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## **Edme Mariotte Manuscript: A Treatise of the motion of water and other fluid bodyes**

Extracted on Apr-23-2024 03:51:42

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small parcells of water wch compose ye vapours are much pressed by ye winds they are formed into drops of rain as is explained before when it follows that it is ye wind wch makes ye clouds and rain, and that ye clouds do not make ye wind.

Here is some conjectures wch appears to me very probable about ye true causes of winds, wch I have found upon many observations wch I have made or caused to be made, or wch I have drawn from many relations of sea voyages.

I suppose that any swiftnes wch can be given to a space of air of ye thickness of a cloud, cannot continue a sensible motion cross ye rest of ye unmoved air but to a forth part of a league, or more, this is easily to prove by experience in pushing the wind in a pair of bellows from one end of a chamber to ye other.

I suppose also that there is elevated more vapours of water from sea than from land and more nitras and sulphueous fumes from uncovered earths than from those wch are under water.

This being supposed I say that there is three principall causes of winds and some other ~~caus~~ causes particular and less principall. Ye three principall and generall air.

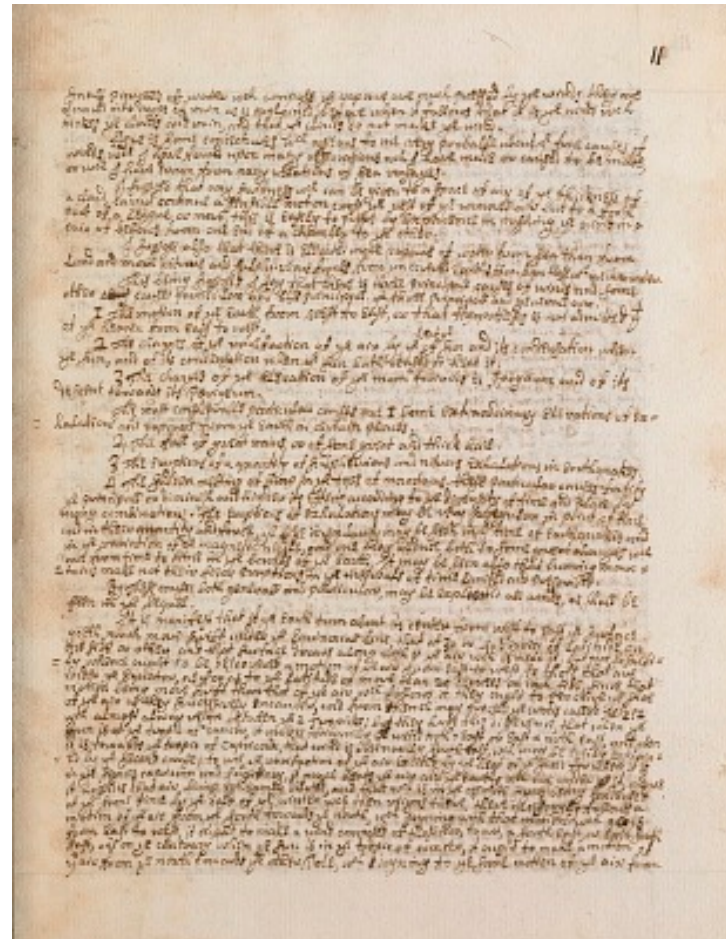
- 1 The motion of ye earth from west to east, or that Hypothesis is not admitted ye of ye heaven from east to west.
- 2 The changes of ye rarefaction of ye air by the heat of ye sun and its condensation when ye sun, and of its condensation when ye sun hath ceased to heat it.
- 3 The changes of ye elevation of ye moon towards is Apogaum and of its descent towards its Parigeum.

The most considerable particular causes are

- 1 Some extraordinary elevations of exhalations and vapours from ye earth in certain places.
- 2 The fall of great rains, or of some great and thick hail.
- 3 The eruptions of a quantity of sulphurios and nitrous exhalations in earthquakes.
- 4 The sudden melting of snow in ye tops of mountains. These particular causes fortify the principall or diminish and hinder its effects according to ye diversity of time and place by many combinations. The eruptions at exhalations may be very irregular in point of time and in their quantity and force, ye like irregularity may be seen in ye time of earthquakes and in ye variation of ye magnetic needle, and one may reduce both to some great changes wch are from time to time in the bowels of the earth, It may be seen also that burning mountains make not their fiery eruptions in ye intervals of time limited and prescribed.

By these causes both generall and particular, may be explicated all winds, as shall be seen in the sequel.

It is manifest that if ye earth turn about is centre from west to east ye surface goeth much more swift under ye equinoxiall line, that at 30 or 40 degrees of latitude on one side or other and that surface draws along with it ye air wch is near it, but not so swiftly whence ought to be



discovered a motion of ye air from east to west, to those that are under the Equator, as far as to the latitude of more than 20 degrees on each side, since that motion being more swift than that of ye air wch follows it they ought to perceive ye shoe of ye air as they sucessively incounter, and from thence may proceed ye winds called Alizez wch almost alway reign between the 2 Tropicks; but they have this difference, that when ye Sun is at ye tropic of cancer, it makes ordinarily ye wind noth=east or east=noth east, and when it is towards ye tropic of capricorn, that wind is ordinarily south east, wch may be easily explained by ye second cause; to wit, ye rarifaction of ye air excited by ye heat of ye Sun: For when it is in the signies capricorn and sagittary, it much heats ye air and ye earths wch are under ~~ye~~ it, whence it happens that air being extreamly diluted, and about wch is in ye opposite signs being condensed at ye same time by ye cold of ye winter wch then reigns there, there necessarily follows a motion of air from ye south towards ye north, wch joyning with that motion wch goes from east to west, it ought to make a wind composed of those two, to wit, a south east, or east south east, and on ye contrary when ye sun is in ye tropic of cancer, it ought to make a motion of ye air from ye north towards ye other Pole, wch I joyning to the same motion of the air from

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