A RATIONAL ACCOUNT OF THE WEATHER, SHEWING THE SIGNS OF ITS SEVERAL CHANGES AND ALTERATIONS, TOGETHER WITH THE PHILOSOPHICAL REASONS OF THEM

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649410859

A Rational Account of the Weather, Shewing the Signs of Its Several Changes and Alterations, Together with the Philosophical Reasons of Them by John Pointer

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

www.triestepublishing.com

JOHN POINTER

A RATIONAL ACCOUNT OF THE WEATHER, SHEWING THE SIGNS OF ITS SEVERAL CHANGES AND ALTERATIONS, TOGETHER WITH THE PHILOSOPHICAL REASONS OF THEM

Trieste

PREFACE.

AIR (*or the different Temperature of it, by which we mean* WEATHER) *is one of the grand Concerns of Mankind. 'Tis what affects all ſorts of People, Young as well as Old, Sick as well as Strong. Inſomuch that even thoſe very Perſons that for want of Health, are lock'd up in cloſe Rooms, feel either the Good or Ill Effects of the* Weather. *The* Air *being like Food, the better the more refreſhing. Hence it is that the Sick Man is inquiſitive what* Weather *it will be, and the Healthful, when he is to take a Journey, is willing to conſult his* Weather-Glaſs. *And even thoſe of the* Fair Sex, *are unwilling to ſtir abroad unleſs the* Weather *be like Themſelves, and they like the* Weather. *How glad wou'd each Man be, in his particular State and Condition of Life, either to be enſur'd of Good* Weather, *or foretold of Bad? How glad wou'd the* Country-Man *be, to be aſſur'd of Good* Weather *to ſow or reap his Corn and Hay? How glad wou'd the* Traveller *be, if he cou'd depend upon the* Weather *for ſuch a determinate time?*

To this end how frequently have Philoſophers *endeavour'd to make Schemes and Calculations of the* Weather? *And how even to this Day do your* Aſtrologers *and* Philomaths *pretend (tho' in vain) to their* High Flights *of Knowledge in their Prognoſtication of the* Weather, *from I know not what various Motions and Aſpects,* Trines, Squares, Sextiles, Conjunctions *and* Oppoſitions *of the* Planets *with the* Conſtellations, *and with one another, and ſuch like* Aſtrological *Cant and Jargon, which they are Annually troubling the World with, and with which glittering* Starry

Notions they are perpetually dazzling and deceiving the Eyes of the Unthinking Vulgar, who have neither Opportunities nor Abilities of examining or enquiring into the Reasons of things. But how prettily soever these Men may talk of their Planets *and* Stars (*for I know no difference between 'em*) *and however* Solac'd *and* Jovial, Martial *and* Mercurial *they may be at sometimes, yet doubtless they must take their Turns to be either* Saturnine, Venereal, *or* Lunatick *at other times, if* (*as they say*) Astra regunt Homines, *and if* (*as we say*) Semel insanivimus omnes, *especially when they are* Talking out of their Sphere. *However these* Scioliſts *may value themselves upon their* Planetary *or* Starry *Knowledge, yet what Influence can such Distant* Orbs *shed upon Ours; So as to afford us any Rational or even Probable Conjectures in relation to the* Weather? *If they cou'd, we had long before this time had certain and infallible Schemes of the* Weather *deliver'd down to us, from the Experience of some of the best* Astronomers, *that have for many Years together, and with the utmost Exactneſs, kept their* Diaries, *and made their strictest Observations upon the Conjunctions and Oppositions of the* Planets. *Yet after all, how often has it been obſerv'd, That the very same* Aſpect *of the very same* Planet, *has predicted such a sort of* Weather *at one time, and the quite Contrary at another?*

Indeed it must be granted, that the Sun *and* Moon *have Influence upon us, by reason of their Proximity, but as to the other* Orbs (*tho' all within the Verge of our* Planetary Syſtem) *they are notwithstanding in this respect Strangers to us, and the* Stars *far greater. And when we gueſs at the ensuing* Weather *from the* Stars, *'tis only because, by getting a clearer or obscurer Sight of the* Stars, *we thereby discover the Clearneſs or Denſity of our Atmoſphere, and so accordingly Prognoſticate the Change and Alteration, or Continuance of Weather.*

There-

Therefore I think we need go no farther than this our Sublunary World, *for the moſt probable and rational Conjectures in relation to the* Weather, *and deduce our Prognoſtications from the* Animals *and* Vegetables *of this our* Terrene Globe, *which is compoſed of Land, Water, and Air or Atmoſphere: The Surface of which* Earth *is large enough, being* 199444201 *Miles, and the Solid Content of Air (according to the moſt Modern Calculation)* 2341464949 *Cubick Miles. The Diſtance of the* Moon *from the* Earth 234304 *Engliſh Miles; and the Diſtance of the* Sun *from the* Earth 6485200 *Miles; and the Diſtance of the other* Planets, *in this our* Solar Syſtem, *proportionably far greater.*

