

Virginia, May 12. 1692.

I have sent you another parcel of Fresh-water and Land Snails, in which I believe some are new. [And so there was divers Species, all which I have carefully caused to be graved.] There is a small one of the Land-kind, with a dented Aperture, that I formerly sent; Time had worn that Shell smooth and white; but I lately found it with an outward Coat, on which it is hirsute, or rather finely echinated. I am apt to believe that these, nor hardly any else are dented, till they are at their full growth; for you will find several small ones amongst these with an open entrance, that seem to belong to this kind.

I hitherto observed very little Variety of Naked Snails; I know of but one kind, which is a small Ash-coloured and spotted one, and milkey like yours, Tit. XVI. but some of these I would have sent, but, &c.

I send you the Originals, that you may see I have done fairly by my Friend in the Extracts; which I desire you to keep among the Society's Papers.

April, 18. 93.

Tours, &c.

VI. *An Account of digging and preparing the Lapis Calaminaris, in a Letter from Mr. Giles Pooley to Sir Robert Southwel President of the R. S.*

S I R,

I Promis'd a long while ago to give you an Account of the *Lapis Calaminaris* which is digged and prepared here near me; that I have not, as I intended long before

before this performed that Promise, I hope your kindness will excuse, being I have been taken off by some necessary occasions from making my Enquiries hitherto concerning it; and understanding that it did not require any great hast, so that I hope this following Account will not come too late.

As to the finding out the *Calamine*, which I think the first thing to inform you of, the *Groovers* tell me there is no certainty at all, but that it is a meer Lottery: They are neither certain of it from the Surface of the Earth, which, as they observe, gives little or no signs thereof; sometimes they say an oily Steam and Smell ariseth out of the Earth where they guess some Mines to be, but not *Calamine*; nor from the Nature of the Ground, it being found sometimes in Meadows, sometimes in Arable, sometimes in Pasture; and as I have observed, most commonly in barren and rocky Ground: Neither from the Colour or Taste of the Waters running thereabouts, they being much of the same Colour, Taste, Clearness and Wholsomness with other Water: Nor from the withering of the Grass upon the Superficies of the Earth, or the Leaves of the Trees, they being as fresh where *Calamine* lies, as in any other place. But this I observe, that they always dig for it upon, or near the Hills; for they expect none in those Grounds which have no Communication with Hills.

The Method they take for finding out a Vein is by digging a Trench as deep as till they come to the Rocks where they expect it lies, across the place where they hope for a Course; which Trench they generally dig from North to South, or near upon that Point, the Courses usually lying from East to West, or at Six a Clock, as their Term is. Though this is not constant neither; for sometimes the Courses, Seams or Rakes as they call them, lie at Nine a Clock, and sometimes are perpendicular, which they call the High time of the

Day, or Twelve a Clock; and these Courses they esteem the best. These Seams or Courses run between the Rocks, generally wider than those of Lead-Ore, unless they are inclosed in very hard Cliffs, and then they are as narrow as the Veins of Lead. The Colour of the Earth where *Calamine* lies, is generally a yellow Grit, but sometimes black; for all Countries, as they term their under-ground Works, are not alike. *Calamine* it self is of several Colours, some white, some reddish, some greyish, some blackish, which is counted the best; but when this is broken, it is of several Colours. In working for it below in the Countries, they use the same way and Instruments as they do in Lead-Mines; and sometimes they light upon a good quantity of Lead, but always find some Eyes of Lead among the *Calamine*, which in ordering of it they separate: Though I think in Lead Mines they do not always find *Calamine*. In landing of the *Calamine* some pieces are bigger than others of different sizes, as other Stones are, and mixt with the gritty Earth; yet I have been informed by a Person concerned in these Works, that they have found one entire piece of 8 or 10 Tun, which by reason of its bigness was forc'd to be broken in the Groove before it could be landed; but generally in these Grooves where I made my Enquiry, it riseth in small Particles, some more, some less, and some about the bigness of a Nut, and this they call a small *Calamine*. In ancient Works, (which are those that have been forsaken and afterwards workt in again) Damps and Staunches sometimes arise, but never in new Works; but that these Damps arise, an experienc'd Groover tells me is the Fault of those Workmen, that do not take care to carry Air along with them, which is done by Air-Shafts, as in Lead-Mines.

