

(1794)

II. *Observations on staining the Fingers with a Solution of Silver in Aqua Fortis, &c. In a Letter from Mr Anthony Van Leuwenhoek, F. R. S.*

Delft in Holland, March 3. 1705.

Several Months ago, I took 24 Ounces of mixt Metal, and put the same into *Aqua Fortis*, and set it on Warm Sand, and there being a fault in the Glass, it crackt ; by which some of the *Aqua Fortis*, which was impregnated with Silver, run into the Sand, and I don't know but I might have lost Gold also in the same. This Sand, as much of it as was wet, I got together, and tho' I took all the care imaginable, that the wet Sand should not stick to my Fingers, yet I saw the tips of them were stain'd, that I could see a discolouring of the Skin with my naked Eye ; and as this happen'd in the Evening I washt my Hands in common Water, and I saw the next day, that the tips of most of my Fingers were black.

I then took, according to the Surgeon's Instructions, some fresh Butter to get the blackness off of my Hands and Fingers, but how hard soever I rubb'd them with the said Butter, yet I could not so much as stir the blackness ; so then I took some Soap, but all in vain. I rubb'd my Thumb on a Grindstone with Water and Sand, which lessen'd the blackness a little, but did not take it quite off. The third day, looking very attentively upon my black Fingers, I resolv'd to cut off some thin Scales of the Skin, and to see if I could get any Silver out of it, so as to be able to perceive that it was Silver. I cut off some small
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pieces of Skin with a sharp Knife, without fetching the least drop of Blood after it, which pieces of Skin being no bigger than the 4th part of my Nail, I laid on Charcoal, such as is used by the Gold and Silver Smiths, and with the help of a Pipe, I blew the flame of a Candle very gently upon the small Particles of Skin that were cut off, which frying in the flame, a great many Bubbles of Air rose in them; and at last, driving more Fire upon them, the Skins were burnt, and the Particles of Silver with which they were laden remain'd, being melted into round Globules, insomuch that I judged that a thousand of the smallest could not make one great one; and narrowly viewing some of the largest, I could see that they were composed of abundance of small Globules, which the Fire was not strong enough to dissolve into a perfect Roundness; these aforementioned Silver Globules were not so big as to be seen with the naked Eye. I repeated this Operation the fourth day, after my Hands had been so stain'd, and that with the same success.

I brought these Silver Globules before two Microscope; that some others who delighted therein might see them, and say in jest concerning the same, that I could bring Silver out of my Skin; but 'tis in this matter as by the Chymists, who bring Gold and Silver out of that in which it was before; but to make Gold or Silver, or to encrease it, finds no Credit with me. When I had placed the said Particles of Silver before a Glass, and had shew'd it to a Gold and Silver Smith, I took so much delight in it, that I caused a Draught of it to be taken.

Fig. 6. A B C D E F G H I shews the abovementioned Silver Globules as they appeared thro' the Microscope, and as they were joined to one another in Melting; from whence appears that the Fire was not hot enough to form 'em all in one Globule, and in my opinion they were no bigger than one course Grain of Sand.

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Fig.

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Fig. 7. K. L. M. N. O. P. Q. shews also some Silver Globules, which were melted in the Fire, after the same form, and which came also out of a small piece of Skin of my Fore-finger, that was not bigger than the 4th part of my Nail. That round part markt K, L, M, was also surrounded with a great many small Bubbles, that were all of them Melted, but not so compleatly as to be join'd in one.

