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

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The Seine above Pont Rouge when it toucheth the two keys without covering but the very extremity of the earth is from [^][[one]] side to another 400 feet wide and five feet mean depth it is then in its mean greatness, the swiftness at the top of the water is such that it makes about 150 feet in an minute, it makes then 250 when the waters are in their greatest hight: for a stick which is carried in the midle of the current, goeth as swift as a man which marches a great pace, it may make 15000 feet in an hour, and by consequence 250 in a minute, that is about four feet in one second. but because that the bottom of the water doth not run so swift as the middle nor the middle as the superiour surface as shall be here after ~~[[striketthrough]]~~^p~~[[/striketthrough]]~~ proved; one may take 100 feet in a minute for the mean swiftness.

The product of 400 feet large by 5 feet the mean depth; for it is 8 or 10 feet in some places and 6 or 3, or 2 in others, and the product of 2000 by 100 feet, is 200000 cubic feet, and by consequence there passeth by a part of the shore of the river Seine above Pont Rouge 200000 cubic in a minute and 12000000 in an hour, and in 24 hours [^][[it]] runs 288000000, and in a ~~[[striketthrough]]~~^f~~[[/striketthrough]]~~ year 105120000000, which is not the sixth part of the water which falls in a year in rain and snow; to wit 714150000000 cubic feet. hence it is manifest that altho the third part of the rain water should elevate it self incontinently into vapours after it is fallen and that half of the rest should remain in the superficial parts of the earth to keep them moist as may be ordinarily seen, and in and in ^{[[sic]]} subterraneous caves at the bottom of great plains, and that it was but the rest that might run ^{[[thrd?]]} small conduits to make the fountains at the bottom or the sides of mountains, and rivers such as we see. if we take in the calculation above ^{[[18?]]} instead of 714150000000, 856980000000 cubic feet which would give 8 times more water than the Seine there furnisheth.

To calculate the water of the great fountain of Mont-Martre, we must multiply 300 toises long by 100 wide the product is 30 000 toises which at 54 cubic feet the toise will give 1620000 cubic feet, near in a year. ^{[[Now?]]} the earth at that mountain is sandy to two or three feet deep and the bottom is a slippy earth; one part of the water of rains runs presently to the base of the mountain, one part of the rest remains in the sand near the surface, the rest runs between the sand and the slippy earth, and if it is supposed the there ^{[[sic]]} doth not issue out above a fourth part of the whole, which is 56700000 in a year, or 155341 in a day, which makes 6772 pints in an hour and 107 in a minute, the forth part will be about 20 pints in a minute which ought to give this fountain, and is ^{[[?]]} which it gives very near, when it is more than mean.

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Discourse III

of

the origine and causes of winds

The origine of winds is much more difficult to discover than that of fountains because that same fountain having the beginning of its production, and the issue of its source in one mountain only, one man alone may observe all its most considerable circumstances, but the same wind being extended very often thro the space of more than 100 leagues, there is a necessity for many observations at the same time, to know where it begins and where it ends and what space it posseseth in wideness.



I have attempted many times to have had correspondents for these observations withing the extent of seven or eight hundred leagues in many places of Europe at the same time, as from Paris to [[Warsovie?]] and towards the extremity of Italy and Spain, and from London to Constantinople, from 100 [^][[leagues]] to 100 leagues. but altho many curious persons to whome I had spoke or writ might have promised me, and that on my part I have exactly made mine at Paris and elsewhere, I have had but little from the correspondents, of which I shall in my sequel speak.

Aristotle and some other philosophers have beleived it the winds proceed from exhalations or fumes elevated from the earth, when they are [[rilleted??]] after haveing mounted perpendicularly to the midle region of the air. this opinion is very improbable, for these exhalations elevated very gently, and consequently their reflection can give but a very

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