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When they have landed a good quantity of this *Calamine*, which is done by winding it up in Buckets from their Works, they carry it away to the places where they wash, clean or buddle it, as their Term is, which they perform after this manner. They enclose a small piece of Ground with Boards or Turfs, through which a clear Stream of Water runs ; within this Enclosure they shovel their *Calamine* with the rest of the impure and earthy parts ; and these impure and earthy parts the running Water which comes in at one end of the Enclosure carries away at the other end, and leaves the Lead, and the *Calamine*, and the other heavier stony and sparry parts behind ; and for the better cleansing or buddling the *Calamine* while it is in this Enclosure, they often turn it, that so the Water passing through may wash it the better : When they have thus washed it with this running Stream as clean as they can, having rak'd up the bigger parts both of the Lead and the *Calamine*, they afterwards put the smaller parts, that they may lose none of their Ore, into Sieves made of strong Wire at the bottom ; and these Sieves, with the *Calamine*, Lead, and the Remainder of the earthy, sparry and stony parts which the Water could not wash away, they often dip and shake up and down in a great Tub of Water, by which shaking of the Sieves, the parts of the Lead which is mixt amongst the *Calamine* sink or pitch down to the bottom of the Sieves, as being heaviest, the parts of the *Calamine* in the middle, and the other sparry, stony and trashy parts rise up to the top, which as they rise, they skim off, and throw among the rest of the Rubbish, and then they take off the *Calamine*, and after that the Lead. When they have thus cleansed the *Calamine* as well as they can, it being not yet clean enough, they are forc'd to spread it upon a Board, and so pick out with their hands the trash and stones that remain. I cannot tell whether you will

apprehend this Description of their buddling the smaller *Calamine*; but you must know that all of it doth not require so much trouble; for some riseth big enough out of the Works to be cleansed and pickt fit for the Calcining Oven without all this Charge and Pains: And I have seen several Loads of this great *Calamine*, which had no mixture of Earth or Trash in it.

After they have prepared their *Calamine* by washing and picking, they then carry it to the Oven, which, at least that which I saw, is much bigger than any Bakers Oven, and made much in the same Fashion, only this way of heating, burning or baking the *Calamine* is different; for it is not done as bread is; for they cast in their Coals into a Hearth made on one side of the Oven, which is divided from the Oven it self by a Hem or Partition made open at the top, whereby the Flame of the Fire passeth over, and so heats and bakes the *Calamine*. They let it lie in the Oven for the space of Four or Five Hours, the Fire burning all the while, according to the strength of the *Calamine*, some being much stronger than other, and so requiring longer time; and while it continues in the Oven, they turn it several times with long Iron Cole-rakes; when it is sufficiently burnt, baked and dried, they beat it to a Powder with long Iron Hammers like Mallets, upon a thick Plank, picking out what Stones they find amongst it; so that at last the *Calamine* is reduced to Dust: From the Oven it is conveyed in Sacks to some Port, where being bought by the Merchants, it is carried beyond-Sea, commonly I think to *Holland*; whether I refer you to be further informed concerning the use of it. I made enquiry what Medical or other Vertue there was known to be in it, and I have been informed by several credible Persons, that the Dust of *Calamine*, contrary to other Dust which blinds, doth conduce much to the curing of sore Eyes.

of

of Men; and that it is frequently made use of for the taking of Films from the Eyes of Horses and other Beasts. I hear also that they sell good quantities of it to the Druggists of *London*, but for what use I know not. This is all I could learn concerning *Calamine*. If I have omitted any thing wherein you are desirous of further Information ; or if in any other Concern of this Nature I can be serviceable, you may freely command,

Wrighton,
Oct. 25. 84.

Tours, &c.

VIII. *An Arithmetical Paradox, concerning the Chances of Lotteries, by the Honourable Francis Roberts, Esq; Fellow of the R. S.*

AS some Truths (like the *Axiomes* of *Geometry* and *Metaphysicks*) are self-evident at the first View, so there are others no less certain in their Foundation, that have a very different Aspect, and without a strict and careful Examination rather seem repugnant.

We may find Instances of this kind in most Sciences.

In *Geometry*, That a Body of an infinite Length may yet have but a finite Magnitude.

In *Geography*, That if *Antwerp* be due East to *London*, for that reason *London* cannot be West to *Antwerp*.

In *Astronomy*, That at the *Barbadoes* (and other places between the Line and Tropick) the Sun, part of the Year, comes twice in a Morning to some Points of the Compass.