Lapis Lazuli.	3054	Wrought Braſs.	8280
An Hone.	3288	Hammer'd Braſs.	8349
Sardachates.	3598	A falſe Guinea.	9075
A Granat.	3978	A true Guinea.	18888
A Golden Marcaſite.	4589	Sterling Silver.	10535
A blew Slate with ſhining Particles.	3500	A braſs Half-Crown.	9468
A mineral ſtone, yielding 1 part in 160 Metal.	2650	Electrum, a Britiſh Coin.	12071
The Metal thence extracted.	8500	A Gold Coin of *Barbary*.	17548
The (reputed) Silver Ore of *Wales*.	7464	A Gold Medal from *Morocco*.	18420
The Metal thence extracted.	11087	A *Mentz* Gold Ducat.	18261
Biſmuth.	9859	A Gold Coin of *Alexanders*.	18893
Spelter.	7065	A Gold Medal of Q. *Mary*.	19100
Spelter Soder.	8362	A Gold Medal of Q. *Elizabeth*.	19125
Iron of a Key.	7643	A Medal eſteem'd to be near fine Gold.	19636
Steel.	7852		
Caſt Braſs.	8100		

II. *Extracts of ſome Letters from* Mr. John Sturdie *of* Lancaſhire *concerning* Iron Ore; *and more particularly of the* Hæmatites, *wrought into Iron at* Milthrop-*Forge in that County. Communicated by Dr.* Martin Liſter, S. R. S.

Townley, March 14. 1674.

SIR,

YOU will receive herewith ſome of the Cinder you deſir'd, as alſo a little of Iron-ſtone both burnt and unburnt. They have ſeveral ſorts of Iron-ſtone, and of

of different Natures; for ſome makes *Coldſhire*-Iron, that is, ſuch as is brittle, when it is cold; another ſort makes *Redſhire*, that is, ſuch as is apt to break if it be hammered, when it is of a dark red Heat, and therefore are never melted down but in mixture, and ſo they yield an indifferent good ſort of Iron. They have of late made it much better than heretofore, by melting the Sow-metal over again, as likewiſe by uſing Turf and Charcoal, whereas formerly their Fuel was only Charcoal. They once made Trial of Pit-Coal, but with bad Succeſs. The ſmall duſty part of their Charcoal is uſeful for burning the Iron-ſtone; for every 17 Baskets of this burnt Stone they put in one of Brimſtone unburnt to make it melt freely, and caſt the Cinder. There is no other Cinder ſwimming above but ſuch like as this I ſend you, only ſometimes it is more vitrified than it is at other times. They always take it off from the melted Iron with a Coal-rake at a hole in the Furnace-mouth before they let the Metal run. There is nothing remains in the bottom of the Hearth, all becomes either Iron or Cinder.

The Furnace is built on the ſide of an Hill, the bottom is about two yards ſquare, and ſo riſes perpendicular for a yard or more, which is alſo lined within with a Wall of the beſt Fire-ſtone to keep off the force of the Fire from the Walls of the Furnace: The Bellows (which are very large, and played with Water) enter about the middle of the *Focus*. The reſt of the Furnace is raiſed upon this 6 or 7 yards ſquare-wiſe, but tapering; ſo that the ſides draw towards each other by degrees, and the top-hole (where they throw in Baskets of Stone and Fewel) is but about ½ a yard ſquare. Into this place they put down a Pole, to know how far it hath reſted after a certain time; and when they find it to have ſubſided about a yard and ½, then they put in more, till the Furnace be full again.

Thurnham.

Thurnham, Aug. 12. 1675.

SIR,

THough I am in daily expectation of some of the *Milthrop* Iron-stone, and may possibly get it before this Letter reach you, yet I thought it not convenient any longer to defer the Account I received thereof from a Gentleman concerned in the Work, for fear some of the Circumstances should slip out of my Memory.

The Oar is got in *Fourneſſe* (a division of *Lancaſhire*) at least 15 Miles from *Milthrop*. Some of it is hard, but feels soft and smooth on the out-side like Velvet. Some is soft as Clay, but all is red, and lies in Beds like Coal.

