"Observations upon a diamond that would would shine remarkably, in the dark."

On October 27, 1663, Robert Boyle borrowed a diamond from his acquaintance, Mr. Clayton. And had some interesting times with it - "...taking it into bed with me, and holding it a good while upon some warme part of my naked body... covering it with my warme spittle... I had nobody to assist me but a Foot-Boy..."

Looks the sort, does Boyle... He describes the diamond as being one third of an inch long, by a little less in width, and table cut. The table cut is an early diamond cut, shown below, and was used before the brilliant cut was invented to make use of total internal reflection.
He goes on to describe the stone as being pretty crap - "that it was a Dull Stone, and of a very bad Water, having in the Day time very little of the Vividness of ev'n ordinary Diamonds, and being Blemished with a whitish Cloud about the middle of it, which covered near a third part of the Stone." However undesirable as a gem of beauty, Boyle could not persuade Mr. Clayton to flog him the diamond, as it had a remarkable property - when rubbed, *it shone in the dark*. So Boyle borrowed it, stripped off and rubbed, warmed, used candles, plunged into oil, gouged with a steel bodkin and spat on it.

In the very short time Boyle had the stone, he found that the diamond was triboelectric, phosphorescent, thermoluminescent, triboluminescent, tribophosphorescent and piezoluminescent. Boyle’s naked hockling and rubbing science experiments were certainly comprehensive, that 17th Century Tuesday night. However, as the later diamond luminescence researcher Dufay noted in 1738, he failed to expose the stone to sunlight, then to heat it, so as to gain insight into its thermoluminescent properties. [note: "hockling" is the North East England term for spitting]

**Triboluminescence**
The diamond’s only quality, for the connoisseur of curiosities, was it’s triboluminescence.  
"*Being rubb’d upon my Cloaths, as is usual for the exciting of Amber, Wax, and other Electrical Bodies, it did in the Dark manifestly shine like Rotten Wood, or the Scales of Whitings, or other putrified Fish.*"

**Tribophosphorescence**
He also notes that the luminescence persists after friction has ceased -  
"*And this Glimmering also did very manifestly and considerably Decay presently upon the ceasing of the Affricion, though the Stone continued Visible some while after.*"

**Triboelectric properties**
Here Boyle has rubbed the diamond with dry silk, cotton or cat fur, and found that it became statically charged, and was able to attract small pieces of paper, lint etc.  
"*I found this to have like other Diamonds, an Electrical faculty. For it drew light Bodies like Amber, Jet, and other Concretes that are noted to do so; But its attractive power seem’d inferiour to theirs.*"

**Phosphorescence**
Boyle placed the diamond near to a source of illumination, and discovered that afterwards it glowed in the dark.  
"*I found that holding it a while near the Flame of a Candle, (from which yet I was carefull to avert my Eyes) and being immediately remov’d into the Dark, it disclosed some faint Glimmering, but inferiour to that, it was wont to acquire by Rubbing.*"

**Thermoluminescence**
Here he discovers that the stone glows when heated, even with his own body heat.  
"*I likewise indeavour’d to make it Shine, by holding it a pretty while in a very Dark place, over a thick piece of Iron, that was well Heated, but not to that Degree as to be"
Visibly so. And though at length I found, that by this way also, the Stone acquired some Glimmering, yet it was less than by either of the other ways above mention'd. I also brought it to some kind of Glimmering Light, by taking it into Bed with me, and holding it a good while upon a warm part of my Naked Body."

Piezoluminescence
The most interesting of the phenomena Mr. Clayton's Diamond displayed, was the emission of light when Boyle applied pressure to the crystal.
"...but if I did press hard upon it with my Finger, at the very instant that I drew it briskly off, it would disclose a very Vivid but exceeding short Liv'd Splendour, not to call it a little Coruscation."
"...holding betwixt my Fingers a Steel Bodkin, near the Lower part of it, I press'd the point hard against the Surface of the Diamond, and much more if I struck the point against it, the Coruscation would be extremely suddain, and very Vivid, though very Vanishing too."
"...tis sufficient to generate a very Vivid Light."

