

The Reverend John Michell: A Letter from his Great-grandson

Eric Hutton

Fellow of the Royal Astronomical Society

Very little is known about the life of John Michell (1724-1793), apart from his various published papers. The writer of a letter to the *English Mechanic* newspaper, under a *nom de plume*, claiming to be Michell's great-grandson, has now been identified as being written by Andrew Thomas Turton Peterson. Peterson reports that "hearsay and family tradition" places Michell as the person who inspired William Herschel to take up astronomy, and who tutored him in making specula. Some of the claims made in the letter can be substantiated by independent documentation; others can be shown to be exaggeration or erroneous.

Of the many letters written to the *English Mechanic and World of Science*, a weekly newspaper published in England between March 1865 and October 1926, one written under the mysterious nom-de-plume KHODA BUX, claimed to be from the great-grandson of the Reverend John Michell (1724-1793) has been an enigma for a long time¹. It was written in 1871, prompted by the death in May of Sir John Frederick William Herschel (1792-1871).²

By examining other letters³ written by KHODA BUX to the *English Mechanic*, I have determined that the author can be identified uniquely as being Andrew Thomas Turton Peterson⁴. In the 1880s, Petersen designed and built in the village of Sway, on the southern edge of the New Forest, Hampshire, England, the so-called Sway Tower. Having six stories and a height of 200 feet, it can claim to be the first concrete 'tower block' in Britain and Ireland. Now a Grade II listed building, it has recently been renovated and converted into high-class 'bed and breakfast' accommodation.

The letter

The full text of the letter is given below.

" SIR WILLIAM HERSCHEL.

[2103.] – As in these days of practical science a lively interest is taken in the doings and belongings of its great apostles, the following information anent [concerning] the late Sir Wm. Herschel may be interesting to most of your readers. Your correspondent "G.M.D.," quoting from Miller's "History of Doncaster," says he (Dr. Miller) first drew Herschel from obscurity in inducing him to start as a candidate for the office of organist to Halifax Church, which he succeeded in obtaining. He gives, however, no clue as to the quarter from whence William Herschel laid the foundation of his great fame as an astronomer and tele-

scope constructor. I am in a position to give a clue as to how and when he got his first instruction and his taste for astronomy. After Herschel's appointment as organist of Halifax he became acquainted with the Rector of Thornhill (a village about nine miles from Halifax and six from Wakefield), whose name was John Michell – a man of fortune, whose whole life was devoted to science, and whose writings are to be found in considerable numbers in the journals of the Royal Society during the latter half of the last century, one of the most prominent papers being that on the great Lisbon earthquake in 1756. John Michell may perhaps be better known as the builder of the mathematical bridge across the Cam, at Queen's College, Cambridge. He was no mean violinist in his day, and his soirees – where not only the first musical talent, but also the first scientific men of the day, such as Cavendish, Black, and Priestley, used to meet occasionally – were well known in the West Riding of Yorkshire, and to which Wm. Herschel used to come to perform on the violin. At the period of these visits Michell was and had been long engaged in the making what was at that time a large telescope-a ten-foot reflector. The proper combination of metal for a perfect reflector, and the grinding the same, had long occupied Michell's attention, in which he at last succeeded, and I believe I am correct in saying that Herschel there became a willing and able pupil, and obtained the germs of his great astronomical renown. At the death of John Michell all his scientific apparatus were sent to Queen's College, Cambridge, save and except his large reflecting telescope, which, by purchase or gift, came into the possession of Wm. Herschel. I have been told by the only child of Michell, who died about thirty-five years ago, at the age of upwards of eighty, and was intimate with Herschel, that he told her that the principal part of his observations had been made with her father's telescope, which he found more convenient than his own larger one. The Rev. John Michell (not Mitchell), I have also been informed, was the inventor of an apparatus for as-

Reverend John Michell

certaining the weight of the world, which is known as that of Cavendish. Your readers may probably ask how I come to know anything about what I a writing? My answer to that is, from hearsay and family tradition. I am the grandson of Michell's only daughter, from whom I heard much, and I was also a pupil more than fifty years ago of an old clergyman who had in early life been for several years the curate of Thornhill under Michell. As a matter of course, I feel a pride in being a descendant from John Michell, only equalled by that of thinking that he afforded a nursery for such a genius as the older Herschel, to be followed by that of his equally illustrious and more highly educated son. Perhaps this may among your readers reach the eye of some one who may know what has become of Michell's reflector, and as to whether it has passed through the hands of the auctioneer, or whether it still remains a time-honoured instrument in the hands of the Herschel family.

KHODA BUX."

John Michell

It is appropriate here to introduce the person of prime interest in this story - John Michell⁵. He was born on Christmas Day 1724. He entered Cambridge University on 17 June 1742, and graduated (in mathematics) as fourth wrangler in 1748. He was a lecturer in the university in various subjects to 1760, and became Woodwardian Professor of Geology in 1762. He was elected to Fellowship of the Royal Society on 12 June 1760.

