the

the most virulent Atoms. This Magazine of Corruption annually supplies a Plague *; which rages most unmercifully, till its Fury is check'd or abated by the Winds and Inundations, which purify the Air, and carry off the νοστέρις ἀπορροίας.

In *Ethiopia*, and several Parts of *Africa*, the indigenous and mortal Diseases are mostly thought to arise from the Corruption of vegetable and animal Substances; often from the incredible Swarms of putrefying Locusts, the excessive Intemperance of the Climate heightening the Malignity. But *Mons. Mezeray* † informs us, that the Plague, which happened in *France* 1346, the most universal and fatal ever known, began in the Kingdom of *Cathay*; a Vapour, the most inconceivably fetid, issuing out of the Earth, like
a sub-

* Le Brun's Voyage au Levant.
Prosper Alpinus.

† Hist. de France, Tom. 1. p. 798.

a subterranean Fire, laid waste the greatest Part of that Country; and, passing through *Europe, Asia, and Africa*, made such dismal Havock, as was supposed to have dispeopled Half the Globe.

Tho' the Situation assigned us by indulgent Heaven is free from the Inclemencies of Seasons, the Malignity of Elements, and mortal Poisons peculiar to some Climates; tho' we neither feel the scorching Heat of an *African* Soil, nor piercing Colds of a polar Region; yet we, in some measure, participate of aerial Ills; our Medium abounding, as appears from the Tarnishing and Corrosion of Metals, with Salts of an unknown Nature, which may have a wonderful, tho' unheeded Operation upon the nice Contexture of human Bodies.

To say, Authors and Historians have look'd upon Infection

tion * as a general Characteristic of the Plague, to mention how quick the pestilential Effluvia, or infected Blood and Juices, operate upon Men and Brutes ||, may be equally needless. But as by Infection surely is meant the Admission of certain malignant Corpuscles, which raise violent, and often mortal Perturbations in the animal Oeconomy ; from Analogy alone, notwithstanding the extreme Subtilty of these poisonous Particles, we might have safely conjectur'd, that the Effluvia alone of medicinal Substances, in some Degree exert their specific Operations, as Cathartic, Cordial, &c.

* Ὅτι ἕτεροι ἀπ' ἑτέρου διασπείας ἀναπιμνόμενοι, ὥσπερ τὰ πρόβατα ἐθησκον — ἕτεροι παρσιδιεν, διεφθείροντο, καὶ μάλιστα οἱ ἀρετῇ τι μελαποισμένοι.

Thucydides, on the famous Athenian Plague.

Aut deserti aut neglecti qui incidissent morerentur, aut assidentes curantesque vi morbi repletos secum traherent.

Livy.

|| Fracastorius, Diemerbroek, Dissertation sur la Contagion de la Peste.

&c. tho' less perceptible Effects * had warranted the Conclusion.

As different Climates have different Animals, Fossils, and Vegetables, different Degrees of Heat and Moisture, to dissolve, extract, and exhale, so every Country and Season has its peculiar Influence and Malaria. In Spring, when the Principles of Life and Vegetation, when the various Salts and Oils long condensed and imprisoned, are attenuated, warmed, and exhaled, when free Streams of animal Perspiration have cleared, opened, and dilated the cutaneous Outlets ; then is the Body most pervious and susceptible, then are the Effluvia most active and powerful.

From the Quantity or Quality of Exhalations † and Perspiration of Plants and Animals, there seems an
 E absolute

* *Ld. Verulam, Mr. Boyle, Ramazzini.*

† See *Halley* Philos. Transact. and the accurate *Dr. Hales's* Vegetable Statics.

absolute Necessity, why they should be thrown off to vast Distances in the boundless Expanse. There are several Purposes only to be answered in the remote Regions, where these Bodies, after various, irregular, and confused Motions, may sometimes, by planetary or solar Influence, be determined to their native Soil; or sometimes, in the celestial Spaces, straying beyond the Limits of Attraction, may by a repulsive Force fly off, and wander in the attractive Spheres of other Planets, till some accidental Cause, Combination, Alteration, or radial Influence, settle the restless Wanderers in strange Abodes.