And beſides all this, there are ſeveral Ingenious Inſtruments invented, and improv'd, as Barometers, Hygrometers, *and* Thermometers, *&c by which Men of Ordinary Capacities may pretty eaſily Prognoſticate the Temperature of the* Air, *and conſequently the ſeveral Changes and Alterations of* Weather. *For Natural Cauſes do Naturally* (i. e. *according to the ſettled Order and Nature of things*) *produce Natural Effects, as a Dry* Air (i. e. Air *free from Vapours*) *will Naturally produce Fair* Weather, *and Humid* Air, *the contrary, unleſs hinder'd by Winds or the like. The ſame may be ſaid of all other ſorts of* Weather, *in reſpect of the ſeveral Degrees of Heat or Cold, Rarefaction or Condenſation.*

But not to inſiſt too much upon Generals, it may not perhaps be thought improper to deſcend to Particulars, and give you a ſhort but Phyſical Account of the different Phænomena *of the* Weather, *together with the Original of* Clouds, Rain, Hail, Snow, Winds, *&c. Which may help to give light to the* Prognoſtications *of the* Weather, *which I ſhall give you in the enſuing Diſcourſe. In which Natural Account of the ſeveral Sorts of* Weather, *I ſhall not altogether adhere to my own*

Opinion,

Opinion but give you the Opinions of the moſt celebrated Virtuoſo's, and more eſpecially of the Reverend and Ingenious Mr. Derham, *F.R.S. in his* Phyſico-Theology.

And firſt, concerning Clouds *and* Rain. Clouds *and* Rain *(ſays Mr.* Derham*) are made of Vapours raiſed from Water or Moiſture only. (So that he utterly excludes the notion of Dry, Terrene Exhalations or Fumes; Fumes being really no other than the Humid Parts of Bodies reſpectively Dry.) Theſe Vapours are demonſtratively no other than ſmall Bubbles,* or Veſiculæ *detach'd from the Waters by the Power of the Solar, or Subterraneous Heat, or Both. And being lighter than the Atmoſphere, are buoyed up thereby, till they become of an equal Weight therewith, in ſome of its Regions aloft in the Air or nearer the Earth; in which thoſe Vapours are form'd into* Clouds, Rain, Snow, Hail, Lightning, Dew, Miſts, *and other* Meteors.

In this Formation of Meteors, *the grand Agent is* Cold, *which commonly, if not always, occupies the ſuperior Regions of the Air; as is manifeſt from thoſe Mountains which exalt their lofty Tops into the Upper and Middle Regions, and are always cover'd with* Snow *and* Ice.

This Cold, *if it approaches near the Earth, preſently precipitates the Vapours, either in* Dews; *or if the Vapours more copiouſly aſcend, and ſoon meet the* Cold, *they are then condens'd into* Miſling, *or elſe into Showers of* Small-Rain, *falling in numerous, thick, ſmall Drops: But if thoſe Vapours are not only Copious, but alſo as Heavy as our Lower Air it ſelf (by means of their* Bladders *being thick and fuller of Water) in this Caſe they become viſible, ſwim but a little Height above the Earth, and make what we call a* Miſt *or* Fog. *But if they are a Degree lighter, ſo as to mount Higher, but not any great Height, as alſo meet not with* Cold *enough to condenſe them, nor* Wind *to diſſipate them, they then form an heavy, thick,* dark Sky,

Sky, *laſting for ſeveral Weeks without either* Sun *or* Rain. *And in this Caſe, I have ſcarce ever known it to* rain, *till it has been* firſt Fair, *and* then Foul, *be the* Wind *where it will. And from what has been ſaid, the Caſe is eaſily accounted for,* viz. *Whilſt the* Vapours *remain in the ſame State, the* Weather *does ſo too. And ſuch* Weather *is generally attended with moderate* Warmth, *and with little or no* Wind *to diſturb the* Vapours, *and an heavy Atmoſphere to ſupport them, the* Barometer *being commonly high then. But when the* Cold *approaches, and by condenſing, drives the* Vapours *into* Clouds *or Drops, then is way made for the* Sun-beams, *till the ſame* Vapours, *being by further Condenſation, form'd into* Rain, *fall in Drops.*

The Cold's *approaching the* Vapours, *and conſequently the Alteration of ſuch* dark Weather *I have* (*ſays Mr.* Derham) *before-hand perceiv'd by ſome few ſmall Drops of* Rain, Hail, *or* Snow, *now and then falling, before any Alteration has been in the* Weather; *Which I take to be from the* Cold *meeting ſome of the ſtraggling* Vapours, *or the uppermoſt of them, and condenſing them into Drops, before it arrives unto, and exerts it ſelf upon the main Body of* Vapours *below.*

I have (*ſays he*) *more largely inſiſted upon this Part of the* Weather, *becauſe it gives light to many other Phænomena of the* Weather. *Particularly we may hence diſcover the Original of* Clouds, Rain, Hail, *and* Snow; *that they are Vapours carried aloft by the Gravity of the Air, which meeting together ſo as to make a* Fog *above, they thereby form a* Cloud; *If the* Cold *condenſes them into Drops, they then fall in* Rain, *if the* Cold *be not intenſe enough to freeze them: But if the* Cold *freezes them in the* Clouds, *or in their Fall thro' the Air, they then become* Hail, *or* Snow.