Michell published work on a variety of topics: on magnetism (in which he stated the inverse square law of magnetic force), earthquakes, the use of Hadley's quadrant for surveying, and the determination longitude. His published astronomical works included observations of the comet of January 1760, and in 1767 a seminal paper on stellar parallax and magnitude of the 'fixed' stars⁶. This was described in his entry in the *Oxford Dictionary of National Biography* as being:

"... arguably the most innovative and perceptive contribution to stellar astronomy to be published in the eighteenth century."

In the paper he discussed in particular the true binary nature of some stars, the existence of 'secular' parallax, caused by the movement of the Earth in its orbit, and the topic that is making him noticed in modern times - his speculation that there could be stars of so great a mass that their gravitational force prevents light from leaving them.

There is no known likeness of Michell, so the pen-picture that follows is usually substituted in order to bring an image to mind:

" John Michell. BD is a little short Man, of a black Complexion, and fat; but having no Acquaintance with him, can say little of him. I think he had the care of St. Botolph's Church [Cambridge], while he continued Fellow of Queens' College, where he was esteemed a very ingenious Man, and an excellent Philosopher. He has published some things in that way, on the Magnet the Magnet and Electricity."⁷

This, then, is the man whose descendent, Peterson, is the author of the letter and its claims, which are the subject-matter of this paper.

KHODA BUX's claims

What can be made of the various claims within KHODA BUX's convincing-sounding letter? I will address four of the main ones, but many remain unverifiable, or await further research and discoveries, to prove or disprove them.

First, KHODA BUX says: "I am the grandson of Michell's only daughter ...". This is verifiable. Mary Michell (baptised 3 September 1675 at Newark, Nottinghamshire) was the only child of the Reverend John Michell and Sarah Williamson, who died seven weeks after giving birth.⁷ Mary Michell is recorded as marrying Sir Thomas Turton, Bart. of Starborough Castle, Surrey on 2 September, 1786. Their only son, Sir Thomas Edward Michell Turton, Bart. is not Peterson's father.^{8,9} However, there is a separate record⁹ of Sir Thomas (senior) having a daughter, Anna, born 14 September 1787; the name of the mother is not recorded. Anna married Henry Peterson. Our author is the first son of their six children. He was named Andrew Thomas Turton Peterson.

Second, KHODA BUX claims that "After Herschel's appointment as organist of Halifax [in the early 1760s] he became acquainted with the Rector of Thornhill ... whose name was John Michell ...". This is erroneous. It is known that Michell did not arrive at Thornhill until 1767, having previously been in the parish of Compton in Hampshire. However, Herschel had left Halifax for Bath in December the previous year. So they were certainly not near neighbours at any time. Even as late as 1781 they had not met, as evidenced by what Michell writes at that time¹⁰:

"... with Comp. to Mr Herschel though I have not yet the pleasure of a personal acquaintance of him..."

This comment also makes unlikely to be accurate, KHODA BUX's assertion that Herschel got "his first instruction and his taste for astronomy" from Michell during visits to the Thornhill Rectory.

Third, KHODA BUX's claim that Michell's "large reflecting telescope, which, by purchase or gift, came into the possession of Wm. Herschel" is true. How Herschel came to acquire it, and some details of the telescope, can be obtained from a letter written to Herschel after Michell's death by his son-in-law, Sir Thomas Turton (Junior)¹¹:

"...but for one article we have been at a loss to know where we can look to for the disposal of it & that is the large telescope which occupied for the space of some years, a great deal of Mr Michell's time and attention ... If you could in any degree assist me with your advice, as to the best mode of disposing of it ..."

"The dimensions & state of the telescope are nearly as follows. A Reflecting Telescope Tube 12ft long made of Rolled Iron painted inside and out, & in good preservation. The Diameter of the large Speculum 29 inch. Focal length 10 feet, its weight is 330 lbs. it is now cracked. There are also 8 concave small mirrors of different sizes viz of 3 ¼ 4 & 5 inch diam. and 2 convex mirrors 3 ¼ inch diam they are polished, there are also [?] sets of eye glasses in brass tubes & cells. The weight of the whole is about half a tun ..."

Herschel paid £30 for the telescope, little more than the £26 offered to Sir Thomas by a Rotherham iron-master. It is possible that Herschel recycled the speculum metal from Michell's mirror into his later telescopes. The only clue as to when Michell built his large telescope, is a short passage in a letter written by him in January 1781¹²:

"It is but very lately that I have got my great speculum cast & its not yet ground or polished."