The Planets and Satellites, from their mutual Actions, suffer various Irregularities. The Moon, influenced only by the Earth's Attraction, would, by a Ray from the Centre of the Earth, describe equal Areas in equal Times;

Times ; and about our Planet, in one of its Foci, describe an Ellipse, whose Plane would be immoveable, and Inclination to the Planet of the Ecliptic perfectly invariable. But from the solar Action arise these and various Aberrations. The Moon disturbs the Motion of our Earth, as is evident from corresponding Tides ; when she comes to the vertical Point, there, and in the Place diametrically opposite, the Water rises, swells, and fluctuates.

Notwithstanding the visible Utility of this Satellite, in reflecting Light, agitating the Sea, which without it must unavoidably degenerate into a *Memphitis*, and stegnant Waters become poisonous and baneful, or other Necessity of its Existence in the Arrangement of celestial Beings ; its Effects or Operations upon rational or irrational

Animals are much more secret and unintelligible.

The Prince of Physicians has indeed let an Ocean of Light into these dark Regions; infinitely more than could have been expected, unless the Action of the Nerves had been better understood, or the ingenious Authors that have writ upon the Æther, Electricity, or Causes of Gravitation, had given, or rather the Nature of these intricate Subjects admitted of, more satisfactory Explications. Then indeed we might have had more certain rational Accounts of epidemic Diseases, the instantaneous and mortal Effects of Steams, Damps, and Lightning.

The Moon may have a very powerful Action upon our Atmosphere; several Causes may prevent the Subsiding of the Barometer. But if the endless Phænomena of this

this Instrument be inexplicable on all known Principles, if the Objections to *Halley's* Hypothesis be weighty and reasonable, *Leibnitz's* absolutely false, and other Solutions defective and exceptionable ; where stand our Conjectures, Reasonings, and Conclusions, founded on uncertain *Data* ?

Whether the Comets (as they have been called), these Messengers of Fate, are appointed, by the God of Nature, to demolish old Worlds, and supply Materials for new, or carry the Damned thro' the Extremities of Heat and Cold, or whether they may be beneficial in repairing aqueous nutritive Consumptions, and diffuse a re-vegetating regenerating Moisture through the planetary Regions ; it is not improbable, but Bodies of such a Magnitude, heated to such a Degree, consequently having the Salts, Oils, metalline, or
other

other durable Principles, proportionably rarefied and exalted, may repel Atoms of different Natures, the *Semina* of Diseases, to vast Distances in the boundless Space, which, though not immediately descending through our Atmosphere, in some time may, by a radial Impulse, an unlucky Position, be reflected on our Planet.

The Comet in 1680 was supposed 2000 times hotter than red-hot Iron; which, if of the same Magnitude with the Earth, must require a Million of Years to cool. And the inferior Planets (particularly *Mercury*), according to the *Newtonian* Calculation, must be excessively heated; the solar Fire, at that Distance, must separate, disunite, or dissolve almost the compactest Matter we are acquainted with. And it is probable, during their various Fermentations, Fusions, and fiery Purgations,

tions, gross, febrile, and mischievous Atoms may fly off irregularly, or periodically, in all manner of Directions.

Should these Emissions be un-
luckily directed, the vigorous Ac-
tion of the Sun may powerfully pro-
pel them, and at the same time a
greater Quantity of aqueous and
other rising Vapours destroy their
Virulence and Energy: Yet, when
the Atmosphere becomes unusually
rare (which is conjectured to be so
at particular Periods of the Moon),
and when the Quantity of Exhala-
tions is vastly diminish'd, however
less crouded, to say nothing of un-
known Attractions and Repulsions,
their Descent with unabated Fury
may be wonderfully facilitated.

