

I. *An Account of the Strata in Coal-Mines, &c.*
 By John Strachey, Esq; F. R. S.

IT was some Time since, that in a Letter to one of the Members of this Society, I gave an Account of the several *Strata* of Earths and Minerals, found in some of the Coal-Works in *Somersetshire*, which was printed in *Phil. Transactions*, N^o 360. But there is one great Error in the Print; for whereas I said, that in those Parts they never meet with *Freestone* over the Coal; the Printer, by mistake, calls it *Firestone*; whereas *Firestone* is always found in those Mines, contrary to the Works in *Staffordshire*, *Newcastle*, and *Scotland*, where *Freestone* does, indeed, lie over the Coal. I have farther observed the *Strata* of Stone, Clay, and Marle, of the interjacent Hills, where, under the black Marle, lies a spongy yellowish Earth; all this lies above the red Soil, which I have said is generally the Surface of the Vallies, where the Coal is found. And as this red Mould on the Surface degenerates into Marle or Loom, so, towards the North-West, beyond or without the Veins of Coal, about *Winford*, in the same County, it turns to Ruddle, or Red-Okre, used chiefly for marking of Sheep, and for ground Colours or Priming, instead of *Spanish Brown*; and often counterfeits *Bole Armoniack*.

But as I never heard any Coal was found to the West or South of *Mendip-hills*; so *Cotswold*, to the North-East, and the Chalk-Hills of *Marlborough-Downs* and *Salisbury Plains*, seem to set Bounds to the Coal Country, to the East and South-East of which *Fig 1.*

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may be supposed a Section from South-East to North-West, *viz.* from the Dip to the Rise; and *Fig. 2.* at right Angles, from South-West to North-East, on the Drift or Level.

I mention this by way of Correction and Addition to my former Observations of the Coal-Works in *Somersetshire*. I have since had Opportunities to be underground, and view several Coal-Works in *Scotland* and *Northumberland*, and to observe the several *Strata* there. At *Widdrington* they have four Fathom Clay, then a Seam of Coal, about six Inches thick, not worth working; then a white Freestone; then an hard Stone, which they call a Whin; then two Fathom of Clay; then a white soft Stone; and under that a Vein of Coal three Feet nine Inches thick. This is a small Coal of the same Nature, but not so good as the *Newcastle-Coal* which comes to *London* Market. These Veins dip to the South-East, one Yard in twenty. Near *Tranent*, in *East-Lothian* in *Scotland*, the Coal dips also to the South-East, in the same Proportion; but at *Baldoe*, in the Parish of *Campsy*, three Miles from *Kylsith*, it dips to the North-East; and at *Madestone*, near *Falkirk*, to the same Point, and in the same Proportion. The *Strata* of Earths and Minerals, at these Places, agree very near: They have, as the Ground rises or falls, one, two, or three Fathom of Clay; then eleven Fathom of Slate, or Coal-Clives; one Fathom of Limestone; under that two Fathom of Slate, Earth and Stone; and then Coal. And all these agree in this; that the Pits generally need no Timber, and have a good Roof, which is supported by Pillars of Coal, which they leave in the working. At *Baldoe*, the Coal is commonly forty-five Inches thick; and all along, for some Miles Eastward thence, on the Sides of the Hills,

Hills, are Crops of Coal and Limestone; and oftentimes the Tenants spit up as much as will serve their Turn for a Winter's burning, just under the Surface; for there wants a Market, and it is scarce worth working for Sale. And to the North-West and North, in the Drift of the Coal in higher Ground, and, consequently, lying over it, there appear, in the Sides of the Hills, Seams of Spar and Lead, the Drift of which is North-East, and lies almost perpendicular; but what Obliquity there is, pitches to the South-East. At *Auchenclaugh*, six Miles East from *Kylstib*, there is a Coal eighteen Feet thick; this dips one Foot in three, and is not pursued by reason of Water; and, for want of a Market, will not quit the Cost of draining. At *Madestone*, the Coal is four Feet and a half thick, above three Fathom and a half deep: They land it (as at many Coalhews in the Country) on Girls Backs. Near *Tranent* are three different Veins wrought; the undermost is about eighteen Fathom from the Surface, call'd the *Splenty Coal*, four Feet and a half thick; it's a hard but not large Coal; makes a clear and strong Fire; lies ten Fathom under the *main Coal*, which is nine or ten Feet thick, and comes out very large. Its Roof is of Freestone, under which I walked backward and forward two Hours; but had no Opportunity to make any other Observations on the upper Vein, than that it is about four Feet thick, and neither so hard or large as the other.

