Philosophical Transactions

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A Letter of Mr. Franc. Linus, *written to the Publiſher from* Liege *the* 25th *of* Febr. 1675. ſt.n. *being a Reply to the Letter printed in* Numb. 110. *by way of Anſwer to a former Letter of the ſame Mr.* Linus, *concerning Mr.* Iſaac Newton's *Theory of Light and Colours.*

Honoured Sir,

IN yours of *Dec.* 17. which I received about the end of *Jan.* you ſay, I may reſt aſſured, *Firſt*, that the Experiment was made in clear days. *Secondly*, that the Priſm was placed cloſe to the hole, ſo that the light had no room to diverge: And *thirdly*, that the Image was not Parallel (as I conjectured) but Tranſverſe to the Axis of the Priſm. Truly, Sir, if theſe Aſſertions be admitted, they do indeed directly cut off what I ſaid of Mr. *Newton*'s being deceived by a bright cloud. But if we compare them with Mr. *Newton*'s Relation of the Experiment in the *Phil. Tranſactions*, *N.* 80 *p.* 3076. it will evidently appear, they cannot be admitted as being directly contrary to what is there delivered. For there he tells us, the ends of the coloured Image, he ſaw on the oppoſit wall, near five times as long as broad, *ſeemed to be Semicircular.* Now theſe Semicircular Ends are never ſeen in a clear day, as Experience ſhews. From whence follows againſt the *firſt* Aſſertion, That the Experiment was not made in a clear day. Neither are thoſe Semicircular Ends ever ſeen, when the Priſm is placed cloſe to the Hole; which contradicts the *ſecond* Aſſertion. Neither are they ever ſeen, when the Image is Tranſverſe to the length or Axis of the Priſm; which directly oppoſes the *third* Aſſertion. But if in any of theſe three Caſes, the Image be made ſo much longer than broad (as eaſily it may, by turning the Priſm a little about its Axis) near five times as long as broad, than the one End thereof will run out into a ſharp Cone or Pyramis like the flame of a Candle, and the other into a Cone ſomewhat more blunt; both which are far from ſeeming Semicircular: Whereas, if the Image be made not in a clear day, but with a bright cloud, and the Priſm not placed cloſe to the Hole, but in a competent diſtance from the ſame (as you ſee it placed in the Scheme of the Experiment in *N.* 84. *p.* 4091.) then theſe Semicircular Ends always appear with the ſides thereof ſtraight lines juſt as Mr. *Newton* there deſcribes them. Neither

is the length of the Image Tranſverſe, but Parallel to the length of the Priſm. Out of all which evidently follows, that the Experiment was not made in a clear day; nor with the Priſm cloſe to the Hole; nor yet with the Image Tranſverſe(as is now affirmed,) but by a bright Cloud, and a Parallel Image (as I conjectured;) and I hope you will alſo now ſay, I had good reaſon ſo to conjecture, ſince it ſo well agrees with the Relation. And Experience will alſo ſhew you, if you pleaſe to make tryal, as it was made, in a dark Chamber, and obſerve the difference between ſuch an Image made by a bright Cloud, and another made by the immediate rayes of the Sun: For, the former you ſhall always find Parallel, with the Ends Semicircular; but the latter you ſhall find Tranſverſe, with the Ends Pyramidical, as aforeſaid, whenſoever it appears ſo much longer than broad.

More might be ſaid out of the ſame Relation, to ſhew that the Image was not Tranſverſe. For, if it had been Tranſverſe, Mr. *Newton*, ſo well skilled in Opticks, could not have been ſurpriſed (as he ſays he was) to ſee the length thereof ſo much to exceed the breadth; it being a thing ſo obvious and eaſie to be explicated by the ordinary Rules of Refraction. That other place alſo, in the next *page* 3077. (where he ſays, the Incident Refractions were made in the Experiment equal to the Emergent,) proves again that the ſaid oblong Image was not Tranſverſe, but Parallel. For it is impoſſible, the Tranſverſe Image ſhould be ſo much longer than broad, unleſs thoſe two Refractions be made very unequal, as both the computation according to the common Rules of Refraction, and Experience teſtifie. Wherefore Mr. *Newton* had no reaſon to tax (in *pag.* 4091.) P. *Pardies* of Hallucination, for making in *page* 4088. thoſe two Refractions very unequal: For, that learned Optike very well ſaw, that in a clear day ſo great an inequality of length and breadth could not be made, unleſs thoſe two Refractions were alſo made very unequal. Theſe places, I ſay, might be added to the former, and further here explicated if need were; but there being no need, I ceaſe to detain you any longer herein.

Mr.