

( 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 ſort; 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 Peſtſtal.

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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*,

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*Vacuo*, the Mercury then in the Gage standing at 29 inches  $\frac{1}{2}$ : Upon dropping the first quantity of Powder, ( by a quantity is to be understood something more than a Grain weight ) its Explosion made a Descent of the Mercury in the Gage about an Inch, undulating very little. The second quantity being let fall, the Mercury subsided about  $\frac{3}{4}$  of an Inch; and so for several quantities following it descended by pretty equal Stages, till it had fallen about 6 or 7 Inches; and it was observ'd, upon every quantity fir'd, the Undulations of the Mercury increas'd. But after it had subsided 6 or 7 Inches from 29  $\frac{1}{2}$ , the several descents of it became less, very little or nothing exceeding  $\frac{1}{2}$  an Inch, altho the Quantities fir'd were equal; but still the Undulations' increas'd, and the Explosions manifestly did so too: Till at last the Receiver seem'd to be in great danger of being blown up by a single Quantity, the Undulations of the Mercury being then augmented to 6 or 7 Inches. Now 26 Quantities or 32 Grains having been fir'd upon the Iron, and the Mercury in the Gage fallen to 12  $\frac{3}{4}$ , I diligently attended to observe the Gage, which in 7 minutes had ascended 2 Inches  $\frac{3}{4}$ , the next 5 minutes it arose but once Inch  $\frac{1}{4}$ , and so less successively every 5 minutes, that in an hour and 17 minutes it had attain'd but to 21 Inches, the Iron not being quite cold. At 9 the same night I observed the Gage, and found the Mercury elevated to 22 Inches  $\frac{1}{2}$ , precisely: next morn at 9 it had attain'd to 22  $\frac{1}{2}$ , and so continu'd all that day, the Iron then being reduc'd to the temperature of the outward Air. So that from 12  $\frac{3}{4}$  to 22  $\frac{1}{2}$  seems to be the weight or spring of heat equal to about  $\frac{1}{3}$  of an Atmosphere of Air, which would press the Mercury upon the upper part of the Gage, but equal to such a degree of heat as was then contain'd in the Receiver, when the Gage was fallen to 12  $\frac{3}{4}$ : The remaining space from 22  $\frac{1}{2}$  to 29  $\frac{1}{2}$  is suppos'd to be supply'd with factitious Air, and answers to about  $\frac{1}{2}$  part of the Recipients whole Content,

tent, which was equal to 25 ounces  $\frac{1}{2}$  of Common Water, allowing for the Iron and Pedestal. This Air, produc'd from Gunpowder, I find to be actuated by heat and cold as Common Air: For, holding my warm Hands upon the Receiver, the Mercury in the Gage would immediately descend, and rise again when reduc'd to the temperature of the outward Air. This I repeated several times, with the like success. What more occurs in this Experiment is, Why the Explosions of the like quantities of Gunpowder should be greater when Resisted by Air, than in *Vacuo*, where nothing seems to hinder the Extension of their flame.

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VIII. Georg. Joseph. Camel. *De Plantis Philippensibus Scandentibus; Pars Tertia. Ad Jacobum Petiver, S. R. S. nuper transmissa.*

106. **C***Oculus Piscatorius Levanticus, seu Orientalis, Indis Lagtan, Laſtan, Libtang, Lingtangbaguin, Talatalaroan, Soma vel Suma, Lanta & Tuba. Universas Indias plurimis, maximisque abundare volvulis, omnibus, qui Indias adierunt, constat: Ad quod, ut opinor, plurimum facit continua illa, & Indijs plerumq; omnibus communis, continuo vernans, & semper florens æstas. Hinc in Luzone, Rosa, Malva utraq; Belmuscus, Tuberosus, Hyacinthus, Pancratiuum, Matricaria, Gumamela, Stramonium, & nonnullæ arborum, nullo servato ordine aut tempore perpetuo florent. Rnta, Majorana, Cheyri, Betonica, Mentha, Faba, Cicer, Brassica, Carduus Benedictus, & alia Europeæ nunquam florere visuntur; sed statu florem laturo, nova à radice protrudunt germina, ulteriori inservientia propagationi: Hinc Balimbin, Gamia, Papaya, Palan-*