

VIII. *An Account of a Spiritus Vini Æthereus, together with several Experiments tried therewith*
By Dr. Frobenius, F. R. S.

I. **T**HE Æther of Plants appears to be almost destitute of all gross Air, from placing it under the Receiver of the Air-pump; for exhaust the Air ever so accurately, this Æthereal Liquor remains unmoved, nor does it emit any Air-bubbles which immediately arise in other Liquors, and according as their Quantity of intrinsic Air is greater, so much the sooner are such Liquors put into Agitation, and emit also more Froth, and more vehement Ebullitions in Proportion to Viscidity.

Hence it follows, that this Æther may be preserved best (because without any Diminution) under the Receiver in *Vacuo*, whereas on the contrary, exposed to the open Air, its Parts soon evaporate, and its whole Bulk, but not compressed by the Air, vanishes. (*This Experiment fail'd remarkably.*)

II. A little of it poured on the Surface of the Hand, affects it with a Sense of Cold equal to that from the Contact of Snow, and blow upon it but once or twice with your Mouth, immediately your Hand becomes dry. Beware however of approaching a lighted Candle with your Hand thus wet, lest it take Fire and burn you. (*Succeeded.*)

III. It causes such a Stridor and Hissing, poured upon hot Water, as is frequently occasioned by a Piece of hot Iron thrown into it. Take a Lump of Sugar, imbibe some of this Æthereal Liquor, and put it into

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a Vessel

a Vessel full of hot Water, the Sugar will indeed sink to the Bottom, but the Æthereal Liquor rushing violently forth, excites a great Ebullition in the Water. Moreover, if one Spoonful of this Æther be poured into a Copper-Pot-full of boiling Water, without any Sugar in it, and approach immediately with a Candle or a lighted Paper, instantly there issues forth from the Water very great Lightning. The Handle of a Spoon, as well as the Tongs for holding and applying the lighted Paper, must be of a proper Length, that the Effusion of the Ætherial Liquor upon the hot or boiling Water, and the Application of the lighted Candle or Paper may be performed at the same Time; otherwise the Æther is immediately dissipated, without any such Effect. “ There is therefore Need of
 “ an Assistant, or of both Hands, and also of a Room
 “ where Entrance may readily be given to fresh
 “ Air, proportionable to the Magnitude of the Flash
 “ of Lightning which so rarifies the Air as to endanger the Stoppage of Respiration. (*Succeeded.*)

IV. Hence it appears, that this Æther is both Fire and a very fluid Water, but so volatile as it soon evaporates, and that it is the purest Fire; insomuch, as if kindled in a thousand Times the Quantity of cold Water, it burns inextinguishably. Wherefore, if you take an earthen Vessel of any Magnitude, whose Mouth or Orifice may be one or two Yards wide, but the inferior Latitude of the Vessel may contain 600, or 6000 Gallons of Water, the Experiment will be the same, pour on the Top but one Ounce, or a small Vial full of this Æther, and apply to it a lighted Wax-candle, it takes Fire immediately, burns placidly, and is so far from being extinguished by the most

most profuse Supereffusion of common Water, that it much encreases the Vehemence of the Flame, and lasts till the subtil Parts of the Æther are consumed and ventilated by the Flame. This Experiment should be made in a large and lofty Room, not in Danger of taking Fire. (*Not shewed.*)

V. The Sense of Touch does not manifest the least Oiliness or Fatness in this Æthereal Liquor, notwithstanding that it is the true, natural, and only Dissolvent, or Menstruum of all Fat, Oil, Rosin and Gum whatsoever: By means whereof all Sorts of Fat, and every Kind of Fire or Flame is extricated by a speedy, safe, and pleasant Operation. On these Accounts it is that this Æthereal Liquor will not unite with any Kinds of Salts whatsoever, but all Sorts of Oils, Pitch, Turpentine, Opobalsams, Camphire, Wax, Ambergrease, Sperma Cete, Mastick, Musk, Copal, and the like, it dissolves most readily, and with the greatest Ease extracts their best Essences.

VI. And indeed a wonderful Harmony is observable betwixt Gold and this Æther, even greater than between Gold and ∇ Regia; insomuch as from hence Gold appears to approach nearer to the Nature of Oils than of Earths, as shall be proved when we treat in their proper Place of the three harmonious Menstrua which we have discovered, *viz.* The corrosive one for the Devoration or Dissolution of Earths, Minerals, and Metals; the aqueous one for the Dissolution of all Kinds of Salts; and lastly, the Æthereal Liquor, or *Oleus Menstruum*. If a Piece of Gold be dissolved in the best *Aq. Regia*, and upon the Solution Cold, be poured half an Ounce, or what Quantity you please of the Æthereal Liquor, shake the Glas

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carefully, and all the Gold will pass into the Æthereal Liquor, and the ∇ Regia, robbed of all its Gold, will presently deposit the Copper at the Bottom of the Vessel as a white Powder, which turning of a green Colour, contains the Portion of Copper wherewith the Gold was adulterated. The Æther will swim like Oil on the Surface of the corrosive Waters. The Experiment deserves the utmost Attention; for here the heaviest of all Bodies, Gold, is attracted by this very light Æther, or (whereas the Air, which with a common Force presses alike all Bodies, is here excluded, and the Æther it self encompasses and touches the Surface of the Water) the Gold, by the Force of its Gravity, as by an Impulse, would descend from thence; or lastly, this Phœnomenon is owing to a certain Harmony and Similitude of both of them. (*Succeeded.*)

