NEWS IN FOCUS

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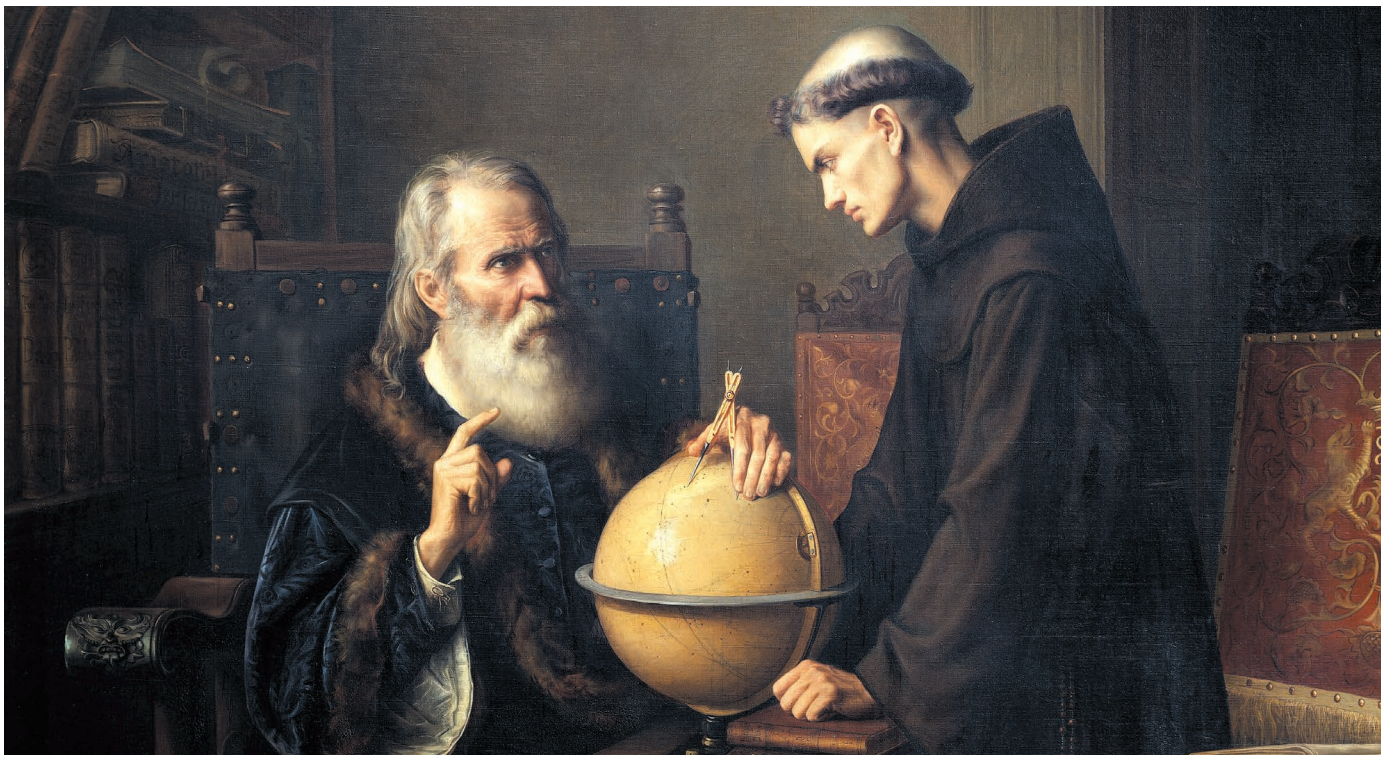


Galileo's celestial ideas prompted a trial by the Inquisition in Rome, which convicted him on "vehement suspicion of heresy" in 1633.

SCIENCE HISTORY

Lost Galileo letter reveals he tried to dodge Inquisition

Chance find shows astronomer softened his heretical claims — then lied about his edits.

BY ALISON ABBOTT

It had been hiding in plain sight. The original letter — long thought lost — in which Galileo Galilei first set down his arguments against the church's doctrine that the Sun orbits Earth has been discovered in a misdated library catalogue in London. Its unearthing and analysis expose critical new details about the saga that led to the astronomer's condemnation for heresy in 1633.

The seven-page letter, written to a friend on 21 December 1613 and signed "G.G.", provides the strongest evidence yet that, at the start of his battle with the religious authorities, Galileo actively engaged in damage control and tried to spread a toned-down version of his claims.

Many copies of the letter were made, and two differing versions exist — one that was sent to the Inquisition in Rome and another with less inflammatory language. But because the original letter was assumed to be lost, it wasn't clear whether incensed clergymen had doctored the letter to strengthen their case for heresy — something Galileo complained about to friends — or whether Galileo wrote the strong version, then decided to soften his own words.

Galileo did the editing, it seems. The newly unearthed letter is dotted with amendments — and handwriting analysis suggests that Galileo wrote it. He shared a copy of this softened version with a friend, claiming it was his original, and urged him to send it to the Vatican.

The letter has been in the Royal Society's possession for at least 250 years, but escaped the notice of historians. It was rediscovered in the library there by Salvatore Ricciardo, a science historian at the University of Bergamo in Italy, who visited on 2 August for a different purpose, and browsed the online catalogue.

"I thought, 'I can't believe that I have discovered the letter that virtually all Galileo ▶

scholars thought to be hopelessly lost,'" says Ricciardo. "It seemed even more incredible because the letter was not in an obscure library, but in the Royal Society library."