There is a certain Peculiarity in
the Fluids, either as to the Propor-
tion of the Principles, or Method
of Composition; not only in Ani-
mals

mals of a different Species, but even among the human Race: No two Persons are equally affected with the same Food or Physic; what poisons Man, and several Kinds of Animals, to others proves wholesome and nutritive; what has raised violent, mortal, and epidemic (pardon the Expression) Fevers in the Constitution of Brutes, has not only been unfelt by Men, but even different Species of the same Class. In foreign Countries, where People of all Nations resort, settle, and have an unscrupled Communication, pestilential Diseases have sometimes been limited to the Natives, sometimes to the Strangers. Yet Idiosyncrasies, and nervous Differences, are infinitely more wonderful; *e. g.* that the Smell of a Rose should be grateful and vivifying to one, disagreeable and deadly to another.

We

We have seen Diseases of the Lunatic, Epileptic, Hypochondriac kind, attended with Spasms and Convulsions, Throes, and temporary Inflations, whose Force, Violence, and Impetuosity, might almost argue sulphureous, vitriolic, and ferruginous Mixtures, perhaps from the Principles of animal and high-seasoned Food alone, but rather some extrinsic Matter mixing, and more easily fermenting, where such Salts abound : We know such Particles exist ; we know they may pass the *Vasa inbalantia* ; we know they may raise Ferments, notwithstanding the pretended Authority of the great * *Borelli*.

Fermentation, Putrefaction, or intestine Motion, certainly obtain more in the animal Functions, than has been generally believed.

F

Upon

Upon what Principles must we account for the Colour, Warmth, and Fluidity of the Blood? Does the Attrition of the Solids raise a proportional Degree of Heat? May not a small Pulse be attended with extreme Heat, or a full Pulse with intense Cold? Upon weighing or measuring the arterial Branches, at different Distances, we find all the Arteries are one truncated Cone, the lesser Base terminating in the Heart, the greater in the Extremities of the Arteries; consequently the Momentum of a Fluid passing thro' any given Section will be as the Velocity or Section inversely.

This one Truth overturns some specious Theories, founded on some mistaken or unlucky Expressions of the famous * *Bellini*.

In

* Propos. 27.

In homogeneous Liquors, as Water and Oyl, no Motion or Concussion ever received a perceptible Warmth; and in the human Body it appears not that the Blood and Vessels have the Properties requisite for the Production of Heat. Are the moving Parts hard and dry? the Volocity sufficient? or vasculer Fibres divested of Fat and Mucilage? But as there are Proccesses where the Ingredients will not ferment without some Motion, it is probable the Arteries, by shaking and mixing the heterogenous Principles of the Blood, may raise the animal Effervescence, which will continue in such a State as is necessary to Life and Health, while the Degree of Motion, and fermentative Ingredients, are duly adjusted.

But, to leave these unfrequented Paths of Speculation and Conjecture; it is certain every Country

abounds with Plants, Minerals,
 and Exhalations peculiar to itself;
 and as most may be denominated
 friendly or inimical to the human
 Constitution, upon this Principle, it is
 easy to see how indigenous Disorders
 arise; how the Air of one Country
 cures the Diseases of another;
 how not only the Constitution of
 the Body, but the very Frame and
 Temper of the Mind, may be al-
 ter'd. In *Hungary*, among the Cin-
 nabarine, and some other Mines,
 the Travellers observe their Blood
 accelerated, Conceptions clearer,
 Imagination more lively; and, im-
 mediately passing to another Soil, an
 universal Relaxation, Ideas gloomy,
 confused and indistinct. Thus the
 Discovery of Arts and Sciences may,
 in some measure, depend upon the
 Season and Climate; some succeed-
 ing best, where a Sprightliness of
 Fancy,

Fancy, others where great Application of Mind, is required.

If in Miners, and several Kinds of Workmen, the very Materials about which they were employed, upon a Dissection, are found in their Vessels; if in a few Months the *Damnati ad metalla* *, become vertiginous and paralytic; can it be thought the most volatile and active Oils should be denied an Entrance; or is it probable, mixing immediately with the Blood, they should have no Effect? Is it not needless to quote Naturalists and Travellers, to quote what every one must have observed, that in standing, walking, or sleeping, under several Kinds of Trees, he has found himself variously affected?

