I. An Account of the Repetition of an Experiment touching Motion given Bodies included in a Glass, by the Approach of a Finger near its outside: With other Experiments on the Effluvia of Glasses. By Mr. Fr. Hauksbee, F. R. S.

This Experiment having been but imperfectly made before, I thought a Repetition of such a surprising Phenomenon would not be unacceptable to the Society, seeing, not only the Apparatus was better adapted, but the Appearance was much more conspicuous. For it was observable, that after the Motion and Attrition had been continued about 2 or 3 Minutes, and then ceasing, the Threads within seemed to hang in a careless Confusion, and were not instantaneously erected, but in about 3 or 4 Seconds of Time they were so, every way towards the Circumference of the Glass; and seemingly with so much Stoutness, that a Motion of the Glass alone would give them no great Disorder: but that which was the most surprising, was to see a Motion given them by the Approach of one's Hand, Finger, or any other Body, at more than 3 Inches distance from its outward surface, notwithstanding the Threads within touch'd not the inward one. And it was farther observable, that after every Repetition of the Motion of the Wheel, and the new Attrition of the Glass, that the distance, at which the Threads might be mov'd, seemed to be Increas'd. And I have since found that the Threads could have a notable Motion given them, by blowing towards the Glass with one's Mouth at 3 or 4 Foot distance; by which means the
the Air was put in Motion, and consequently the Effluvia of Glass were so too. And at another time, when I have suddenly clapt my spread Hands on the Upper and Lower Parts of the Globe, there has been such a Violent Agitation of the Threads within, as was very surprising, and continu'd so for some time. But how to Account for such Uncommon Phenomena seems very difficult. Yet give me leave to make some Observations on former Experiments of the like kind, which with Remarks on some others lately made, may in some measure solve that difficulty. The Experiment where the directed Threads on the outside of the Glass would fly the Approach of any thing held near them, seems to me, that the Parts of the Effluvia are stiff, and continu'd, that when any part of them are pulht, all that are in the same Line suffer the same Disorder. So even in this Experiment (I have just now been relating) allowing a Continuum of Parts, (as I see no reason to the contrary) the Effluvia within, and those without, are all of a Piece, (for they are both begot by the same Attrition) that when the Effluvia are pulht, or disturb'd without, the Effluvia within, in the same direction are so too, and consequently the Threads which are upheld and directed by 'em. The Effluvia which are provok'd from the Glass, seem to be, and are nothing else but part of the same Body exerted from it by rubbing; therefore (I think) can be no Impediment to the Motion of its own Effluvia, for otherwise I do not see how the Effluvia within, can be produc'd by an Attrition without. And for a farther Confirmation that the Effluvia of Glass act not but in a Continuum of their Parts, take the following Experiments.
EXPERIMENT I

I took a piece of Leaf Brass, and laid it between two pieces of Wood about an Inch in thickness, and the same distance asunder. Then I apply'd a well rubb'd Tube to attract the Brass, even so near as the Wood would suffer, but gave it no manner of Motion; but so soon as the Wood was remov'd, and the Continuum of its Sphere restor'd, the Brass was driven to it very vigorously, without any fresh Attrition; which I think most plainly proves, that the Action of the Effluvia, or at least in a great measure, is lost, if the Parts of it are discontinu'd by any thing Interposing, or Interrupting its Spherical Figure. Nay, I have try'd, by holding the Tube so, that its Sphere might meet with no Interruption by the Wood in its Circle round the Axis of the Glass, yet this would exhibit nothing neither; by which I find, that if the Parts of the Effluvia are in a manner interrupted, their Action is lost, or at least mightily impair'd.
EXPERIMENT II.

Again, after the Tube had been fresh rubb'd, and the Leaf-Brafs scatter'd on the Table as usual, if a piece of Paper was held to touch the upper part of the Tube, it would not attract at all, altho' approach'd very near; but so soon as the Paper was remov'd, it recover'd its Sphere of Activity, which was very sensible, by giving a brisk motion to those Bodies, which just before were Quiescent. And it may be remembred, that it is mention'd in the Experiment for producing Light by the Effluvia of the outward Glass falling on the inward exhausted Glass in Motion, that after the Motions were ceas'd, it was but approaching one's Hand near the Surface of the outward Glass, to produce a Light in the inward one: Whence, by these Experiments 'tis plain, the Effluvia within were puls'd more vigorously on the inward Glass, by the approach of the Hand without, otherwise no Light would have ensur'd. And farther to prove the stiffness of the Body of the Effluvia, 'tis observable, that when a piece of Leaf-Brafs is hunted about a Room, that the Brafs swimm or floats on the Surface of the Effluvia; and as that is more or less exerted, so the Brafs keeps its distance from it, nor will by any means be suffer'd to sink within it's Sphere, unless it meets with a Body in its way, and then it is attracted and return'd again several times with great swiftness.
Experiment III.

Having try'd the Effect of the discontinueing or interrup-
ting of the Effluvia of the Affricated Tube on its out-
ward Surface, I was willing to try what would ensue, by
filling its Cavity with a Body, which I did, by plugging
up one end of it with a Cork, then pouring in at the o-
ther dry Writing Sand till it was near full: After that, the
Attrition was diligently made, and when held towards
the pieces of Brafs as usual, no motion was given, till it
arriv'd within an Inch or thereabouts of them. And
thus on several Tryals it answer'd much alike. And if at
the same time the Sand be shot suddenly out, the Tube
will attract the same Bodies at double or treble the fore-
mention'd distance, without any fresh Attrition; which
plainly shews, that altho' the Tube will attract when ap-
proach'd near, yet the Body within is a sensible Impedi-
ment to the Extention of its Action without. This brings
to my mind the unsuccessfulness of the Attempt I made
to attract Bodies with a Tube exhausted of its Air; which
seems to conclude, there being no Air within, to bear
the Effluvia from its Body, a continuum of their Parts
must consequently be prevented,

Now how far these Experiments and Observations
serve to Account for the premention'd Phenomenon; in
Relation to the Motion given Bodies within the Glafs
by the approach of a Body towards its outside, I leave
wholly to this Honourable Society to determine.