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Mary Smith's Commonplace book concerning science and mathematics

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p. 59. continued

I electrified the pieces of down; and brought sundry burning things under them, so as to let the smoke pass in great plenty through and about them, to try whether the electrical fluid would run off with the smoke; but I had the pleasure to see that the down was but little affected by the passage of the smoke and still remained electrified."

With the same success he applied in like manner with the smoke, sundry steams from the spout of a boiling tea-kettle; his own breath; the ~~subtle~~ p ~~subtle~~ effluvia thrown off by the perspiration of his hands with his fingers extended perpendicularly, and in short, all the vapours & exhalations he could think of. "I then warmed a wine-glass, and with the skirt of my coat held inside and ~~subject~~ header in right margin]] Quality of the 4 winds, and why. ~~margin~~]] outside the glass between my fingers and thumb: I rubbed the glass briskly about, and electrified the down, and found all experiments a~~[[insertion]]~~ n ~~[[insertion]]~~swer in the manner as they did with wax." which, by the bye, likewise shews that there are not two kinds of electrical fire, the one vesious and the other ~~viter~~ ~~vitreous~~; as some authors affirm. -- "The electricity remaining in the electrified down after these experiments made it appear, that the smoke and steams must be either electrics, or non-electrics electrified. It was easy ~~subject~~ header in right margin]] East & West are moderated by the earth's rotation. ~~margin~~]]

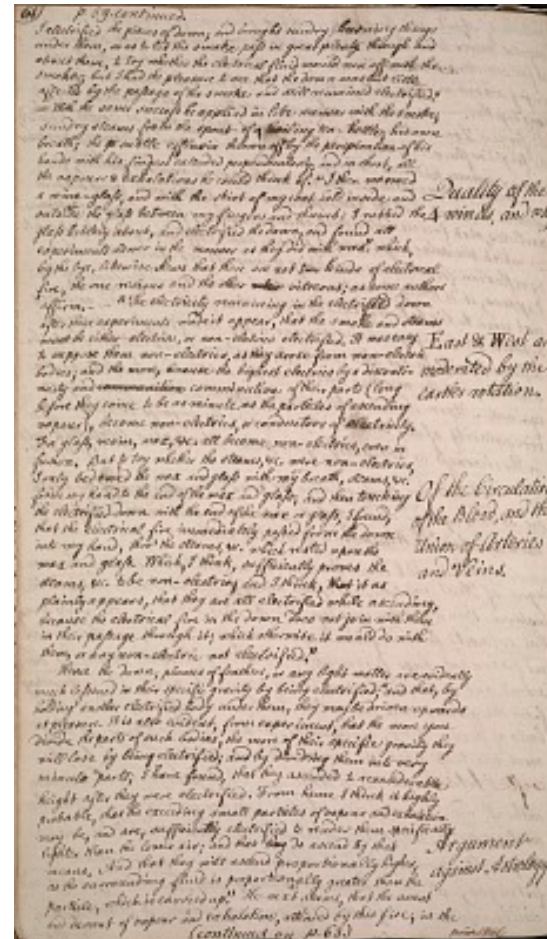
to suppose them non-electrics, as they arose from non-electric bodies; and the more, because the highest electrics by a discontinuity and ~~communion~~ ~~comminution~~ of their parts (long before they come to be as minute as the particles of ascending vapour), become non-electrics, or conductors of electricity. For glass, resin, wax, &c. all become non-electrics, even in fusion. But to try whether the steams, &c. were non-electrics, I only bedewed the wax and glass with my breath, steams, &c. from my hand to the end of the wax and glass; and then touching

~~subject~~ header in right margin]]Of the Circulation of the Blood, and the Union of Arteries and Veins. ~~margin~~]] the electrified down with the end of the wax or glass, I found, that the electrical fire immediately passed from the down into my hand, thro' the steams, &c. which rested upon the wax and glass. Which, I think, sufficiently proves the steams, &c. to be non-electric, and I think, that it as plainly appears, that they are all electrified while ascending, because the electrical fire in the down does not join with them in their passage, though it is which otherwise it would do with them, or they non-electric, and electrified."

Hence the down, plumes of feathers, or any light matter are evidently much lessened in their specific gravity by being electrified; "and that, by holding another electrified body under them, they may be driven upwards at pleasure. It is also evident, from experiment, that the more you divide the parts of such bodies, the more their specific gravity they will lose by being electrified; and by dividing them into very minute parts, I have found, that they ascend to a considerable height after they were electrified. From hence I think it highly probable, that the exceeding small particles of vapour and exhalation may be, and are, sufficiently electrified to render them specifically lighter than the lower air; and that they do ascend by that ~~subject~~ header in right margin]] Argument against Astrology. ~~margin~~]]

means. And that they will ascend proportionally higher, as the surrounding fluid is proportionally greater than the particle, which is carried up." He next shews, that the ascent and descent of vapour and exhalation, attended by this fire, is the principal

(continued on p. 63.)



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