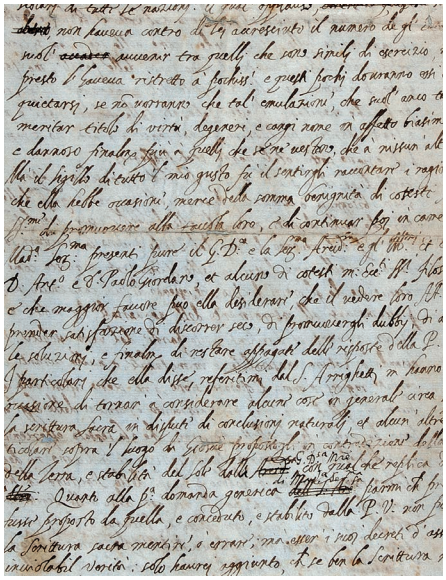
Ricciardo and his colleagues Franco Giudice at the University of Bergamo and Michele Camerota of the University of Cagliari in Italy describe the letter's details and implications in an article in press at the Royal Society journal *Notes and Records*. Some science historians declined to comment on the finding before they had scrutinized the article. But Allan Chapman, a science historian at the University of Oxford, UK, and president of the Society for the History of Astronomy, says: "It's so valuable — it will allow new insights into this critical period."

MIXED MESSAGES

Galileo wrote the 1613 letter to Benedetto Castelli, a mathematician at the University of Pisa in Italy. In it, Galileo set out for the first time his arguments that scientific research should be free from theological doctrine.

He argued that the scant references in the Bible to astronomical events should not be taken literally, because scribes had simplified these descriptions so that they could be understood by common people. Religious authorities who argued otherwise, he wrote, didn't have the competence to judge. Most crucially, he reasoned that the heliocentric model of Earth orbiting the Sun, proposed by Polish astronomer Nicolaus Copernicus 70 years earlier, is not actually incompatible with the Bible.

Galileo, who by then was living in Florence, wrote thousands of letters, many of which are scientific treatises. Copies of the most significant were made by different readers and widely circulated. His letter to Castelli caused a storm.



THE ROYAL SOCIETY

The letter shows amendments in Galileo's hand.

Of the two versions known to survive, one is now held by the Vatican Secret Archives. This version was sent to the Inquisition in Rome on 7 February 1615, by a Dominican friar named Niccolò Lorini. Historians know that Castelli then returned the original 1613 letter to Galileo, and that on 16 February 1615 Galileo wrote to his friend Piero Dini, a cleric in Rome, suggesting that the version Lorini had sent to the Inquisition might have been doctored. Galileo enclosed with that letter a less inflammatory version, which he said was the correct one, and asked Dini to pass it on to Vatican theologians.

His letter to Dini complains of the "wickedness and ignorance" of his enemies, and lays out his concern that the Inquisition "may be in part deceived by this fraud which is going around under the cloak of zeal and charity". At least a dozen copies of the version Galileo sent to Dini are now held in different collections.

Beneath its scratchings-out, the signed copy discovered by Ricciardo shows Galileo's original wording — and it is the same as in the Lorini copy. The changes are telling. In one case, Galileo referred to certain propositions in the Bible as "false if one goes by the literal meaning of the words". He crossed through the word "false", and replaced it with "look different from the truth". In another section, he changed his reference to the Scriptures "concealing" its most basic dogmas, to the weaker "veiling".

This suggests that Galileo moderated his own text, says Giudice. To be certain that the letter really was written in Galileo's hand, the three researchers compared individual words in it with similar words in other works written by Galileo around the same time.

CHANCE DISCOVERY

The historians are now trying to trace how long the letter has been at the Royal Society, and how it arrived there. In the catalogue, the document was dated 21 October 1613, but when Ricciardo examined it, he saw it was actually dated 21 December 1613. That might be one reason why the letter has been overlooked by Galileo scholars, says Giudice. The letter was included in an 1840 Royal Society catalogue — but was also misdated there, as 21 December 1618.

For now, the researchers are stunned by their find. "Galileo's letter to Castelli is one of the first secular manifestos about the freedom of science — it's the first time in my life I have been involved in such a thrilling discovery," says Giudice. ■

FUNDING

Scientist stripped of grant

Dinosaur discoverer disciplined by University of Bath, UK, after investigation into bullying.

BY HOLLY ELSE

A research-funding foundation has revoked a £1-million (US$1.3-million) grant from prominent palaeontologist Nicholas Longrich, who was disciplined by his institution, the University of Bath, UK, after an investigation found that he had breached its anti-harassment policy.

Longrich was part of a team that in 2015 reported the first four-legged fossil snake, a high-profile discovery published in *Science*[1]; in 2010, he grabbed the media spotlight with his discovery of the whimsically named *Mojoceratops perifania* dinosaur[2].

The Leverhulme Trust awarded the £998,185 grant — at least three-quarters of which was dedicated to paying research assistants and postgraduate students — to Longrich in 2016 for research on a mass-extinction event that marked the end of the Cretaceous era 66 million years ago.

"We can confirm that Dr Longrich's grant has been withdrawn but his doctoral students will not be disadvantaged by this," said a spokesperson for the foundation, which distributes £80 million of research funding each year. Leverhulme declined to add more details, and referred further queries to the University of Bath.

On 23 August, the university told *Nature* in a statement that it had received a formal complaint about Longrich in late May 2018 relating to a "potential breach" of the university's dignity and respect policy, which aims to prevent bullying, harassment and victimization of students and staff.

In early June, it began a formal investigation, which ended in July. "The investigation panel considered written and oral statements, taking evidence from the complainant, the subject of the complaint and a number of others," said the university. "The conclusion reached was that though there had been no malicious intent, the formal complaint should be upheld."

The university issued Longrich with an oral warning and made changes to his "supervisory arrangements" with current students. It said