Borrowing the Diamond
From a letter to his friend Sir Robert Moray -
"As I was just going out of Town, hearing that an Ingenious Gentleman of my Acquaintance, lately return'd from Italy, had a Diamond, that being rubb'd, would shine in the Dark, and that he was not far off, I snatch'd time from my Occasions to make him a Visit, but finding him ready to go abroad, and having in vain try'd to make the Stone yield any Light in the Day time, I borrow'd it of him for that Night, upon condition to restore it him within a Day or two at furthest, at Gresham College, where we appointed to attend the meeting of the Society, that was then to be at that place. And hereupon I hasted that Evening out of Town, and finding after Supper that the Stone which in the Day time would afford no discernable Light, was really Conspicuous in the Dark, I was so taken with the Novelty, and so desirous to make some use of an opportunity that was like to last so little a while, that though at that time I had no body to assist me but a Foot-Boy, yet sitting up late, I made a shift that Night to try a pretty number of such of the things that then came into my thoughts, as were not in that place and time unpracticable."

What became of Mr.Clayton's Diamond?
According to Boyle it became the possession of a Prince (hopefully after having been cleaned up a bit, after Boyle's deprivations experiments), this from the letter to Moray -
"having a good while since restor'd to Mr. Clayton the Stone, which though it be now in the hands of a Prince that so highly deserves, by understanding them, the greatest Curiosities; yet he vouchsafes you that access to him as keeps me from doubting, you may easily obtain leave to make further Tryals with it, of such a Monarch as ours, that is not more inquisitive himself, than a favourer of them that are so."
The Observations, in their entirety, by Robert Boyle.

It’s quite remarkable, the diversity of the experiments Boyle thought up and performed in the short time he had the diamond. Here’s the notes he wrote immediately afterwards, from his letter to Moray, and as reported to the Royal Institution the next day. Following this are relevant pages from his book *The Philosophical Works*, with much the same information.

**Made this 27th.[*] of October 1663. about Mr. Clayton's Diamond.**[**]

Being look’d on in the Day time, though in a Bed, whose Curtains were carefully drawn, I could not discern it to Shine at all, though well Rubb’d, but about a little after Sun-set, whilst the Twilight yet lasted, Nay, this Morning[***] a pretty while after Sun-rising, (but before I had been abroad in the more freely inlightned Air of the Chamber) I could upon a light Affription easily perceive the Stone to Shine.

[*] These were brought in and Read before the Royal Society, (the Day following) Oct. 28. 1663.

[**] The Stone it self being to be shown to the Royal Society, when the Observations were deliver’d, I was willing (being in haste) to omit the Description of it, which is in short, That it was a Flat or Table Diamond, of about a third part of an Inch in length, and somewhat less in breadth, that it was a Dull Stone, and of a very bad Water, having in the Day time very little of the Vividness of ev'n ordinary Diamonds, and being Blemished with a whitish Cloud about the middle of it, which covered near a third part of the Stone.

[***] Hast made me forget to take notice that I went abroad the same Morning, the Sun shining forth clear enough, to look upon the Diamond though a Microscope, that I might try whether by that Magnifying Glass any thing of peculiar could be discern’d in the Texture of the Stone, and especially of the whitish Cloud that possesst a good part of it. But for all my attention I could not discover any peculiarity worth mentioning.

**Secondly,** The Candles being removed, I could not in a Dark place discern the Stone to have any Light, when I looked on it, without having Rubb’d or otherwise prepar’d it.

**Thirdly,** By two white Pibbles though hard Rubb’d one against another, nor by the long and vehement Affription of Rock Crystal against a piece of Red cloath, nor yet by Rubbing two Diamonds set in Ring, as I had Rubb’d this Stone, I could produce any sensible degree of Light.

**Fourthly,** I found this Diamond hard enough, not only to enable me to write readily with it upon Glass, but to Grave on Rock Crystal it self.

**Fifthly,** I found this to have like other Diamonds, an Electrical faculty.[*]

[*] For it drew light Bodies like Amber, Jet, and other Concretes that are noted to do so; But its attractive power seem’d inferior to theirs.
Sixthly, Being rubb’d upon my Cloaths, as is usual for the exciting of Amber, Wax, and other Electrical Bodies, it did in the Dark manifestly shine like Rotten Wood, or the Scales of Whitings, or other putrified Fish.

Seventhly, But this Conspicuousness was Fainter than that of the Scales, and Slabber (if I may so call it) of Whitings, and much Fainter than the Light of a Glow-worm, by which I have been sometimes able to Read a short Word, whereas after an ordinary Affricion of this Diamond I was not able to discern distinctly by the Light of it any of the nearest Bodies: And this Glimmering also did very manifestly and considerably Decay presently upon the ceasing of the Affricion, though the Stone continued Visible some while after.