As there are no known published observations in which Michell's telescope was used, the question has to be asked: Was it usable? Its short focal ratio of 4, is considered difficult to grind and figure even today. Herschel's two large telescopes, the 20-foot and 40-foot reflectors, had much longer focal ratios - 13 and 10 respectively, and required two people to operate them. So KHODA BUX's claim that Herschel "found [Michell's telescope] more convenient than his own larger one", would certainly be true. But as the speculum was reported to be cracked, then KHODA BUX's claim (the fourth I examine) that:

"... the principal part of ... [Herschel's] observations had been made with ... [Michell's] telescope ..."

cannot be true (unless the crack was inconsequential or Herschel was prepared to use the speculum even if it had degraded optical performance).

Mary Michell died on 28 January 1837, when KHODA BUX (Peterson) was 19 years old.

This is consistent with his statement:

" I have been told by the only child of Michell, who died about thirty-five years ago, at the age of upwards of eighty ..."

Conclusions

I have shown that many of Peterson's claims do not stand up to known facts. Peterson himself says:

" Your readers may probably ask how I come to know anything about what I am writing? My answer to that is, from hearsay and family tradition."

I suggest that in the 100 years between the writing of the letter, and the events it purports to describe, family tradition made more of the connection with Herschel than ever existed.

However, the letter does leave many questions unanswered: Who was Peterson's tutor - the "... clergyman who had in early life been for several years the curate of Thornhill under Michell.?" What was Michell's ability as a musician? (I can find nothing about it.) What is the origin of the family belief that Michell tutored Herschel in astronomy? These, and many other aspects of the letter are the subject of my continuing research.

Acknowledgements

I wish to acknowledge, with thanks: Richard Crossley (fellow member of the Society for the History of Astronomy) for introducing me to Brian Wallis; and Brian Wallis for supplying copies of his detailed local research into the family trees involved.

Notes and references

1. See, for example: Zdenek Kopal. Entry for Michell, John in: *Dictionary of Scientific Biography*. New York: Charles Scribner and Sons. 8-volume edition 1981. Volume 9 and 10, Pages 370-371.
2. KHODA BUX. Sir William Herschel. Letter published in the *English Mechanic and World of Science*. Volume XIII. Issue 325, Friday 16 June 1871. Pages 309-310. The [2103] at the beginning of the letter is the number given to the letter by the newspaper's Editor. This numbering sequence did not start until Volume 11, Issue 276, published on 8 July 1870. It ended at the end of Volume 75 (in Issue 1950, published on 8 August 1902) when the letter number had reached 46,149. Beginning in Volume 76 (Issue 1951, published on 15 August 1902) letter numbers restarted at 1 with each new six-monthly volume.
3. See, in particular: KHODA BUX. Concrete. *English Mechanic and World of Science and Art*. Issue 910. 1 September 1882. Pages 597-598.
4. After reaching this conclusion, I learnt that Brian Wallis of the Yorkshire Archaeological Society had come to the same conclusion in May 2005. He announced his findings in an unpublished letter dated 20 May 2005 to Russell McCormach, copied to Richard Crossley. Wallis, personal communication to the author. 17 August 2006.
5. A[gnès] M[ary] Clerke. Michell, John (1724/5-1793). Revised by Michael Hoskin. Entry in the *Oxford Dictionary of National Biography*. Oxford University Press. 2004. Consulted online at <http://www.oxforddnb.com/view/article/18657>. Accessed 4 December 2006.

Reverend John Michell

6. Rev. John Michell, B.D. F.R.S. An Inquiry into the probable Parallax, and Magnitude of the fixed stars, from the Quantity of Light which they afford us, and the particular Circumstances of their Situation. *Philosophical Transactions of the Royal Society*. 1767, 57, 234-264.
7. Quoted in: Richard Crossley. Mystery at the Rectory: Some Light on John Michell. This article was originally published in four parts in *Yorkshire Physics News* (the news-sheet of the Yorkshire branch of the Institute of Physics): Issue 17, January 2000; Issue 18, April 2000; Issue 19, October 2000; Issue 20, January 2001. It can now be accessed via the internet at www.yorksphilsoc.org.uk/files/michell.pdf. Crossley gives the source of the quotation used as: "Cole MSS XXXIII, 156, British Library". I have not yet verified this information.
8. Anonymous. Obituary of Sir T. E. M. Turton, Bart. *The Gentleman's Magazine*. July to December 1854. XLII, new series. Page 190.
9. Entries in RootsWeb's WorldConnect Project. This can be found at <http://rootsweb.com> (accessed March 2006). Search for "Anna Turton" born 1787, and "Thomas Turton" born 1764.
10. Extract from a letter, dated 23 February 1781, from Michell to W. Watson. Royal Astronomical Society MSS Herschel W.1/M101.
11. Extract from a letter, dated 1 July 1793, from Turton to Herschel. Royal Astronomical Society MSS Herschel W.1/T10(1).
12. Extract from a letter, dated 21 January 1781, from Michell to W. Watson. Royal Astronomical Society MSS Herschel W.1/M99.

