

visible at *A*, and only *A, B, C* at *E*; or wherein *B, D, E*, may be visible at *A*, and only *C, F, A*, at *E*; or wherein *A* may be of one side of the quadrilateral, and *E* on the other; or one of the stations within the quadrilateral, and the other without it: I shall for brevity sake omit the figures, and diversity of the Signs  $\dagger$  and  $--$  in the calculation, and presume that the Surveyour will easily direct himself in those cases, by what has been said.

The Solution of this third problem is general, and serves also for both the precedent. For suppose *C, D* the same point in the last figure, and it gives the solution of the second problem: but if *B, C*, be supposed the same points with *D, F*, by proceeding as in the last, you may directly solve the first problem.

*A Letter from William Molyneux Esq; to one of the Secretarys of the R. S. concerning the Circulation of the blood as seen, by the help of a Microscope, in the Lacerta Aquatica.*

Dublin Octob. 27. 1685.

Sir,

OUR Society lately received transcripts of two of D<sup>r</sup> *Gardens* Letters, the first dated from *Aberdeen* July 17. 1685. to D<sup>r</sup> *Middleton*; the other Sept. 4. 1685. to D<sup>r</sup> *Plot*. To both these Letters I have something to say.

In the first he gives an Account of the Visible Circulation of the blood in the *Water-Newt* or *Lacerta Aquatica*; truly I am heartily glad, that this Learned and Ingenious D<sup>r</sup> has hit upon this Experiment; tis now above two years and an half, since I first Discovered this surprising

prising appearance, and wrote a large account thereof May 12. 1683, as also of the whole Anatomy of this Animal, to my Brother, who was then at *Leyden*. And I have since that, shew'd it frequently, both on the out-side without Dissection, and in the inward Vessels also, to several Curious *Physicians* and *Philosophers*, to their great satisfaction and admiration; particularly I expos'd it first to our *Society* May the 26. 1684. as appears by the following Minute taken from our Registry. May 26. 1684. M<sup>r</sup>. *Molyneux* opened before the Company a Water-Newt, which he takes to be the *Salamandra* or *Lacerta Aquatica*, in the body of this Animal there are two long *Sacculi Aerei*, on which the blood Vessels are curiously Ramifyed, to these blood Vessels applying a Microscope, he shew'd the Circulation of the blood ad *Oculum*, as plainly as water running in a River, and more rapidly then any common Stream. The same experiment I repeated again before them on the 2d of June following, and to those that had good observing Eys, the Circulation was as visible outwardly on the hands and toes, as in the Vessels within. But Certainly the Appearance in the Vessels on the two forementioned sacculi, with the beating, emptying & filling of the Heart, is most surprising to the beholder. This Creature seems wonderfully adapted by Nature for this Experiment; for besides the transparency of its Skin and Vessels, I have had them live nine hours after they have been Expanded, and all their Viscera laid open. I send you herewith the Figures of the Animal. Fig. 7th. Tab. 1. shews the Intire Body of a Male, for the Female is not so strongly spotted. Fig. 8th. Tab. 1. is Rudely drawn, but a a Represent the *Sacculi Aerei*.

To D<sup>r</sup> *Gardens* 2<sup>d</sup>. Letter I have only this, he in-  
deavours therein to explain and give an Account of the  
*Trade Winds* within the *Tropicks* from the different gra-  
vity of the *Atmosphere* at divers times of the Year. And  
yet it is asserted numb. 165. pag. 790. of the *Philos.*  
*Transactions*,

*Transactions, that the Mercury is not affected with the weather, or very rarely, let it be Cloudy, Rainy, Windy, or Serene in St Helena, or the Barbadoes, and therefore probably not within the Tropicks, unless in a Violent storm or Hurricane.* Now if the Mercury move little or nothing in the Baroscope, tis likely there is little or no Change in the Gravity of the Atmosphere within the Tropicks.

I am,

Your most Humble Servant,

WILLIAM MOLYNEUX.

*Part of a Letter from Dr. Nath. Vincent. F. of the R. S. concerning Dr. Papin's way of Raising Water.*

I Have inquired into D<sup>r</sup> *Papin's* Problematic Engine for raising Water, in the *Transaction* of July 1685, and do conclude it may be solved after this manner. Within his Rock *CC* (see *Phil. Transf.* Num. 173, Fig. 18th.) there may be a Vessel placed, which shall be made like the Body of a pair of Bellows, or those Puffs heretofore used by Barbers, which being filled with water, a piece of Clock-work put under it may produce the Jetto's; the water being received into the Shell *HH*, and running thence into the hollow of the Coral *EE*; may be thereby conveyed into the follicular cavity, in the same quantity it is ejected from the two  
Emerging