Eighthly, But if it were Rubb’d upon a convenient Body for a pretty while, and Briskly enough, I found the Light would be for some moments much more considerable, almost like the Light of a Glow-worm, insomuch after I ceased Rubbing, I could with the Chaf’d stone exhibit a little Luminous Circle, like that, but not so bright as that which Children make by moving a stick Fir’d at the end, and in this case it would continue Visible about seven or eight times as long as I had been in Rubbing it.

Ninthly, I found that holding it a while near[*] the Flame of a Candle, (from which yet I was carefull to avert my Eyes) and being immediately remov’d into the Dark, it disclosed some faint Glimmering, but inferiour to that, it was wont to acquire by Rubbing. And afterward holding it near a Fire that had but little Flame, I found the Stone to be rather less than more excited, than it had been by the Candle.

[*] We durst not hold it in the Flame of a Candle, no more than put it into a naked Fire; For fear too Violent a Heat (which has been observ’d to spoil many other precious Stones) should vitiate and impair a Jewel, that was but borrow’d, and was suppos’d to be the only one of its Kind.

Tenthly, I likewise indeavour’d to make it Shine, by holding it a pretty while in a very Dark place, over a thick piece of Iron, that was well Heated, but not to that Degree as to be Visibly so. And though at length I found, that by this way also, the Stone acquired some Glimmering, yet it was less than by either of the other ways above mention’d.

Eleventhly, I also brought it to some kind of Glimmering Light, by taking it into Bed with me, and holding it a good while upon a warm part of my Naked Body.

Twelfthly, To satisfie my self, whether the Motion introduc’d into the Stone did generate the Light upon the account of its producing Heat there, I held it near the Flame of a Candle, till it was qualify’d to shine pretty well in the Dark, and then immediately I apply’d a slender Hair to try whether it would attract it, but found not that it did so; though if it were made to shine by Rubbing, it was as I formerly noted Electrical. And for further Confirmation, though I once purposely kept it so near the hot Iron I just now mention’d, as to make it sensibly Warm, yet it shin’d more Dimly than it had done by Affricion or the Flame of a Candle, though by both those ways it had not acquir’d any warmth that was sensible.
Thirteenthly, Having purposely rubb’d it upon several Bodies differing as to Colour, and as to Texture, there seem’d to be some little Disparity in the excitation (if I may so call it) of Light. Upon White and Red Cloths it seem’d to succeed best, especially in comparison of Black ones.

Fourteenthly, But to try what it would do rubb’d it upon Bodies more hard, and less apt to yield Heat upon a light Affricion, than Cloath, I first rubb’d it upon a white wooden Box, by which it was excited, and afterwards upon a piece of purely Glazed Earth, which seem’d during the Attrition to make it Shine better than any of the other Bodies had done, without excepting the White ones, which I add, lest the Effect should be wholly ascrib’d to the disposition White Bodies are wont to have to Reflect much Light.

Fifteenthly, Having well excited the Stone, I nimbly plung’d it under Water[*], that I had provided for that purpose, and perceiv’d it to Shine whilst it was beneath the Surface of that Liquor, and this I did divers times. But when I indeavour’d to produce a Light by rubbing it upon the lately mentioned Cover of the Box, the Stone and it being both held beneath the Surface of the Water, I did not well satisfie my self in the Event of the Trial; But this I found, if I took the Stone out, and Rubb’d it upon a piece of Cloath, it would not as else it was wont to do, presently acquire a Luminousness, but needed to be rubb’d manifestly much longer before the desired Effect was found.

[*] We likewise Plung’d it as soon as we had excited it, under Liquors of several sorts, as Spirit of Wine, Oyl both Chymical and express’d, an Acid Spirit, and as I remember an Alcalizate Solution, and found not any of those various Liquors to destroy its Shining property.

Sixteenthly, I also try’d several times, that by covering it with my warm Spittle (having no warm Water at hand) it did not lose his Light.[*]

[*] Having found by this Observation, that a warm Liquor would not extinguish Light in the Diamond, I thought fit to try, whether by reason of its warmth it would not excite it, and divers times I found, that if it were kept therein, till the Water had leisure to communicate some of its Heat to it, it would often shine as soon as it was taken out, and probably we should have seen it Shine more, whilst it was in the Water, if some degree of Opacity which heated Water is wont to acquire, upon the score of the Numerous little Bubbles generated in it, had not kept us from discerning the Lustre of the Stone.

