

stance included in the Chest, so long lasts *Inspiration*; but when the force of the *included* Air, by means of the Contraction of the Diaphragme and its pressure, overcomes the strength of the *inspired* Air, then begins and so long lasts *Expiration*. So that, according to him, *Respiration* is nothing else, than a Reciprocation of the Air inclosed in the Chest, and an Alternate motion of the Lungs and the Diaphragme; whereby the external Air becomes the first origin of all the Animal motion.

As to the *Uses* of Respiration, he esteems, both from a certain Relation to be found in *Fontana*, and from the structure, Motion and Scite of the Diaphragme, that there are other *Uses* of it, than the Cooling of the Heart, the Fanning of the Blood, the Discharge of steams, the Conveyance of a Nitrous aliment, the Comminution and subduing of the Blood, and its intimate commixture with the Chyle, and the promotion of the Blood from one ventricle of the heart to the other; for all this, he saith, is perform'd by the help of the *Lungs*, (which is but *one* Organ of Respiration:) But then he would maintain, that by the other Instrument of Respiration, the *Diaphragme* and its Pressure, there are effected such other things, as are no less necessary to the preservation of life, than the former; *viz.* The continual Pressure of the Chyle out of the stomach into the intestins, and from thence by the Milky veins into the Glanduls of the Mesentery, and so further into the Chyliferous Channel; as also the Motion of the Blood out of the *Porta* into the Liver, and out of the Liver into the *Cava*; and that of the Gall into the Bladder of Gall, and thence into the common *ductus* and the Guts: perhaps also that thence proceeds the first Natural Instinct or Perception, exciting also the Animal motions.

Which being thus proposed and deduced by him, he endeavours to satisfy the objections that may be made against this Hypothesis; for which, and many other particulars, we refer to the Author himself.

N O T E,

AT the end of p. 2125. the *Reader* is desired to add, to prevent all mistakes, what the Author of that Letter signified *April 21. 1671.* to the *Publisher*, since that was Printed, *viz.* That in a very sharp Frost the Bleeding is stop'd till the weather begins to change; but in a moderate Frost, though it stop in the night, yet in the day-time, if the Sun shines out, the Trees will bleed, though the Frost continue. What we said in our Letter, Printed N^o. 57. p. 1166. l. 45. that Cold did not promote but hinder bleeding; we find hold true, if the Cold be without Frost.

Besides, p. 2126. at the end of Mr. *Wiloughby's* Letter may be added, what he further imparted in the above said Letter of *Apr. 21. viz.* That since his last, he had made tryal upon *Walnut* and *Sycamore* as to the transmitting of Water, and found, that the water runs through both. but nothing so fast as thorough *Birch*.

ERRATA. In Numb. 69. p. 2091. l. 24. r. and purse.
In this Numb. 70. p. 2128. l. 17. r. 9th instant. p. 2130. l. 3. r. descent.

L O N D O N,

Printed for *John Martyn*, Printer to the *Royal-Society*. 1671