The celebrated *Boerhaave*, by the Steams of a Vegetable, procured Ease, Rest,

* Sennertus. Fallonius de Metall. & Foss. Et-
mull. de Miner. Philof. Transact.

Rest, and Sleep, when all other Medicines had been administered to no Purpose. Sir *Theodore Mayern* * says, the *Succisa* is an incomparable Antidote for Poisons, the Plague, or any malignant Fever; the Patient being laid upon a Bed of this Plant, moderately warm, it proves a powerful Sudorific, and presently relieves. Those, whom long and tedious Indispositions had brought to the last Stage of Life, have, by the Effluvia of young, sound, and healthy Animals, been surprisngly recruited, strengthened, and invigorated.

The Traveller frequently returns with all the Symptoms of a *Causus*, or burning Fever, afflicted with intollerable Pain, *Delirium*, and inextinguishable Thirst: Effects too dreadful to be merely the Produce of Heat and Toil. But if, after the violent Exercise of Riding, or any other laborious Employment, notwithstanding

* Philof. Transact.

withstanding the vast Expence of *Materia perspirabilis*, and no Food taken, the Body, by exact statical Experiments, is found heavier by many Ounces, perhaps some Pounds, it not only follows, that the Quantity of *Sanctorian* Perspiration is indeterminate, but renders it probable, that the *Inhalata* so numerous, consisting perhaps of some poisonous narcotic Materials, without any previous Digestion, Dilution, or Envelopment, may cause Fevers of the most malignant Kind.

In the Space of one Night Fevers, Colds, Fluxes, and other Disorders, have become epidemic; Effects too extensive to be owing to private Irregularities. And it has been observed, in Summers remarkably hot, or wet, Winters mild, or extremely cold, and all imaginable Degrees of Heat, Cold, Moisture, and Dryness, in every Season, yet the Inhabitants

bitants have suffered very inconsiderably in their Health; which seems to prove something else than the Season is necessary to create an unhealthy Constitution.

Salts, which float and saturate the aerial *Medium*, and, tho' dissolved, and uniformly mix'd by a proper Degree of Heat, separate, crystallize, and speedily precipitate upon ensuing Cold. Corpuscles, innocent when exhaled, by mischievous Unions may acquire a malignant Nature; others, poisonous when ascending, have their Virulence abated; and even Poisons counteract Poisons. These Truths, from Chemic Experiments, are sufficiently evident.

Obstructed Perspiration has been generally esteemed the Cause of Coughs, Colds, Fevers, and numberless Complaints: But the Universality of this Doctrine, from the nice
statical

statical Examination of the learned and ingenious Dr. *Keill*, appears absolutely erroneous: Either Perspiration is not obstructed at all; or other Secretions are proportionably enlarged; or, allowing a Suppression, it is such as can produce no significant Effect: Consequently, in what is call'd catching of Cold, we are obliged to allow at least as probable, that the Air acts not by closing the excretory Ducts, and stopping the transpiring Matter; but that certain saline, nitrous, frigorific Particles alter the Quality of the Fluids.

Cold, according to the *Gassendians*, may be owing to the nitrous aerial Particles, and not a bare Privation; as Sal Ammoniac, Nitre, and several volatile alkaline Salts, mix'd with Water, render it more intensely cold.

An Introduction of saline, nitrous *Moleculæ* into the Intestines of the Globules of a Fluid, when brought within the Spheres of their mutual Attraction, must necessarily cohere; and, being every-where dispersed thro' the Fluid, it must be converted into one solid consistent Mass, till Heat dissolves the Cohesion, by breaking the saline *Spiculæ*, and removing the component Particles out of their mutual Contact, or Sphere of Attraction; in which Condition the Body resumes its usual Form.

The Intromission of this foreign Matter dilates and swells in some Bodies to near one Tenth its Bulk; Water, when frozen, expands, till it bursts the strongest Confinements. *Olearius* at *Moscow* assures us, the Earth cleft near a Foot in Breadth.

