

(1806)

Si tamen Extiterit aliquis ingenii adeò lividi & Sceptici, ut præmissis fidem detrahat ; consulat velim Clariss. Schenkij Observat. cap. de calculo vesic. et tum forte concedat me non planè *ἀδύρατα* & *ἀσώβητα* hic loci tradidisse.

Malbani, Jun. 15. 1704

VI. *An Experiment made at a Meeting of the R. Society, Decemb. 29. 1704. Of firing Gun-powder on a red hot Iron in Vacuo Boyliano. By Mr Fr. Hauksbee.*

THe Candent Iron being included in a Recipient proper for that purpose, and the Air withdrawn (which was in about two minutes of time) the Mercury then in the Gage standing at 29 inches ¹/₂, a quantity of Gunpowder was made immediately to descend upon the red hot Iron, which continu'd upon the surface of it some small time before it went off, and then was observ'd not to fire all at once ; and the last of the Quantity that did so, seem'd to give the greatest flash : Upon which, the Mercurial gage was taken notice of to descend something more than an Inch, it rising again $\frac{1}{10}$ of the same. And upon several Repetitions of the like quantity of Powder (the factitious Air being always first withdrawn) the Appearances were very resembling. Again, upon Purging the Recipient of the factitious Air, and the Mercury elevated in the Gage as at first, three quantities were caus'd to descend upon the Iron, whose Explofion, as well as the Air produc'd from them, seem'd in proportion to the quantity of Powder : The Mercury then in the Gage subsiding to 25. But upon dropping 6 Quantities (the Recipient being first purg'd as before) which Quantities not descending all at once, but successively as fast as might be, the
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(1807)

Quantities that first reacht the (still Ignited) Iron taking fire, by their flame making an Exploſion of the whole, at once blowing up the Recipient, altho the weight of Air incumbent on it was equal to 144 $l. \frac{1}{2}$, accounting the Receiver at 3 inches $\frac{1}{2}$ diameter, but was ſomething more, which does ſufficiently allow for the want of height of Mercury. The Gage then ſtanding at 29 $\frac{1}{2}$, inſtead of 30, from which the Calculation is made. The Gunpowder us'd was the common Glas'd fort; and the weight of the ſix quantities, which remov'd the Recipient, with ſo great a Preſſure incumbent on't, was but 7 grains, each Quantity weighing ſomething more than one. I did not obſerve the Recipient to be broke before it reach'd the Floor. It was thick lin'd with Sulphureous and Nitrous Steams, ſo that the ſaſhes of Fire thro the Clowdineſs of the Glaſs ſeem'd very much to reſemble ſaint Lightnings. The Content of the Receiver was equal to about 25 ounces $\frac{1}{2}$ of Water, allowing for the Bulk of Iron and Peđeſtal.

VII. *An Account of an Experiment made Decemb. the 26th, 1704. To try the Quality of Air, produc'd from Gunpowder, fir'd in Vacuo Boyliano. By Mr Fr. Hauksbee.*

U Pon making the late Experiment of firing Gunpowder in *Vacuo*, it was hinted as well worthy of tryal, Whether the Factitious Air of fir'd Gunpowder was endu'd with any Quality differing from Common Air. In order to the ſatiſfaction of the Query, On *December* the 26th about noon I includeda Candent Iron in *Vacuo*,