Now that I am speaking of *Aqua fortis* that was impregnated with Silver, I can't let slip the opportunity of telling you, that some time ago, my Middle Finger, against which the Pen leans when I write, had a sort of a Swelling, which often pain'd me when I squeez'd it, so that I was resolv'd for 6 or 8 days to cut off that swelling with a little Knife; and I fancied that there might be in that place a bit of Glass under the Skin, as happen'd to me formerly in another place; wherefore I open'd the Skin with a Needle in that place several times, and rak'd in it, until the Blood came, but I could not discover any Glass; at last, after I had cut off the Swelling, I lookt on the place with a Microscope, and found that there was a small roundness in the Skin that was cut off, which I loosen'd as much as I could with a sharp Needle round about; and taking hold of it with a Pair of Tweezers, I pull'd a long Particle out of the Skin, which was about the thickness of a slender Pin, and about ten times as long as its Diameter, ending in a point, having at the Root of it some small Vessels or Veins, out of which I could perceive it receiv'd its Nourishment. In the Concavity of the Skin, out of which the said Thorn-like Particle proceeded, I thrust a little bit of *Roman Vitriol*, and then I dropt a little Water on the Vitriol, that it might dissolve, and that it might kill the Roots from whence this Thorn-like Particle sprung; and tho I repeated this several times, yet it grew in a few days again.

Hereupon I took some *Aqua fortis*, and dropt a small drop of it into the Concavity of the Skin, and assoon as
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it was there, it seem'd as if it boil'd; which was occasion'd by the Air Bubbles that endeavour'd to force their way out; as soon as the *Aqua fortis* had penetrated it to the sensible part of the Skin, it caus'd a Pain, which I endured a little while, and then I pour'd some common Water on my Finger to weaken the *Aqua fortis*; but quickly after the Thorn-like Particle was increas'd, as before. I took the second time *Aqua fortis*, and let it lye so long on the Skin, that it smarted more than it did before; and since that time I have not perceiv'd that Particle to grow any more.

I have lying on my Desk a Linnen Handkerchief, which was stain'd with *Aqua fortis* impregnated with Silver, with a black spot about as large as a shilling; after that this Handkerchief had been wash'd 6 times, and laid to bleach, I cut out the black spot, and burnt it upon a bit of Charcoal, and view'd what remain'd thro a Microscope, which I found to consist of several Thousand Globules of Silver, of an exceeding smallness.

III. *A Letter from Dr W. Musgrave, F. R. S. to Dr Hans Sloane, S. R. S. concerning Hydatides voided by Stool.*

THO the Particulars, discharg'd preternaturally by Stool, have been of very different sorts; and the *Hydatides* have been found in several parts of the Body, and (as appears from a late Transaction), in the Urine; I do not find they are, from any good Authority, affirm'd, to come off *per anum*, or to be found in the *Ductus alimentaris*: An Instance whereof, falling of late in my way, is here presented to you.

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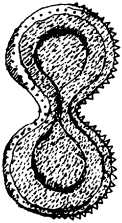


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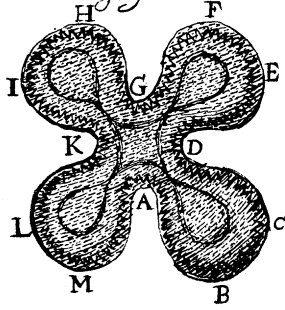


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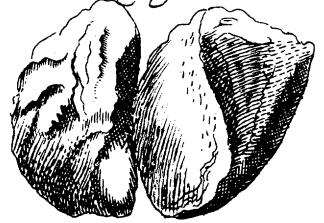


fig: 1.



fig: 3.

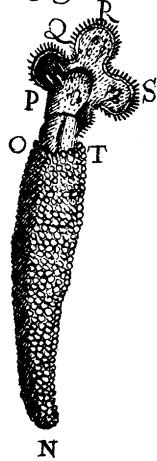


fig: 8.



fig: 5.



fig: 7.

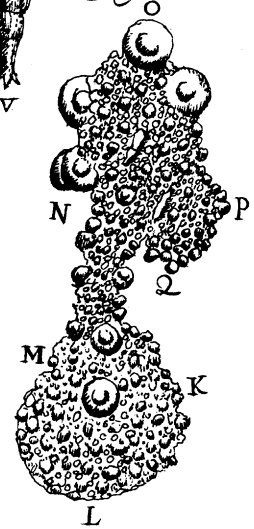


fig: 6.

