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To cite this article: S.P. Rigaud Esq. M.A. F.R.S. (1836) XLII. Observations on a note respecting Mr. Whewell, which is appended to No. CX. of the quarterly review , Philosophical Magazine Series 3, 8:46, 218-225, DOI: [10.1080/14786443608648851](https://doi.org/10.1080/14786443608648851)

To link to this article: <http://dx.doi.org/10.1080/14786443608648851>



Published online: 01 Jun 2009.



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I suppose that if the vilifier of Newton has nothing to support him but rhetoric of this kind, the admirers of that great man will not feel any permanent inquietude; and my sole object will be answered.

I am, Sir, your very obedient servant,

Trinity College, Feb. 6, 1836.

W. WHEWELL.

XLII. *Observations on a Note respecting Mr. Whewell, which is appended to No. CX. of the Quarterly Review.* By S. P. RIGAUD, Esq. M.A. F.R.S., Savilian Professor of Astronomy, Oxford.

To the Editors of the Philosophical Magazine and Journal.

SIRS,

Oxford.

THE following remarks were, for the most part, drawn up before I saw the letters which Mr. Whewell has printed in the Cambridge Chronicle of the 6th and 13th of February*. Some parts of what had been written were found, in consequence, to be unnecessary; but leaving these to his able defence, I am still induced to offer the remainder to your consideration. Irritation is so great an obstacle to the attainment of truth, that I deeply regret the tone which the writer has assumed. That, however, I leave to his better feelings; my business is with his facts and his arguments.

S. P. RIGAUD.

THE reader is most probably acquainted with the Note in question; it seems unnecessary, therefore, to occupy his time with introductory explanations of the parts which have been thought to require correction. The topics, though examined separately, are taken nearly in the order which the original suggested.

Whiston was an honest and laborious man, but very deficient in judgement. As he advanced in life he became more pertinacious in error; he had sacrificed the world to his sincerity, and, conscious of moral rectitude in his purpose, he persuaded himself that he must be equally right in his opinions. Bishop Hare's own character adds no weight to the sentiments which he may express on this subject, but the few words which have been quoted from him are not contradictory to what is here said. Sir Isaac Newton, therefore, may be equally justified in his early patronage of his successor in the Lucasian Professorship, and in afterwards shunning his society. This change Whiston was unwilling to consider as just; and in

* See the preceding article of our present Number.

speaking of the man whose friendship he had lost, he says indeed what he thinks, but his thoughts, which at best were often inaccurate, were now warped by his feelings of disappointment.

I have not the slightest wish to take in any way from what may be justly due to Flamsteed; on the contrary, I honour his self-devotion to that department of science in which he was qualified so eminently and so usefully to excel; I honour his independence and noble application of his own property to his great (and it ought to have been national) object; I respect his religion, but I fear that I do not adopt so high a view of it as some of his indiscriminating admirers. I do not mean to express any doubts of his opinions on the great truths of Revelation, or of his general intention to conform his conduct to the dictates of Christianity; but his unhappy temper, irritated by disease, was suffered to become ungovernable. "If any man seem to be religious and bridleth not his tongue, but deceiveth his own heart," the apostle has told us the state to which he may be reduced. I presume to judge no one or to pronounce that "his religion is vain"; but, with every allowance for the weakness of human nature, I must say, that professions of forgiveness too frequently repeated, and constant assumption of the special favour of Heaven, are, when unaccompanied by kind thoughts and mild language, the sources of very painful impressions.

To enter fully into the character of Halley would require more time and space than can now be assigned to it; but there is one point which must not be passed over. To call him a "self-convicted infidel" is, to say the least, strong language, which when applied to the mighty dead, should not have been used without mature consideration. The authority, from which it is derived, was probably Whiston's account of the election in 1691 to the Savilian Professorship. The application, that Whiston makes of it to his own case, might have suggested the possibility of some bias in the direction which he gives to the story; and as the question is now about Halley's own view of his opinions, we have much better evidence in a letter which he wrote on the 22nd of June, in the same year, to Mr. Abraham Hill, which proves that, so far from submitting of necessity to an examination, in which he was likely to bear himself, as Whiston reports, with unbending defiance towards Bentley, *he courted the inquiry in confidence of being able to clear himself from the charge which was brought against him.* The letter likewise supplies us with the definite nature of this charge; for it mentions a *caveat* having been entered against him till he could show that he was "not guilty of asserting the eternity of the