Seventeenthly, Finding that by Rubbing the Stone with the Flat side downwards, I did by reason of the Opacity of the Ring; and the sudden Decay of Light upon the ceasing of the Attrition, probably lose the sight of the Stones greatest Vividness; and supposing that the Commotion made in one part of the stone will be easily propagated all over, I sometimes held the piece of Cloath upon which I rubb’d it, so, that one side of the Stone was exposed to my Eye, whilst I was rubbing the other, whereby it appear’d more Vivid than formerly, and to make Luminous Tracts by its Motions too and fro. And sometimes holding the Stone upwards, I rubb’d its Broad side with a fine smooth piece of Transparent Horn, by which means the Light through that Diaphanous Substance, did whilst I was actually rubbing the Stone, appear so Brisk that sometimes and in some places it seem’d to have little Sparks of fire.
Eighteenthly, I took also a piece of flat Blew Glass, and having rubb'd the Diamond well upon a Cloath, and nimbly clapt the Glass upon it, to try whether in case the Light could peirce it, it would by appearing Green, or of some other Colour than Blew, assist me to guess whether it self were sincere or no. But finding the Glass impervious to so faint a Light, I then thought it fit to try whether that hard Bodies would not by Attrition increase the Diamonds Light so as to become penetrable thereby, and accordingly when I rubb'd the Glass briskly upon the Stone, I found the Light to be Conspicuous enough, and somewhat Dy'd in its passage, but found it not easie to give a Name to the Colour it exhibited.

Lastly, To comply with the Suspition I had upon the whole Matter, that the chief manifest Change wrought in the Stone, was by Compression of its parts, rather than Incalescence, I took a piece of white Tile well Glaz'd, and if I press'd the Stone hard against it, it seem'd though I did not rub it to and fro, to shine at the Sides: And however it did both very manifestly and vigorously Shine, if whilst I so press'd it, I mov'd it any way upon the Surface of the Tile, though I did not make it draw a Line of above a quarter of an Inch long, or thereabouts. And though I made it not move to and fro, but only from one end of the short Line to the other, without any return or Lateral motion. Nay, after it had been often rubb'd, and suffer'd to lose its Light again, not only it seem'd more easie to be excited than at the beginning of the Night; but if I did press hard upon it with my Finger, at the very instant that I drew it briskly off, it would disclose a very Vivid but exceeding short Liv'd Splendour, not to call it a little Coruscation.[*] So that a Cartesian would scarce scruple to think he had found in this Stone no slight Confirmation of his Ingenious Masters Hypothesis, touching the Generation of Light in Sublunary Bodies, not sensibly Hot.

[*] I after bethought my self of imploying a way, which produc'd the desir'd Effect both sooner and better. For holding betwixt my Fingers a Steel Bodkin, near the Lower part of it, I press'd the point hard against the Surface of the Diamond, and much more if I struck the point against it, the Coruscation would be extremely suddain, and very Vivid, though very Vanishing too, and this way which commonly much surpris'd and pleas'd the Spectators, seem'd far more proper than the other, to show that pressure alone, if forcible enough, though it were so suddain, and short, that it could not well be suppos'd to give the Stone any thing near a sensible degree of Warmth, as may be suspected of Rubbing, yet 'tis sufficient to generate a very Vivid Light.

The Philosophical Works of the Honourable Robert Boyle, Volume 3, By Robert Boyle
Natural Phosphori.

