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

Extracted on Apr-19-2024 04:57:49

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East to ye west, makes a north, or east = north = east wind.

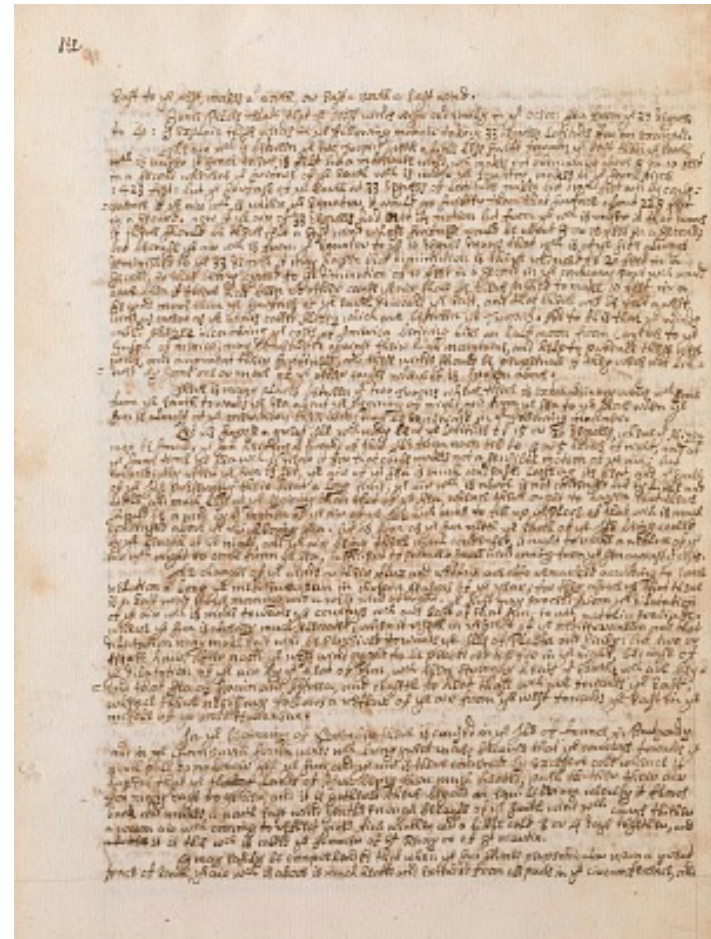
Some Pilots relate that ye west winds reign ordinarily in ye ocean sea from ye 27 degree to 40: I explain these winds in the following manner. Taking 33 degrees latitude from our example.

The air wch [sic] is between the two tropics goeth a little less swift towards ye east than ye earth wch is under it since there is felt but a moderate wind, wch makes not ordinarily above 8 or 10 feet in a second whereas ye surface of ye earth wch is under ye Equator, makes in ye same time 1423 feet: but ye surface of ye earth at 33 degrees of Latitude makes but 1195 feet and by consequence if ye air wch is under the equator, it would go swifter than that surface about 228 feet in a second. now [sic] if the air at 33 degrees had not its motion but from ye wch is under it that draws it there should be there felt a East wind whose swiftness would be about 8 or 10 feet in a Second; but because ye air wch is from ye equator to the 10 degree draws that wch is at ye side always diminished [sic] to ye 33 degree it may happen that diminution is there reduced to 20 feet in a second, so that being joynted to ye diminution of 10 feet in a second in ye contrary part wch would have been if there had been no other cause ye air shall be there pushed to make 10 feet in a second more than that surface of ye Earth towards ye east, and that there will be felt a west wind as great as ye winds called Alizez [[French for trade winds]] which are between ye Tropics. Add to this that ye winds called Alizez encountering [sic] ye costs [sic] of America bending like an half moon from [[Cayenne?]] to ye Gulph of Mexico, may be reflected against their high mountains, and help to produce these west winds, and augment their swiftness, and these winds should be perpetuall [sic] if they were not hindred [sic] by some one or more of the other causes where of is spoken above.

There is many places between the two Tropics where there is extraordinary winds wch come from ye Earth towards ye sea about ye beginning of night, and from ye sea to ye shore when ye sun is almost at ye meridian, these winds may be explained in ye following manner.

Let us suppose a great Ile [sic] wch [sic] may be at the Latitude of 15 or 20 degrees, where the Alizez may be small; ye sun heating the ground of that Ile from noon till to 4 or 5 hours of night, and at ye same time ye sea wch is near it for that cause makes not a sensible motion of the air; but immediately after ye sun is set, ye air of ye sea is much condensed looseing [sic] its heat, and ye Earth of ye Ile preserving this heat a long time, ye air wch is above is not condensed but by little and little, and much less at the begining [sic] than that of ye sea, whence that ought to hasten that there should be a wind by the motion of the air of ye Ile wch runs to fill up ye place of that wch is much condensed above ye neighboring sea. But as soon as the sun riseth [sic] ye Earth of ye Ile being cooled by ye length of ye night, and ye air being there much condensed it ought to make a reflux of ye air wch ought to come from ye sea, sufficient to produce a small wind coming from ye sea against ye costs.

The changes of ye winds or their flux and reflux are also remarked according to some relation along the mediterranean in certain seasons of ye years; for they assure us that theare [sic] is a East wind in the morning and a west wind at night. ye first may proceed from ye dilatation



of ye air wch is made towards ye countrys wch are East of that sun; to wit, natolia ~~[[Asia Minor]]~~ arabia &c. where ye sun is already much elevated, when it riseth in respect of ye mediterranean and that dilatation may make east wind be perceived towards ye iles of Malta and Sicily: but two or three hours after noon ye west wind ought to be perceived til far in ye night, because of ye dilatation of ye air by he heat of ye sun, wch then strongly heats ye earth wch are beyond that sea of Spain and Africa, and ceaseth to heat those wch are towards ye East whence there necessary follows a reflux of ye air from ye west towards ye east in ye middle of ye mediterranean.

In ye beginning of November there is caused in ye Ile of Franc, in Burgundy and in ye champayne south winds wch bring great rains; because that y countrys towards ye north pole do no longer see ye sun, and ye air is there condensed by excessive cold whence it happens that ye ~~[[that ye]]~~ lands of Afric being then much heated, push thither their air for many days to gether, and it is gathered there beyone an equilibrium whereby it flows back and makes a north east wind gentle enough because of ye south wind wch carrys thither a warm air wch coming to reflect gives fine weather and a little cold 3 or 4 days together, and ~~[[a little]]~~ it is this wch is called ye summer of St Reiny or of St martin.

It may easily be comprehended that when ye sun shines perpendicular upon a great space of earth, ye air which is above is much heated and extended from all points in ye circumference, and

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