world." This objection necessarily* involved his being an atheist, and not merely a sceptic as Whiston says, which shows again the inaccuracy of his relation. It may be from the fault of a bad memory, it may be from a limited extent of reading, but I can at this moment recall to my recollection no one passage, in which Halley has published anything profane; and I may add that in some disquisitions on the general deluge, which he published in the Philosophical Transactions, he treats the Scripture account with all due respect. These disquisitions seem also to supply a clue to the cause of the *caveat*; for having reasoned on the dislocations visible on the earth's surface, he subjoined an explanation of his hypothesis, because it was suggested to him that those changes might rather have happened in times before the Mosaic creation, (when a former world was possibly reduced to chaos, out of whose ruins the present might be formed,) than at the period of the Deluge. This, in the eyes of many religious persons, may then have amounted to a heinous offence; but whether it did so with justice may now be safely left to the determination of Christian geologists. The passage immediately referred to occurs indeed in the Philosophical Transactions for 1724; but Halley had treated of the Deluge in the 190th number of the same collection, which, having been published in 1687, makes it not improbable that he may then, in discussing the subject among his friends, have used the same topics, and have thus raised the storm which burst on him in 1691. But to return to the term originally objected to: it was proposed, in 1691, to send in testimonials of Halley's character to the electors of the Savilian Professor; and the form, in one part, said that his friends recommended him from their "own long experience of his mathematical genius, probity, sobriety, and good life."

* This, perhaps, should not be assumed as a necessary consequence, lest injustice should be done to those philosophers, both heathen and Christian, who, *salvâ pietate*, have entertained the notion of the eternity of the world as the coexistent effect of an Eternal Intelligent Cause; the Stoics, for instance, Volkelius, &c.

Writers on Natural Theology now considered as of the highest authority, following the example set by Crellius, are, we believe, disposed to place most reliance upon the arguments to be derived from the course of nature daily presented to the view, as being of the greatest efficacy, both with ordinary minds and with those to whom abstruse questions respecting the *materia prima*, &c. may have suggested themselves.

"Nunc id," says Crellius, "quod tota Peripateticorum, imo et Platoniorum schola, non modò fatetur, sed et urget, probabimus, nempe res hujus universi omnes *finis gratiâ* existere; sed ita, ut *controversiam de materiâ primâ*, quæcunque tandem ea sit, *non faciamus nostram*."—Crellius, *De Deo et ejus Attributis*, cap. iii., in which work he was assisted by Stanislaus Lubjencius, a Polish nobleman, the author of the *Theatrum Cometicum*.—R. T.]

This passage is copied from a paper in Halley's own handwriting, and shows that "self-convicted" is the last term which can with propriety be applied to him. I hope that I feel as much as any man a deep abhorrence of irreligion, and I would not say a word to palliate its baneful nature; but to overload accusations of this kind with unsupported prejudice seems to me to be the surest way of destroying their effect.

That anything should have induced Newton to use harsh language to Flamsteed is sincerely to be deplored; but there are circumstances not to be neglected which may be gathered from Flamsteed's own account of what passed on the 26th of October 1711. His ironical thanks and recommendation to restraint of passion, were no soothers of irritation. While the accusation of robbery was dwelt on, it must be remembered that Newton was under the persuasion of Flamsteed having "called him an atheist"; that Flamsteed, when this was mentioned, left him, without the slightest notice, in error on so grave a point; and though he denies that he had uttered it, he does not deny that he had entertained the suspicion; for he only adds, "I hope he is none." If Newton, under such provocation, had remained unmoved, he would have been not merely (as he was) one of the first of men, but he must have been more than man; if the mildness of his natural temper had not wholly unfitted him for personal altercation, he never could have used such an inappropriate appellation as 'puppy'—how he would have expressed himself if more familiar with the language of reproach, I am unwilling to inquire.