In 1708, was the greatest Frost known in the Memory of Man;
not

not only Animals, but Plants and Trees, seem'd to have a kind of Gangrene, effected by a corroding Salt. There is certainly a great Analogy between the Diseases of Plants and Animals: Both consisting of Solids and Fluids, and Circulation essential to both, must necessarily be liable to Obstructions, and the fatal Consequences. The nitrous, aerial Salt, fixing the Fluids, and stopping the Circulation, ruptures the vital Canals, and destroys both vegetable and animal Oeconomy.

Scorbutic Disorders are natural to the Situation of some Northern Countries, remarkably where the Moisture of the Air relaxes the animal Solids, and facilitates the cutaneous Immissions. These Corpuscles, which fix Water, and fluid Bodies, not only destroy the Fluidity of the Blood, but, crouding in great Numbers into the Extremities of

the finest and smallest Pipes by the attractive Faculty, unite, crySTALLIZE, and form themselves into large Volumes, which, assisted by the *Vis propellens* of the fluent Blood, being hard, angular, and deleterious, miserably distract and dilacerate the tender Vessels: The Fluids, now stagnant without the Laws of Circulation, corrode the contiguous Parts, and form Ulcers, Scabs, and Blotches, painful and dangerous, according to the Degree of Virulence and Putrefaction.

The *Lepra* or *Elephantiasis* was perhaps the most frequent in these Countries, which abounded most with the Effluvia of a nitrous or ammoniacal Kind; These Salts, in the hot Countries of the East, or other Places under or near the Equatorial Regions, may be exhaled in such Quantities, as, when dispersed, to supply the whole Globe with saline

Cor-

Corpuscles, which probably may be the aerial Nitre talk'd of by the Philosophers. The Effluvia raised under the Equator, being carried to the Top of the Atmosphere, will necessarily move towards the polar Parts, not only because the superior Current of the Air from the Equator is that Way, but we know by Experiment, that whatever swims upon a Fluid revolving about an Axis, will be carried towards that Axis: These may be thus brought to the polar Regions, and after by various Winds dispersed over all Lands and Continents of the habitable World.

The aerial Salt, not in Quantity sufficient to destroy the excretory Organs, by mixing with the Blood, may gradually alter, spoil, and coagulate the Juices; particularly where the Velocity of the Blood is vastly diminished, without

without exhibiting any cutaneous Foulnesses, or external Symptoms of a scorbutic Taint ; but the *Viscera* may in several Parts be obstructed, the Glands tumefied, the nervous Tremors spoiled or interrupted.

To attenuate the Blood and Juices, to render them fit for Circulation and Secretion, by destroying their Viscidity and Siziness, Mercurial Preparations are wonderfully calculated ; Their Weight, Smalness, and Sphericity, carry them through the slenderest Tubes. Hence we see *Æthiops*, the *Cinnabars*, or *Silver-water*, are serviceable in Ulcers, Inflammations, and cutaneous Distempers, by passing through the whole Habit, as appears from their soiling the richest Metals in the Pocket. The component Particles of pure Mercury are extremely minute, equal, and perfectly spherical ; the Weight of the Mercury to the
Weight

Weight of the Blood, as 1032 to 14593: And if we suppose a Concretion generated in any Artery, which is thereby rendered perfectly impervious, the ponderous Fluid remaining here till fresh Supplies have nearly filled the permeable Part of the Canal, the *Momentum* will be the same, as if the whole Tube had been filled with Mercury. But, supposing, as Dr. *Cheyne* has demonstrated, the *Momentum* of the Blood assisted by a reasonable Quantity of Mercurial Globules, abstracted from the Advantages of an increased Velocity, or Frequency of the Pulse, be to the unassisted *Momentum* of the Blood as 4000: 3, it is easy to see, if the Canals are abraded by the acrimonious Fluids with this additional Impulse, how they may be ruptured, or considerably damaged; or I know not whether or no it is possible, that the Mercurial