1. This was a table diamond, about a third of an inch in length, and somewhat less in breadth; a dull stone, of a very bad water, having in the day time very little of the viviudness of ordinary diamonds, and being blemished with a whitish cloud about the middle, which covered near a third of the stone. 2. Nothing remarkable appeared in any part of it, when examined with a microscope; but view'd in the day time, in a bed, with the curtains carefully drawn, I could not discern it to shine at all, tho' well rubb'd; but a little after sun-set, whilst the twilight yet lasted; and in the morning, a pretty while after sun-rise, I could, after a light friction, easily perceive it to shine. 3. The candles being remov'd, I could not, in a dark place, discern the stone to have any light when I looked on it, without having rubb'd, or otherwise prepared it. 4. Neither by two white pebbles, hard rubb'd one against the other, by the long and vehement friction of rock crystal, against a piece of red cloth; nor by rubbing two diamonds let in rings, as I had rubb'd this stone, could I produce any sensible degree of light. 5. I found this diamond hard enough not only to write readily upon glass, but to graver on rock-crystal itself. 6. I found this to have, like other diamonds, an electrical virtue; for it would attract light bodies, as amber, jet, &c., tho' in a less degree. 7. Being rubb'd upon my cloaths, as is usual, to excite amber, wax, and other electrical bodies; it did, in the dark, manifestly shine like rotten wood, the scales of whiting, or other purerated fish. 8. But this light was fainter than that of the scales and slime of whiting, and much fainter than the light of a glow-worm; by which I have sometimes been able to read a short word; but after an ordinary friction of this diamond, I could not distinctly discern any of the nearest bodies by the light of it. This glimmering, which very considerably decays, immediately upon ceasing the friction; tho' the stone continued visible for some time after. 9. But if it were briskly rubb'd upon a convenient body for a pretty while, I found the light would be, for some moments, much more considerable, almost like the light of a glow-worm; so that, after I had cease'd rubb'ing, I could, with the chafed stone, exhibit a little luminous circle, faintly resembling that made by the motion of a flick fired at one end; and thus it would continue visible, about seven or eight times as long as the preceding friction lasted. 10. I found, that holding it a while near the flame of a candle, with my eyes turn'd a contrary way, and immediately removing it into the dark, it discover'd some faint glimmering, but inferior to that acquired by rubb'ing. And afterwards holding it near a fire, that had but little flame, it was rather less excited thereby, than by a candle. 11. I likewise endeavoured to make it shine, by holding it for a pretty while in a very dark place, over a thick piece of iron, that was well heated, but not to that degree as to be visible. And tho' at length I thought the stone hence acquired some glimmering,
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Yet it was less than it gained by either of the other ways just mentioned. 12. I also brought it to some glistening kind of light, by taking it into bed, and holding it a good while upon a warm part of my naked body. 13. To satisfy myself whether the motion introduced into the stone, generated the light upon account of its producing heat there; I held it near the flame of a candle, till it was qualified to raise pretty well in the dark, and then immediately applied a slender hair, to try whether it would attract it; but found not that it did. And for further confirmation, I once purposely kept it to near the hot iron, lately mentioned, as to make it sensibly warm; yet it shone more dimly than it had done by means of friction, or the flame of a candle; tho' by both those ways it acquired not any sensible warmth. 14. Having purposely rubb'd it upon several bodies, different both in colour and in texture, there seemed to be some little difference in the excitation of the light. Upon white and red cloth it seemed to succeed best, especially in comparison of black. 15. But to try what it would do when rubb'd upon bodies more hard, and less apt to afford heat upon a light friction, than cloth, I first chafed it upon a white wooden box, by which it was excited; and afterwards upon a piece of earth purely glaz'd, which seemed, during the attention, to make it shine better than any of the other bodies, without excepting the white ones; so that the effect cannot be ascribed to the greater disposition white bodies have to reflect light. 16. Having well excited the stone, I suddenly plunged it under water, provided for that purpose; and perceived it to shine whilst it was beneath the surface of the liquor; and this I did several times. But when I endeavoured to produce a light, by rubbing it upon the box lately mentioned, while both the stone and it were held beneath the surface of the water, I did not well satisfy myself in the event of the trial: but this I found, that if I took the stone out, and rubb'd it upon a piece of cloth, it would, as usual, presently yield a light; tho' it required to be rubb'd much longer, before the desired effect was produced. We likewise plunged it, after we had excited it, in liquors of several sorts, as spirit of wine, oil, both chymical and express'd, an acid spirit, and an alkaline solution; but found not any of those various liquors to destroy its shining property. 17. I also several times try'd, that by covering it with spittle, it did not lose its light. And having found by this observation, that a warm liquor would not extinguish light in the diamond, I thought fit to try, whether, by reason of its warmth, it would not excite it; and found, that if it were kept in warm water, till that had communicated its heat thereto, it would frequently shine as soon as taken out; and, probably, we should have seen it shine more, whilst it remained in the water, if some degree of opacity, which heated water acquires, upon account of the numerous little bubbles generated in it, had not kept us from discerning

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18. Finding that by rubbing the stone with the flat side downwards, I lost, by reason of the opacity of the ring, and the sudden decay of light, upon the sensation of the attrition, the light of the stones greatest vivacities; and supposing that the commotion made in one part of the stone, would be easily propagated all over, I sometimes held the piece of cloth, upon which I rubbed it, so that one side of the stone was exposed to my view, whilst I chafed the other; whereby it appeared more vivid than formerly, and to make luminous streaks by its motions backward and forward. And, sometimes, holding the stone upwards, I rubbed its broad side with a fine smooth piece of transparent horn; by which means the light thro' that diaphanous substance appeared so brisk, whilst I was actually rubbing the stone, that sometimes, in some places, it seem'd to give little sparks of fire.