When Newton called for the catalogue of stars, "It would neither be prudent nor safe," Flamsteed said, "to trust a copy of them out of my own keeping. He [Newton] answered, "that I might put them into his hands sealed up; whereby I understood they were to be so kept by him till I had finished the whole, and was ready to print it." Here then was no "solemn pledge"; not even any express conditions or precise explanation are said to have accompanied the delivery. Now Newton's undoubted object was to secure the publication of the catalogue, and as Flamsteed had taken his own view for himself, Newton may, on his side, have understood that the precaution of the seal was only to make the papers "safe" until the time came for printing them. There are difficulties about the story of this seal being broken, for it is told (I do not mean intentionally) without sufficient precision. Every honest mind revolts against a breach of trust; but we ought to be well convinced of the character of the act and of the criminality of the person against whom it is alleged, before we pour

out our indignation against him. The description (in p. 294) seems to refer to the packet which was put into Newton's hands in 1705, and in another place (No. 163) Flamsteed says that the seal was broken when the catalogue was returned to him in 1708; but neither in his personal narrative (p. 86) nor in his letter to Sharp (No. 135), does he make any such complaint as he probably would, if the circumstance had occurred at that time. The sextant observations were completely printed in 1707, and the managers decided on the expediency of immediately proceeding with the catalogue; they may, therefore, have then considered the time to have arrived when it was necessary to open and examine the document; but there are particulars which seem rather to indicate that they had not broken the seal till a later period. Whether they were right or wrong in the proposed arrangement of the publication does not affect the question of the fact, and it is clear that nearly four years having elapsed, during which they could not overcome Flamsteed's opposition to their intentions, they determined to wait no longer for his concurrence. The Queen's order to proceed with the publication appears to have been issued in the beginning of 1711, and this seems to be the probable time when the seal was broken. It is inconceivable that Newton would have pleaded the authority of the Queen's order for what had taken place in 1708; and if he had, it is highly improbable that Flamsteed would have failed to notice so obvious a contradiction. By comparing Nos. 100, 104, and 199, it may be seen that, when irritated, Flamsteed could forget what he had written, and in the hurry of vexation he has here made a confusion in his narrative. Surely, therefore, it would be unjust, without more complete knowledge of particulars, to condemn Sir Isaac Newton and all his friends on such an accusation, which is neither explained nor corroborated by any concurring evidence. In such a case it would be more fair to judge of the story by his established character, than to sacrifice his character for the establishment of the story. One thing, however, may be fairly presumed,—that the Queen's order justified what was done; for Flamsteed in his reflections does not appeal from it, but confines his complaint to the authority not having been really obtained, or not till after the offence had been committed, (which latter supposition is introduced as if the first broader assertion was immediately accompanied by some doubts of its accuracy).

In the reference to what Halley says on the thirty years of Flamsteed's life, at Greenwich, the writer would have done well to have looked to the original. It is indeed said, in the preface, that during that time "*nihil prodierat*"—and nothing

had been published ; but, as Mr. Whewell had observed, it is added immediately after, “ tot annos non effluxisse otiosos, schedasque Grenovicenses in haud modicam crevisse molem.” The whole, therefore, together is a plain statement of an undeniable truth.

The work which is regularly done in the execution of any employment belongs of course to the employer, and his having made a hard bargain in no way affects his right. Any one, therefore, engaged in a great scientific work, was entitled to apply to the Astronomer Royal for assistance from his unpublished observations, when they had accumulated for years and there was no immediate prospect of their publication. A discretionary power certainly rested with the observer, but it referred to the nature and object of the application, and whether, if not immediately sanctioned by the Crown, it was such as to imply a fair presumption of the Royal approbation: the power did not extend to an arbitrary refusal. Flamsteed may be considered as obliging Newton whenever he readily communicated his official labours to him, but the greatest part of what he specifically “worked for Sir Isaac Newton” consisted in the reduction of his observations, an operation, in which he appears to have persisted contrary to the expressed wishes of Newton (No. 30).

“The sacrifice to heavenly truth” was not a holocaust of 300 copies of the book, for 388 pages of each were retained by Flamsteed, and form a part of the 1st vol. of the *Historia Cœlestis*. The whole that was burnt was the title and preface, with the catalogue, and 120 pages extracted from the later observations—about one fourth of what had been printed by the referees.

That 100*l.* per annum was too small a payment to the astronomer royal does not admit of a doubt ; but his office existed long before the importance of it was rightly understood, and Burstow was a Crownliving, which was given to Flamsteed by Lord Keeper North to set him more at his ease. This is not the manner in which the astronomer royal ought to be remunerated for his services ; but in those days it was probably thought an easy method of saving the public money. This in no degree diminishes the injustice of not supplying him with what was necessary for the Observatory ; and, although he certainly looked to some return from the sale of his observation, this was a miscalculation of what the market was likely to produce.

