

IV. *An Account of an Experiment; touching the Production of Light within a Globe Glass, whose inward Surface is lin'd with Sealing-Wax, upon an Attrition of its outside.* By Mr. Fr. Hauksbee; F. R. S.

THE seeming Congruity that appears to be between Sealing-Wax and Glass, in several Experiments already made in relation to Light and Electricity, producible on the Attrition of them, has already been taken notice of: And for a farther Confirmation of their agreableness, take the following Experiment.

I took a Globe Glass about six Inches Diameter, into which when I had put a convenient quantity of broken Sealing-Wax, I held it over a moderate Fire, and continu'd so to do, till the Wax was melted; then turning it about from part to part, it soon had got a pretty thick Lining of it, (especially some parts, for I could not make it all alike) on more than half its inside: Thus placing it in a convenient Posture, I left it till it was perfectly cold. When (being Evening) after having fixt the Brass-work to it, I caus'd it to be exhausted of its Air; then fixing it on the Machine, to give Motion to it as usual, I no sooner held my Hand on that part of it, under which it was lin'd with the premention'd Wax, but the Figure of the Parts that touch'd it, was as visible on the inward Surface of the Sealing-Wax, as when the Glass alone is us'd for that purpose: The Sealing-Wax, where it is spread thinnest on the Glass, one can but just discern the Light of a Candle thro' it in the Dark; but some Parts are so cover'd with it, that it is at least one eighth part.

part of an Inch in thickness ; and even on those Parts, for ought that I could discover, the Light and Figure appeared, as vivid, and distinguishible, as any where else. The Light produc'd, is not at all discernible thro' the Body of the Wax, but only to be look'd upon thro' the transparent part of the Glass : and notwithstanding some parts of the Sealing-Wax did not adhere so close to the Glass, as others, yet the Light appeared on those parts as on the other. Now whether the Light produced on the Sealing-Wax, was from the *Effluvia* provokt by the Attrition of the surrounding Body of Glass, or from its own disposition so to do in such a Medium, I cannot determine ; it being of the same colour and likeness to that of Glass, in all respects, except, that upon a small quantity of Air being let into the Receiver, the Light wholly disappear'd in that part lin'd with the Wax, and not in the other. I farther observed, when all the Air was let in, that the Hoop of Threads being held over the Glass, the Threads would be attracted at a larger distance, from that part of it lin'd with the Wax, than the other ; which seems to me to proceed from the United Strength of both their *Effluvia*.

Upon a Repetition of this Experiment, I observed, that the Wax within the Glass would attract Bodies approach'd near its outside, and that even in *Vacuo* (which is a Discovery that I never could make from any other Body, in such a Medium, except the Magnet.) For holding the Hoop of Threads over it, while it was in that State, the Threads would be directed, but not with that Vigour as when all the Air was let in ; yet here was that sensible difference, that when the Threads were held over that part of the Glass free from the lining of Wax, the Threads would not be attracted, but approaching them within the reach of the *Effluvia* of the Wax, they would eagerly fly towards it. Hence it seems deducible, that the Figure of the Parts of Glass and Sealing-Wax

Wax, are much alike, otherwise I cannot conceive how the *Effluvia* of one can penetrate and pass with such ease the Body of the other, and there to act as if it was one and the same with it.

V. *An Account of some Experiments, in relation to the Weight of Common Water under different Circumstances. By Mr. Fr. Hauksbee, F. R. S.*

First, I took a Glass of Common Water, and having weigh'd nicely a Glass-Bottle in it, whose Bulk was equal to the Bulk of 575 Grains of the same Fluid; then I caus'd some of the same Water to be boyl'd over the Fire, and after that, it was included in *Vacuo*, and there remained till it became of the same Temperature (as to coolness) with common Water. Thus to the utmost of my power, I endeavour'd to extricate all the Air out of the Water, thinking in that State it would become more dense than when I weigh'd my Bottle first in't; but contrary to my Expectation, I found that the Bottle had just the same weight in it, as before, which seems to confirm the impossibility to compress Water by force into a lesser space than it naturally possesses; for if upon the removal of such a quantity of Air from out of its Body, the Parts do not slide any closer together, how should a Weight laid upon its Surface, when its Interstices seem to be replete with Air, make any impression on it. The Body which was forc'd out of the Water by the prementioned means, I call Air, since, for any thing to the contrary that I can discover, it is subject to all the same Laws with it; but that the Water upon its