19. I took also a piece of flat, blue glass, and having rubb'd the diamond well upon a cloth, and suddenly covered it with that glass, to try whether, in the light could penetrate thro' it, would, by appearing green, or of some other colour than blue, afford me to guage, whether it were ample or no. But finding the glass impervious to so faint a light, I thought fit to try, whether hard bodies would not, by attrition, afford the diamond's light, so as to become penetrable thereby. And, accordingly, when I rubb'd the glass briskly upon the stone, I found the light to be conspicuous, and somewhat dyed in its passage; but could not easily give a name to the colour it exhibited.

20. Lastly, dwelling, upon the whole, that the principal, manifest change wrought in the stone, was by a commixture of its parts, rather than a heat; I found, that if I press'd the stone hard against a piece of white, well-glass'd tile, it seemed, tho' I did not rub it, to live at the fable; but it was very manfully and vigorously, if, whilst I thus press'd, I moved it any way upon the surface of the tile; that is, drew not a line above a quarter of an inch long thereon; and tho' I only made it move from one end of that short line to the other, without any return, or lateral motion: nay, after it had been often rubb'd, and suffered to lose its light again, it not only seemed more easy to be excited than at first; but if I press'd hard upon it with my finger, at the very instant that I drew it briskly off the stone, it would give a very vivid, but exceeding short-lived splendor or little coruscation. And pressing the point of a steel bodkin, hard against the surface of the diamond, but much more if I struck the point against it, the coruscation would be extremely sudden, and very vivid, tho' very vanishing too; and this way, which commonly greatly surpriz'd and delighted the spectators, seemed far more proper than the other, to show that presure alone, if forcible enough, tho' it were so sudden and short, that it could not well be supposed to give the stone any thing near so sensible a degree
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degree of warmth, as may be supposed in friction, is yet sufficient to generate a very vivid light.

So many particulars obtruded in one night, may make this stone appear a kind of prodigy; but upon further trial with my own diamonds, by means of such a brisk and adhesive friction, as might balance the disadvantages under which they laboured, in comparison of Mr. Clayton's, I found that I could easily bring a diamond I wore on my finger, to yield a sensible light; and it continued so to do, tho' I covered it with spittle, and used some other means of examination.

We afterwards tried rubies, sapphires, emeralds, etc., but found none of them to shine, except some diamonds; and of these we were not able to say beforehand, which would be brought to shine, and which would not; for several very good diamonds would either give no light at all, or much less than others, that were far inferior to them. And yet 'tis a mistake to think, a diamond must be soul and cloudy, as Mr. Clayton's was, to shine; for as we could bring flame to afford a glimmering light, to some clear and excellent diamonds did the like. But none of those many that we try'd of all kinds, were equal to Mr. Clayton's; not only for the degree of light it afforded, but the easiness therewith it was excited, and the comparatively great duration of its splendor.

And this may lessen our wonder at the preceding observations, by showing, that such strange properties are not peculiar to one diamond, but may be found in others also, and perhaps in several hard diaphanous stones *. But what this discovery takes off from the surprize of these phenomena, I hope it will add to the usefulness of them, in discovering the nature of light. To which purpose we will here add some other experiments and observations.

* * * By rubbing a well-polished piece of amber, (after Dr. M'Call,) with my hand, in the dark, it produced a light; and drawing a long string piece of it thro' a woolen cloth, and squeezing it hard, a prodigious number of little cracklings were heard; and every one of these produced a little spark of light; and if the amber was only drawn gently thro' the cloth, it produced a light, but no cracklings; and the light, upon its eruption, strikes if the finger very sensibly, if held near it, with a soft, like wind. The Dr. says, that the best time of making the experiment, is, when the sun is 18° below the horizon; when, tho' the moon shines ever so bright, the light is the same as in the darkest noon. And as diamonds (continues / the same ingenious gentleman,) are electrical as well as amber, I have made some trials upon them, and think my way of distinguishing diamonds morally certain. A diamond, by an easy light touched in the dark with the finger, wool, or any soft material substance, appears in its whole body to be luminous; nay, if you keep rubbing for a while, and then expose the stone to the eye, 'twill continue luminous for some time. But if, while the sun is 18° degrees below the horizon, any one holds up a piece of flannel stretched tight, at some distance from the eye; and another briskly rubs the flannel hard with a diamond on the other side; the light to the eye of him who holds it, seems / much
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Of the Honourable
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Vol. III.

By Peter Shaw, M.D.

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