VII. Æther then is certainly the most noble, efficacious and useful Instrument in all Chymistry and Pharmacy, *Ubi enim ignis potentialis, ibi actuali non opus est*, inasmuch as Essences and essential Oils are extracted by it immediately, without so much as the Mediation of Fire, from Woods, Barks, Roots, Herbs, Flowers, Berries, Seeds, &c. from Animals, and their Parts too. Thus from Castor, by a certain Manufacture, may be prepared an Oil sweeter than that of Cinnamon, and also the true Oil of Saffron, of wonderful Efficacy; and all by this particular Enchy-rasis, without the Help of Fire or Distillation. For an Example of our Method, take Mint, Sage, or Orange-peels, Cinnamon, &c. or all these together, cut and bottle them, pour upon them a Spoonful or two of the Æthereal Liquor, and after it has stood
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an Hour in a cold Place, fill up the Bottle with cold Water, and you shall see the essential Oil, swimming upon the Water pour'd upon them, easily separable by the Funnel, or *Instrumentum Tritorium*. Of this essential Oil, one Drop only upon a Lump of Sugar, manifests to the Taste, &c. the medical Virtues of the Plant, exquisitely drawn out, comprehended in this Essence, deservedly named *C O S*, as containing the Colour, Odour, and Sapor or Taste of the Plant or Plants. In like manner the essential Oils of Exoticks are easily prepared. (*Succeeded.*) But it is not a true essential Oil, but an excessive strong Tincture, which you may call the Essence.

VIII. Of the like Use it is in the Animal Kingdom, where it produces an essential Oil of *Phosphorus*, as likewise in the mineral Kingdom, though not so immediately, because the Resolution of Earths must precede. Moreover, it is easily proved that the same Liquor extracts the purest Gold, or every Part of the golden System from any, or all the baser Minerals, and that this Gold thus extricated, is by this one Operation better and sooner purified than by Fusion of Minerals with Antimony.

IX. This our Water is neither corrosive nor join'd with apparent Corrosives: Wherefore fill as many Bottles with Æthereal Water as there are Sorts of Salts, and into the first, Drop by Drop distill Oil of Vitriol; put into the Second Spirit of Sea-salt, into the Third Spirit of Nitre, or of Alum, or of Sal Armoniack prepared with Water, or the Lixivium of Tartar, or rectified Wine-vinegar, all the Salts immediately sink to the Bottom: Besides, it is the lightest of all Liquors; for fill any Vessel with twenty Ounces of Oil of Vi-

triot, the same emptied, will contain but seven Ounces of Æther. It is the very Ens, or Being most pure of Flame; wherefore neither Soot nor Ashes are ever found upon its Deflagration. (*Succeeded.*)

Thus far Dr. Frobenius; but to make this Paper more than a meer Harangue, it is absolutely necessary to subjoin two Paragraphs out of a Paper of that excellent Chymist Mr. Godfrey, (Dr. Frobenius's Fellow Labourer) in these Experiments which he delivered in when this Æther was made publick before us.

“ Feb. 19th, 1729-30. That this Liquor Æthereus,
 “ was formerly very much esteemed and enquired into,
 “ doth clearly appear by an Experiment I made for-
 “ merly for my worthy Master, Esq; Boyle,
 “ by the Means of a metallick Solution, namely, by
 “ the Solution of crude Mercury united with the
 “ Phlogiston Vini, or other Vegetables, and this
 “ Æther swam on Top of the Solution which I separa-
 “ ted *per Tritorium*. Note, This is what I have
 “ done formerly in Esq; Boyle's Laboratory, and Sir
 “ Isaac Newton was very well acquainted with it
 “ too; which by reason of Shortness of Life was not
 “ brought to a full End, to do it so readily in Quanti-
 “ ty. But when Dr. Frobenius, by Experiments on
 “ this in my Laboratory, did produce it in greater
 “ Quantity, he wanted to see how far Sir Isaac
 “ Newton had gone on with it in his Book. There
 “ we saw that great Man's Application in Fol. 330,
 “ that he had done it *cum Ol. Vitr. & Sp. Vin.*

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This of Sir Isaac Newton, is the Vini Æthereus, only there is a Difference in the Process: The Liquor Æthereus is made with equal Parts in Measure, not Weight. The upper yellow Liquor is separated from the inardent sulphureous per tritorium. The inferior Liquor is thrown away; and the superior yellow is put into a Retort to be distilled with the most gentle Heat; and the Extraction of the Æthereal Liquid continued so far until the superior Hemisphere feels cold, and the Retort being clapped in the Hand, there is found in the Receiver a Vino-sulphureous Gas, very Æthereal. Let the Sulphur be precipitated by adding an Alkali, and gently throwing it in till all Ebullition ceases, and the Liquor will not farther strike it self against the Hand, but will strangely attract it. Then the Alkali will go to the Bottom of itself, or precipitate it self in the common Water.

P O S T S C R I P T.

I Have purposely omitted giving the Receipt entire, which Mr. Godfrey has done in the next Paragraph; as also Dr. Frobenius in his Paper, because those who would read this Transaction may refer to the Learned Author for it. And as for others who may chance to cast their Eye upon this Paper, they will know where to have enough of it, by reading Mr. Godfrey's last Paragraph.