

In the picture: Does Robert Hooke finally have a face?

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Dr. Lawrence Griffing, Texas A&M biologist

Readers of the RMS Journal of Microscopy were treated to an intriguing paper published in the June issue, in which Texas A&M University Professor Dr Lawrence Griffing explores the history of a painting, *Portrait of a mathematician*, attributed to Mary Beale, circa 1680. Here, in an article reproduced for infocus, Chris Jarvis explains more.



Mary Beale's circa-1680 "Portrait of a Mathematician," which Texas A&M biologist Lawrence Griffing contends is likely to be 17th century scientist Robert Hooke. (Credit: Mary Beale, The Art History Project, <https://arthistoryproject.com/>)

As far as careers go, 17th century scientist Robert Hooke enjoyed a pretty successful one. He discovered and named the cell, was the first to describe elasticity (Hooke's law) and was a renowned inventor and architect.

However, despite being described as perhaps the single greatest experimentalist of his time, Hooke remains one of scientific history's biggest enigmas, illustrated by the fact that no official illustration of him exists.

Although Hooke was a founding member of the Royal Society of London, his portrait doesn't grace its hallowed halls as do the likenesses of many of his contemporaries, including Sir Isaac Newton. It's a 300-year-old slight that has left contemporary scientists, historians and die-hard fans alike scratching their heads, wondering what the once-revered polymath looked like.

A Texas A&M University professor now thinks he might have the answer, along with a plausible explanation for the ungracious omission.

Dr. Lawrence Griffing, an associate professor in the Texas A&M Department of Biology, believes that an unidentified gentleman in a circa-1680s painting by one of England's first successful female artists, Mary Beale, could actually be a long-sought portrait of Hooke.

"Robert Hooke was very, very busy in his day and one of the first practical scientists," Griffing said. "One of the Holy Grails of science history is to find the portrait of him. I've been looking, and I think I might've found it."

Griffing notes the striking physical similarities between the subject of Beale's artwork, titled "Portrait of a Mathematician," and those of Hooke as documented by his peers. The man in Beale's

painting sits with a somewhat bent posture and is characterised with fair skin, wavy brown hair and angular facial features. Similarly, a description by English naturalist Richard Waller in 1705 depicts Hooke as "pale and lean" with a "sharp" look and "very long" hair of a dark brown colour. He also refers to Hooke's crooked spine, saying that it was "straight until about the age of 16 upon working with a turn-lathe..."

Beale's painting offers other telling clues. Griffing points out that the landscape over the subject's left shoulder is consistent with a view from the river of Lowther Castle and its church, the Church of St. Michael, which Hooke redesigned for renovation in 1685-86.



Lawrence Griffing

Finally, the subject is drawing a diagram that Griffing believes could be a rendering of an unfinished, unpublished manuscript of Hooke's now housed at Wren Library in Cambridge, which mathematically demonstrates that if there is a constant central

force then the motion of an object orbiting that force forms an ellipse (e.g., planets orbiting the sun). This reference to elliptical orbits, Griffing says, may have drawn the ire of Newton, Hooke's longtime rival and eventual Royal Society president.

Beale's painting, which depicts the subject illustrating the elliptical orbit of a planet in response to gravity, was finished before the publication of Newton's *Principia Mathematica* in 1687 in which he introduces and establishes the same concept. Hooke and Newton clashed bitterly for many years over who contributed most to the discovery of orbital ellipses. Griffing says anything challenging Newton's preeminence on the topic, especially a portrait of Hooke, would have riled the notoriously hot-tempered scientist.

"A big source of contention between Hooke and Newton was who could mathematically show that the orbit of a planet around the sun was elliptical," Griffing said. "Newton, president of the Royal Society at the time, would likely have recognised the reference to elliptical orbits in the portrait and taken offence."

Still, many questions remain. For instance, if Beale's painting is indeed a portrait of Hooke, why is it not on display in the Royal Society like so many of his colleagues? Also, did Newton, who presided over the Royal Society from 1703 to 1727, take so much offence to the content of the portrait that he declined to retain it on the institution's behalf? Perhaps, says Griffing, but another possible, more likely, scenario also exists.

"In late 1702, early 1703, the Royal Society was in the process of moving out of Gresham College to Crane Court," he explains. "The move itself actually took eight years to complete, during which time a lot of instrumentation and documentation became disordered – basically chaotic. The idea that Hooke's portrait could've gone missing is actually quite reasonable."

Griffing, an expert in structure and biochemical

organisation of cells and membrane trafficking and a member of the Texas A&M Biology faculty since 1985, enjoys spending his free time researching the origins of the sciences. In fact, Griffing previously has uncovered clues in other areas that challenge commonly accepted science canon.

In 2011, Griffing presented evidence that indicated the dichotomous key — a sequential series of binary either/or observations allowing users to cancel out option after option until their targeted specimen is identified — was invented by Hooke's old pal Waller and not Jean-Baptiste Lamarck, who is usually credited with the handiwork. Griffing's resulting paper, "Who invented the dichotomous key?" was published in the *American Journal of Botany* and also included in the prestigious Faculty of 1000 list of notable papers for 2011.

The history of science tends to be overlooked in many cases, says Griffing, and understanding the origins of science is just as important as the research side of it.

"When we teach science these days, we tend to ignore the history side of it because it's just that much more for students to learn," Griffing said. "It turns out that getting that historical perspective on science is sometimes edifying for students. Science history is fascinating because you really don't know where you're going unless you know where you've been."

"My wife, Margaret Ezell, a Texas A&M distinguished professor of English and Lindsay Chair of Liberal Arts, also encourages these endeavors. They provide us with shared research interests."

Griffing's paper, "The Lost Portrait of Robert Hooke?" can be viewed online along with related figures, captions and analysis.

Learn more about Griffing and his research at <https://www.bio.tamu.edu/faculty-page-larry-griffing/>.

Chris Jarvis