The Furnace in which it is melted is not above a yard and ½ over, and about the same height. The Hearth is all of Sow-Iron, much of the Shape of a broad-brim'd Hat with the Crown downwards. The Sides are of Stone, arched towards the top; in the midst is a Tunnel at which they put in Charcoal, on which when it is kindled, they put Oar (first broken into pieces as big as a Pigeons Egg) so much as they intend to melt down.

Then they set their Bellows on work, which are moved with Water, and go into the midst of the Furnace-Wall, and keep blowing for some 12 hours, feeding it still with new Charcoal as it settles.

Then they pull out a Stopple at the bottom of the Wall, and out comes all the Glassie-Cinder being very liquid, leaving the Iron in a Lump (for it does not flow) in that Conical Hole in the midst of the Hearth.

This they take out with great Tongs and put under heavy Hammars (played also with Water) whereby after several Heatings (in the same Furnace where it is melted) it is beaten into Barrs. They get about an

Hundred weight of Metal at one melting, which is the Product of about three times ſo much Oar.

Thurnham, Sept. 25. 1675.

SIR,

I Send now at laſt the promiſed Parcels of Iron Oar, one ſort of it ſeems to be good *Hæmatites*. It ſeems I either did not rightly apprehend, or was not clearly enough informed by the Perſon from whom I had the Account I ſent you, of the Furnace in which they melt down their Oar.

It is very much like a common Black-ſmiths, *viz.* A plain open Hearth or bottom without any encloſing Walls, only where the noſe of the Bellows come in through a Wall there is a hollow place (which they call the Furnace) made of Iron Plates, as is alſo that part of the Hearth next adjoining. This hollow place they fill and up-heap with Charcoal, and lay the Oar (broken ſmall) all round about the Charcoal upon the flat Hearth, to bake it as it were, or neal and thruſt it in by little and little into the Hollow, where it is melted by the Blaſt. The glaſſie *Scoriæ* run very thin, but the Metal is never in a perfect Fuſion, but ſettles as it were in a Clod, that they take it out with Tongs, and turn it under great Hammers, which at the ſame time beat off (eſpecially at firſt taking out of the Furnace) a deal of courſer *Scoriæ*, and form it after ſeveral Heats into Bars. They uſe no Lime-ſtone or other thing to promote the Flux, for that I enquired particularly. As to other matters my former Relation is exact enough.

POSTSCRIPT.

SIR,

AFter the Sealing of my Letter that comes with this, I met with one who hath promiſed to ſend me

me ſome ſoft Oar, as alſo a little of a Chryſtalline Spar that grows to it, and the reſt that you deſire.

As to your Queries.

Steel is not made from that they call Steel-Oar, but Iron, ſuch as is made from the reſt.

All the Oars that were ſent you lie in one Bed or Seam, but the hard Oars lie uſually next the Rocks on each ſide, and the ſoft Oar in the midſt.

The Rocks between which they lie are a grey Lime-ſtone.

There is no rock underneath (as you ſeem to conceive) for the Oar lies between Rocks on each ſide, or rather in the Clefts of Rocks which they follow, ſtill digging deeper many Fathoms. Sometimes the ſaid Clefts (which are filled with Oar) are an Inch, ſometimes a Foot broad, ſometimes three or four Yards, but ſtill one continued Vein running downwards towards the Center of the Earth.

Thurnham, Nov. 14. 1675.

I ſhall ſhortly meet with one from *Fourneſs*, and ſhall get you a Reſolution of your Queries, as alſo ſome of the Oar you deſire. They uſe it frequently, and with great Succeſs, as a Medicine for the Murrain in Cattle, and for all Diſeaſes in Swine, to which laſt they will give a good handful or two in Milk.

N. B. *This is meant of the ſoft Oar like Clay. I have this to add, that this Clay* Hæmatites *is as good, if not better, than that which is brought from the* Eaſt Indies. *Witneſs the* Tea-Pots *now to be ſold at the Potters in the* Poultrey *in* Cheap ſide, *which not only for Art, but for beautiful Colour too, are far beyond any we have from* China. *Theſe are made of the* Engliſh Hæmatites *in* Staffordſhire, *as I take it, by two* Dutch-men, *incomparable Artiſts.*

Weſtm. *May* 1. 93. I am, &c. *M. L.*