Globules

Globules attracting Salts, abounding in some Constitutions, which now being little Balls stuck round with Razors or Lancets, rend, wound, and tear the smallest Arteries; or it is possible, that the Globules may pass through the Axis of the Canal, and leave, for some considerable Time at least, the Sides still plaster'd with some adhesive, scorbutic Matter; whether thus, or no, I shall not contend; but it is certain, that there are several scorbutic Patients, that have long persisted in the Use of Mercurials, and have received little Benefit. I remember a Gentleman, who had taken these Medicines in all Forms and Doses, prescribed both in Town, *Bath*, and other Places, by the ablest Practitioners, without the least Success; but, being luckily advised to make use of a Decoction of the *Digitalis* *, which he did every

* *Purpurea J. B.* (*vulgarly Fox-glove*).

every Day, till in very little Time a Disquammation ensued; the Ulcers dry'd up, and his Skin acquired its native Colour and Softness; for his whole Body was cover'd with one leprous Scab, except where corroded with painful Ulcers. Such Medicines and Regimen had been tried as were thought to correspond with his Species of the Scurvy, which was by some taken for the *Lepra Græcorum*.

I have omitted the usual Distinctions in this Disease of hot, cold, acid, or alkeli, having observed it to succeed promiscuously*. Its Operation is strongly emetic, or cathartic: A Spoonful or two of the Juice, or six or seven Spoonfuls of the Decoction, a Handful of Leaves to a Quart of Water: It creates a lasting and almost insupportable *Nausea*,
H by

* I have been confirm'd in this Opinion by Mr. Sh——at, of Covent-Garden, a Gentleman of great Worth and Ingenuity.

by no means to be ventured on in tender Habits: In the Taste there is nothing promising *; and, as an Emetick, there are several more powerful. In hereditary *scrophulous* or *scorbutic* Obstructions, it has been administred with Success.

Whether, or when, there may be an Infusion of a self-motive, self-active, cogitative Substance into a feminal Corpuscle; or whether it may perform the animal Functions, as Circulation, Secretion, and Perspiration

* Qui, ut ex scriptis patet, nihil aliud postulabat ad explorandas remediorum vires, quam gustus experientiam: neque enim alia mihi videtur quam histrionum esse subtilitas, quæ ex solo equiseti gustatu vim eruat hæmorrhagiis inimicam, aut ex plantaginis aquaticæ sapore deprehendat scrobuti hydropisque antiphaarmacum. Sodes quot plantæ sunt saporis asperi, amari, dulcis, quæ, saperem si excipias, vix quicquam commune habent, quæque aliter quam per liquorem explorata diversissimas ostendunt qualitates? — Nonne plurima videmus medicamenta maximam in corpore humano vim habentia, quæ si admoves sensibus, parum eos certe, aut non omnino afficiunt? Quis tandem odor cuprocellæ [vulgo *Borax*] aut ipecacuanhi? *Simpson de Re Medica.* See *Martin's Essay on Elective Purgers.*

piration, analogically in its spermat-
 ic State, seems infinitely beyond
 the Limits of human Knowledge.
 In Sleep, Debauches, and nervous
 Paroxysms, the immaterial Substance
 acts very inconsistently, or imper-
 ceptibly; yet the Essence, Energy,
 or Existence, are unalterably the
 same, the material organic Instru-
 ment being only injured, and out
 of Tune. However it be the Ani-
 malcule is nourish'd, supported, or
 exists, a Tincture of parental Juices,
 of whatever Quality, will somehow
 specifically infect the Atomical
 Man.

Then Peace be with the Manes
 of our worthy Ancestors, who not
 only taught, recommended, and en-
 forced the Principles of Virtue and
 Honour, but whose corresponding
 Lives, Temperance and Modera-
 tion, have extended their Existence
 to the utmost Stretch of Mortality,

and have given us Bodies capable of the like Duration, under the like Management. But those whom Vice, Lewdness, and Immoralities, have injured in the Lumbaginous Condition, those on whom hereditary Ills are unhappily intailed, if not incorrigible Ignorance, Idiotism, and Monstrosity, may render their Senses, Imagination, and Memory, tolerably strong and lively; may repair the Injuries, in some degree, they have received in Miniature, from their crazy, corrupted Parents; and pass a less Portion of human Life in moderate Health and Serenity, if they rigorously persevere in the rules of Temperance, abstain from Excess of Flesh and Wine, fry, fermented, and infernal Liquors.