Newton, in 1691, (No. 14,) had said to Flamsteed, “If you and I live not long enough, Mr. Gregory and Mr. Halley are young men.” The office of astronomer royal was a fair ob-

ject of honourable ambition, but those who accuse Halley of the endeavours to supplant his predecessor, are bound to bring forward direct facts, not surmises, in support of the charge. With such an object, it was the more disinterested in him to hold that the salary ought not to be augmented. He may have done so in Flamsteed's time, but I am not acquainted with the authority for it. I have always heard that the objection was made by him to Queen Caroline, when she visited the Observatory, and expressed a wish for the inadequate payment being increased. From a document in the British Museum it is clear that this could not have taken place before September 1729. Halley, then, for nearly ten years continued himself to receive only the original "pitiful salary"; the report was erroneous, which Crosthwait heard, of his having in 1728 got an addition of 100*l.* per annum (No. 279.); and after all, he only obtained the further pay of the rank which he had held in the navy.

There are some particulars respecting Halley's observations which ought to be added to the writer's account, because they bear immediately on the present question. It was on the 2nd of March 1727 that Sir Isaac Newton reminded the Council of the Royal Society that they had neglected their duty by not having of late demanded, in obedience to the Queen's order, the fair copy of the annual observations. We see, therefore, that Newton's earnestness on this point did not originate in any personal feeling against Flamsteed, and the minute shows that he took the opportunity of Halley's being present to make the representation. The whole is given by Mr. Baily (in the *Memoirs of the Royal Astronomical Society*, vol. viii. p. 188.), and he adds, "It is worthy of remark, that this was the last meeting of the Royal Society at which Sir Isaac Newton was present, as he died on the 20th of the same month." It is not indeed improbable that his death was hastened by this exertion of the good old man in the execution of what he considered to be a duty. Hearne says, in one of his memorandum books, "Some time before he died, a great quarrel happened between him and Dr. Halley..... This 'tis thought so much discomposed Sir Isaac as to hasten his end." Sir David Brewster, in his *Life of Newton*, has alluded (p. 339) to this circumstance, but he does not seem to have noticed the time to which it refers. Halley, it must be admitted, in this case was wrong. His withholding the required documents and taking up Flamsteed's idea of the observations being private property were possibly, after Newton's death, never interfered with; and by the tacit acquiescence of the Government, not only the rights of the Crown were virtually abandoned, but the

claims of the astronomer royal were confirmed by long-continued usage.

* * I have much regretted the line which has been taken by the Reviewers. The public mind will be made up on the differences between Newton and Flamsteed, and after a time this history will be left to the few who are curious about such subjects; but while new, there was something exciting in it, and it has been put prominently forward, while the British Catalogue, as republished by Mr. Baily, has been noticed with merely transient praise. Now this is certainly not the least valuable part of a very valuable volume. It is a work of useful and lasting reference for the astronomer, which possibly no one would have undertaken excepting the person to whom we are indebted for it, and which no one could have executed who had not, with the advantages of modern science, been, like him, for years familiar with the *Historia Cœlestis*.

XLIII. On Whiston, Halley, and the *Quarterly Reviewer* of the "*Account of Flamsteed*." By A CORRESPONDENT.

To the Editors of the Philosophical Magazine and Journal.

GENTLEMEN,

Manchester, Feb. 20.

THE Note on Mr. Whewell in the late *Quarterly Review* is sufficiently revolting on account of its coarseness, and the insulting imputation on that gentleman of having presumed upon his official station in the University, and treated the subject of Newton and Flamsteed as if he were palming his opinions upon undergraduates. Now I leave it to the readers of Mr. Whewell's letter to judge if ever imputation could be more unfounded, and if his letter be not altogether free from all appearance of assumption of the authority either of his office or (what is much more) of his high scientific reputation.

But what is still more reprehensible is the barefaced disingenuousness which the writer displays. What can be a more palpable misrepresentation than that contained in the following passage relating to Whiston: "If, therefore, he was the worthless, shallow person that Mr. Whewell would have us to believe . . ."? Now what Mr. Whewell really says of Whiston is, that his *judgement* is worthless. What is this, but an attempt to deceive the reader?

Another instance of this utter want of principle is displayed in the writer's reviling Halley for the very same conduct
Third Series. Vol. 8. No. 46. *March* 1836. 2 B