As I have, *Fig. 1.* and *2.* drawn the different *Strata* (which have come to my Observation) on a supposed Plane, as they there lie; in *Fig. 3.* and *4.* I protract the same in a globular Projection, supposing the Mass of the Terraqueous Globe to consist of the foregoing, or, perhaps, of ten thousand other different Minerals, all originally, whilst in a soft and fluid State, tending

towards the Center. It must mechanically, and almost necessarily follow, by the continual Revolution of the crude Mass from West to East, like the winding up of a Jack, or rolling up the Leaves of a Paper-Book, that every one of these *Strata*, tho' they each reach the Center, must, in some Place or other, appear to the Day; in which Case there needs no specific Gravitation to cause the lightest to be uppermost, &c. for every one in its Turn, in some Place of the Globe or other, will be uppermost; and, were it practicable to sink to the Center of the Earth, all the *Strata*, that are, would be found in every Part, and according to the Poet, *Ponderibus librata suis*. Add to this, that in all Places within my Knowledge, the Observation of * another Member of the Society has held good, that the Precipices of all Hills are to the Westward, whereas the Ascent to the East is more gradual. The farther Enquiry into which I offer to the Curious, who have better Opportunity.

II. *De Experimento probandi Spiritum Vini Gallici, perquam usitato, sed revera falso et fallaci. Auctore C. Neuman, Chym. Prof. Reg. Berolin. R. S. S.*

SI qua rerum naturalium est scientia, è qua multæ erroneæ opiniones, præjudicia, speculationes, & inde secutæ falsæ hypotheses atque experimenta extiterunt, Chymia in primis est; quæ tamen in se considerata, non nisi certis, in externos sensus incurrentibus

Fig. 3.

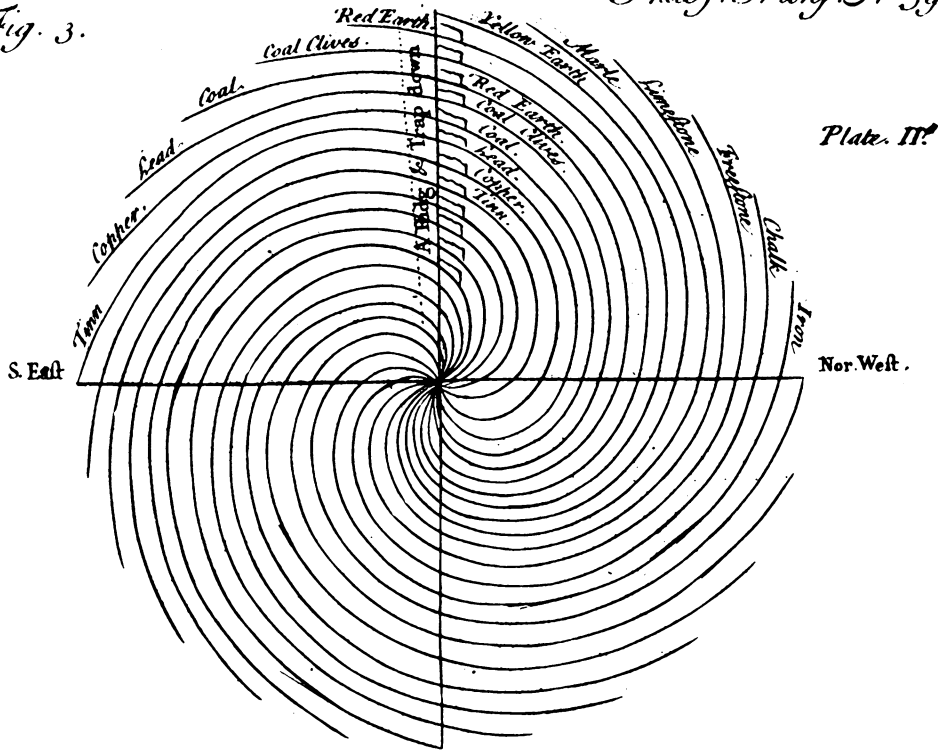


Plate. II.

Fig. 4.