As to Lightning, *and other enkindled* Vapours, *I only obſerve, that they owe alſo their Riſe to* Vapours; *but*

but such Vapours *as are detatch'd from Mineral Juices, or at least that are mingled with them, and are fir'd by Fermentation.*

Another Phænomenon *resolvable from what has been said is, Why a* Cold, *is always a* Wet *Summer, viz. because the* Vapours *rising plentifully then, are by the* Cold *soon collected into* Rain.

We may observe farther, that about the Æquinoxes *we have oftentimes more* Rain, *than at other Seasons. The Reason of which is manifest, because in Spring, when the Earth and Waters are loos'd from the Brumal Constipations, the* Vapours *arise in great Plenty: And the like they do in Autumn, when the Summer Heats, that both dissipated them, and warm'd the Superior Regions, are abated; and then the* Cold *of the Superior Regions meeting them, condenses them into* Showers *of* Rain, *more plentiful than at other Seasons, when either the* Vapours *are fewer, or the* Cold *that is to condense them is less.*

The Manner how Vapours *are precipitated by the* Cold, *or reduc'd into Drops, I conceive to be thus;* Vapours *being no other than inflated* Veliculæ *of Water, when they meet with a Colder Air than what is contain'd in them, the contain'd Air is reduc'd into a lesser Space, and the watery Shell or Case, render'd thicker by that means, so as to become heavier than the Air, by which they are buoy'd up, and consequently must needs fall down. Also many of those thicken'd* Veliculæ *run into One, and so form Drops, greater or smaller, according to the Quantity of* Vapours *collected together. Concerning which, the learned and ingenious Dr.* Halley *has given us some curious Experiments, in our* Philos. Trans. *which may be met with together in Mr.* Lowthorp's Abridg. *Vol.* II. *p.* 108. *and* 126. *Mr.* Sedileau *also at* Paris *observ'd it for near Three Years: By whose Observations it appears, that what is rais'd in* Vapours, *exceeds that which falls in* Rain.

And

And by all their Obſervations it appears, that in the Winter Months the Evaporations *are leaſt, and greateſt in Summer, and moſt of all in* Windy Weather. *Vid. Mem. de Math. Phyſ. Ann.* 1692. *p.* 25.

If it be demanded what becomes of the Over-plus of Exhalations *that deſcend not in* Rain? *I anſwer, they are partly tumbled down and ſpent by the* Winds, *and partly deſcend in* Dews, *which amount to a greater Quantity than is commonly imagin'd. Dr.* Halley *found the Deſcent of* Vapours *in* Dews, *ſo prodigious at St.* Helena, *that he makes no doubt to attribute the Origin of* Fountains *thereto. And I my ſelf (ſays Mr.* Derham) *have ſeen, in a ſtill, cool Evening, large thick* Clouds *hanging without any Motion in the Air, which in 2 or 3 Hours time have been melted down by Degrees, by the Cold of the Evening, ſo that not any of the leaſt Remains of 'em have been left.*

Concerning Winds; Ventus eſt Aer fluens, *according to* Seneca, *and* Aer agitatus, *according to* Ariſtotle. *And as Wind is a Current of the Air, ſo (ſays Mr.* Derham) *that which excites or alters its Currents, may be juſtly ſaid to be the Cauſe of the* Winds. *An Æquipoiſe of the Atmoſphere produces a Calm; But if that Æquipoiſe be more or leſs taken off, a* Stream *of* Air, *or* Wind, *is thereby accordingly produc'd either ſtronger or weaker, ſwifter or ſlower. And divers things there are that may make ſuch Alterations in the Æquipoiſe or Balance of the Atmoſphere,* viz. *Eruptions of Vapours from Sea or Land; Rarefactions and Condenſations in one Place more than another; the falling of* Rain, *Preſſure of the* Clouds, *&c.*

Pliny (*L.* 2. *c.* 45.) *tells us of a certain* Cavern *in* Dalmatia *call'd* Senta, In quem (*ſays he*) dejecto levi pondere, quamvis tranquillo die, turbini ſimilis emicat Procella. *But as to* Caves *it is obſerv'd, that they often emit* Winds *more or leſs. Dr.* Conner *taking notice of this Matter, ſpecifies theſe,* In Reg-