

come more easily, and more strongly electric than at any other time, which does not indicate a larger quantity of electric matter, but a greater disposition to receive it.

2dly. There is no necessity, then, to enquire, why air, silk, wool, hair, wood, &c. contain a greater quantity of electric matter in this than in another season, since the fact does not obtain; so that the question left for investigation is only, Why they possess, during severe cold, a greater aptitude or disposition to become electric, than in any other state of the atmosphere? or, in other words, why they become, in a more eminent degree, *ideo-electric*?

3dly. Air possesses, like the other fluids, we call *menstrua*, the power of dissolving different bodies, especially water, which last process we term evaporation, and, like the other *menstrua*, this power is modified by the degree of heat it possesses, so that, *cæteris paribus*, warm air can dissolve, and hold in solution, a much greater quantity of water than cold air.

4thly. Suppose that air, heated to a given degree, holds in solution as much water as is able to dissolve, that is to say, that it is saturated with it, and it then cools down so considerably that it cannot hold in solution the same quantity it did at first; there should, in that case, take place a large precipitation, or a large portion of the dissolved water should separate itself from the cooled air; so that it must remain charged with a much smaller quantity than before it lost its heat.

5thly. It follows, then, that the atmosphere is never drier than during great frost, and never more humid than during great heat; and this assertion will appear a paradox only to those who confound a dry with a drying air, and a wet with a wetting air; or who do not recollect that a dry air may not be of a drying nature, and that a humid atmosphere may not be of a wetting quality. I hope, likewise, nobody will maintain that the apparent purity and perfect transparency of the air, in a fine summer day, is a proof of its not being charged with a heterogeneous matter, as that transparency is only the effect of a perfect solution of the water it contains. It is evident, by the common chemical operations performed every day, that every perfect solution is clear and transparent, and that when it becomes turbid, a precipitation is at hand. Let us confirm this fact, Sir, by a phenomenon we have an opportunity of seeing very often in summer, viz. that we shall find the air full of broken clouds in the morning, which vanish under our eye whilst looking at them

as the sun rises higher above the horizon, in the same manner as chemical solutions become turbid on cooling, and clear again on heating.

6thly. This extraordinary dry air penetrates into our apartments, either gently and insensibly, through chinks, or rapidly and perceptibly when our stoves are lighted each morning, once in twenty four hours at least. The external air thus introduced, soon acquires the temperature of the chamber, which is commonly from 12° to 15° , or more, of Reaumur, (in the better sort of houses, for those of the common people are warmer) and then recovers its dissolving power, which the severity of the cold had considerably diminished, nay, almost entirely overcome; but as it now contains little or no humidity, it must, like other *menstrua*, attack the humidity that it finds in the chamber, with a much greater rapidity than it could have done with the same degree of heat, had it not been thus purified (or dephlegmated, in the language of chemistry) by the cold. All the bodies, then, which happened to be in the room, must lose of their humidity, or be dried much quicker than in any other season; and, in fact, there is no housekeeper in Petersburg who does not perceive, to his cost, this extraordinary drying process, as our furniture warps, cracks, or splits, much more during the rigour of winter than in the hottest period of summer, nay, probably more than in any other country between us and the equator.

7thly. A natural result of this is, that, after our great cold has continued a certain time, the bodies mentioned above, viz. air, silk, wool, hair, wood, &c. are, in fact, without assistance from us, drier than during the rest of the year, and probably more so than in any other part of Europe, except they are dried expressly by some artificial means.

8thly. Now the bodies I have enumerated are all in the class of imperfect *ideo-electrics*, and have, likewise, the common property of attracting moisture, so that they can never be perfectly dry; but water is, after the metals, the most perfect conductor of the electric fluid, or the least of an *ideo-electric*, I say, after the metals; for I think I have observed, and probably others have done the same, that water does not conduct quite so well as they do. But let that be as it may, these bodies cannot certainly imbibe water without becoming less of an *ideo-electric*, in proportion as they do so, and, of course, the more they dry again, the more they recover their natural quality.

The result upon the whole, then, must be