

Mr. Flamsteeds Letter of July 24. 1675. to the Publisher, relating to another, printed in Num. 110. of these Tracts, concerning M. Horroxes Lunar Systeme.

I Have never before troubled you on the like occasion, which makes me hope, you will pardon this, which I write with no small reluctance; Nor had I now adventured to concern you with it, if I had not found it frequently the subject of the *Transactions*, to vindicate good Inventions to their proper Authors.

The vulgarly received *Lunar Systemes*, though as little agreeable to Nature, as the Heavens, were entertained from one Astronomer to another with little alterations, from the Noble *Tycho* to the Author of the *Caroline Tables*: But when I had found by many curious and careful measures of the *Moons diameters*, that the Heavens would never admit those Hypotheses, which made the diameter of the Perigeon-Moon in the Quadratures larger than the Full Moon on the Perigee; and that only the *Systeme* of Mr. *Horrox*, which I had found in Mr. *Grabtrees* letters, would represent it as observed broadest at Full; and afterwards that it would accord well with some Observations to which the *Vulgar Tables* agreed not within $\frac{1}{5}$ of a degree: I thought, it might be worth my labour to adorn it with *Numbers*, that it might be fit for trial, as soon as it appeared in publick; to which I added an explication to be found in the Edition of his posthumous works. This Systeme has been well approved of by several good Astronomers, and Mr. *Street* has esteemed it so good, that he has printed a figure of it with the description of his Planetary instrument; but without acknowledging the proper Author, or so much as naming him more then once, and then in such terms, as may persuade any person not well acquainted with Mr. *Horrox* his works, that he was but some inconsiderable Astronomer, and Mr. *Streets* print a clear different Systeme. All, saith he, being somewhat different from the limitations of the Theory of *Horrox* and *Tables* therewith publisht. This obliged me when I found it only dif-

different in the position of the Libratory circle, to take notice of it in a letter to Mr. *Collins*, from whom you received the information, and with my consent printed the extract of it: In which I designed nothing but to assert to the dead an Invention, which he esteemed the best he ever lighted upon, and which, questionless, is the chief of his Monuments: This had I neglected, I had been unjust to the dead, whose papers passed through my hands to the Publick; nor have, I hope, been at all injurious to Mr. *Street* in it, as may appear by my Letter, if considered by any uninterested person.

For, my assertion concerning his figure of the Lunar System was, that the contrivance of it, for the Motion of Longitude, was no other then what was taken from Mr. *Horrox's* Theory and my Explication; whereby I conceive no man would understand me of his *Numbers*, since I never mentioned them, and he has published none, but course Mean motions, with a little Table or two for finding the Latitude; but I took notice, *that the form was the same, and the Excentricity varied, the Reflection or Variation altered in the same proportion as in the Horroxian Theory*; which that they are, I suppose he will not be so disingenious to deny, since it will be manifestly evident to any that will be at the pains to compare his print with the 116 and 117 *Schemes*, belonging to my Explication: After which I know not what he has, that he may call his own, or that can entitle him to this System.

Perhaps he will say, he has transfer'd the *Libratory Circle* from the *Orbis magnus* to the transverse diameter of the Ellipsis. But this is not material, since the effect is still the same; and supposing the same diameter of the Libratory circle, the same *Æquations* will be found to a second: So that hereby he only has gain'd a pretext to call the System his own, but he has rendred the Case of the Libration less intelligible.

He adds, that *he has encreas'd the quantity of the greatest Libration 2 $\frac{1}{2}$ min.* so that the semidiameter of the little circle, that shews the variation, may subtend the greater *Æquation* of the Apogee, the mean excentricity being *Radius*. This indeed is an ingenious conceit; yet amounts it to no more, than an alteration; which whether the Heavens will admit of, we may justly question. I find

by Mr. *Horroxes* papers, that he used at first 12° precisè, but upon farther experience diminished it to $11^{\circ}. 48'$. This is all the real difference betwixt Mr. *Streets* print and the *Horroxian* System; for which whether he may justly call it his own, and charge me with untruths for denying it, I leave to such persons as are skilled in the Lunar Theory to judge. But, for my own part, I think, he has no more title to it, than Monsieur *Duret* had to the invention of the *Elliptical Hypothesis*, because he published it and the *Rudolphine Tables* in a better form, reduced to the Meridian of *Paris*; which he confesses in the title page of his *Richeleian* Tables; whose Ingenuity had Mr. *Street* imitated, he had done but justice to the memory of the dead, and saved me the trouble of this letter.

But the main part of his defence is, that his *Numbers* are not the same with those published with the *Horroxian* Theory, and therefore the Systeme not the same. I argue not how illogical the inference is; but how little ingenious, you may judge, in that he has published none but the aforementioned course ones, so that for the Excentricity and Variation we must believe him *gratis*: Besides, 'tis not at all material; for I affirmed nothing concerning his *Numbers* at all, but the form or Contrivance of the Lunar plate, which he has not nor can make appear to be any other than the *Horroxian* Systeme a little altered; but we may justly doubt, whether or no amended.

Nor is it pertinent what he says concerning the working of proportions in Triangles Mechanically. If he knew, how to do it, before me, no less did others much longer before him; nor am I at all beholding to him for this skill: But if he prefers calculations before it, to what purpose is this print of the Lunar plate or his contention about it? I might add, what besides he is beholding to Mr. *Horrox* for, which he has scarce acknowledged; but I will forbear, not only to give him no cause of further controversie, but also that I may no further trouble you, till I have a better and more grateful occasion,

Sir,

I am your Servant

John Flamsteed.