A soft, oily, aqueous, and balsamic Food, will not only free the Body from lunatic, scrophulous, and

and hereditary Disorders, obstinate, and incurable by any other Means, but to those whom Diseases, Debauches and Accidents have rendered gloomy and unthinking, will impart Flashes of Imagination, exquisitely delightful, an unexperienced Clearness in distinguishing, and a wonderful Facility, Readiness, and Pleasure, in all intellectual Operations.

Not only the *Essenes* among the *Jews*, the Solitaries among the *Christians*, or others whom unnatural Persecutions, or a philosophic Contempt of the World, had forced into Woods, Wilds, and Deserts, have subsisted on Bread, and pure Element to an unusual Time; but among ourselves a coarse vegetable Diet has reach'd an hundred and fifty Years. In all Ages and Professions we have Instances of great Men, whose Superiority of Parts, Attention, and Depth of Thought, have

have been vastly assisted by extreme Temperance.

Thus the immortal *Newton*, upon applying himself to the Investigation of the Theory of Light and Colours, in order to quicken his Faculties, and fix his Attention, confined himself to Bread, Wine, and Water, taken only upon a Depression of Spirits.

The Nervous and Hypochondriac, who, as *Cheyne* says, are born *Gennii*, Lawgivers, and Philosophers, are under an absolute Necessity to use this Regimen: The attracting, concreting, corroding Quality of animal Salts, and *Indian* Spices, will presently unharmonize the nervous Tremors, and Oscillations; destroy the delicate Texture of the Solids, and healthful Cohesions of the Fluids. This Regimen will certainly refine, and considerably improve, the grossest Intellects; and
to

to this, in some measure, abstracted from numberless other Advantages, the Schemers and Projectors have owed their Fortunes, Statesmen their successful Negotiations, and Generals their never-fading Laurels.

But, next to the *Author of Life and Immortality, brought to Light by the Gospel*, we owe an eternal Esteem and Reverence to the divine *Pythagoras*; not only because the very Nature of his Institutions guarded innocent Animals from the cruel Hand of unnatural Luxury; by calming the irregular and disorderly Passions, lay the Foundation of universal Benevolence and Humanity, and made the moral Tyes more visible, convincing and obligatory; but also because his sacred Laws render Life long, serene, and comfortable, secured against all tedious and torturing Indispositions, and even against Death itself, our Dissolution being without

without Pain and Struggle. “ Irri-
 “ deat si quis vult ; plus tamen
 “ apud me valebit *vera ratio*, quam
 “ vulgi opinio. *Cicer.*

Application to other Studies, want
 of proper Leisure, and a Divestment
 of almost every necessary Advantage,
 might justly plead in favour of my
 Inaccuracy ; but as these are mostly
 esteemed idle Pretences, on that ac-
 count I expect little Indulgence.
 And as I have experienced, neither
 Youth, Innocence, nor the strictest
 Integrity, are sufficient Warranty
 against Scandal and Aspersions ; as I
 have observed some of the greatest
 Men now living treated with Con-
 tempt and Ignominy, and an uni-
 versal Defection from Religion and
 Virtue ; it's difficult to suppose what-
 ever has the least visible Signature
 of Merit, should be generally re-
 ceived with Kindness and Civility,
 against this there is no *Asylum*, no
 human

human Security. But I own, as to myself, the Satisfaction arising from your single Approbation, of whose Virtue and Humanity, Learning and Generosity, I have conceived the most sublime and exalted Ideas, will infinitely outweigh the malicious Insinuations, or stupid Ridicule, of weak, ignorant, and ill-designing Men.

I am,

With the profoundest Respect,

Your most Obedient,

Humble Servant

E---d L--tt--n.

Erratum. In p. 17, del. l. 19.

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