

Murder! Intrigue! Astronomers?

By [JOHN TIERNEY](#) Published: November 29, 2010

When Danish and Czech scientists exhumed the remains of the astronomer [Tycho Brahe](#) in Prague this month, they dug up much more than some bones and hairs. They found something that has eluded astronomers for thousands of years: a story with major box-office potential.

It's "Amadeus" meets "Da Vinci Code" meets "Hamlet," featuring a deadly struggle for the secret of the universe between Tycho, the swashbuckling Danish nobleman with a gold-and-silver prosthetic nose, and the not-yet-famous [Johannes Kepler](#), his frail, jealous German assistant. The story also includes an international hit man, hired after a Danish prince becomes king and suspects Brahe of sleeping with his mother (and maybe being his father!).

For comic relief, there's a beer-drinking pet elk wandering around Tycho's castle, as well as a jester named Jepp, a dwarf who sits under Tycho's table and is believed to be clairvoyant.

Naturally, the [scientists analyzing Brahe's remains](#) are steering clear of all this gossip, including the claim that Brahe had an affair with the Danish queen that helped inspire "Hamlet." The archaeologist leading the team cautions that even if they confirm suspicions that Brahe was poisoned by mercury, that wouldn't necessarily prove he was murdered, much less identify the killer.

Typical scientists. Fortunately for Tycho and Kepler, Hollywood has never let a lack of data get in the way of a plot. There's no evidence that [Antonio Salieri](#) poisoned Mozart, and look what the movie "Amadeus" did for their album sales. The only difficulty for a screenwriter would be choosing an assassin from the competing candidates (and deciding between scholars' Latin pronunciation of "Tee-ko" or the "Tye-ko" popularly applied to the lunar crater named after him). The movie would open, of course, with the duel in 1566 that cost the 20-year-old Tycho a good chunk of his nose (a sword fight possibly precipitated by an argument over mathematics, or maybe a mistaken astrological prediction by Tycho). Before long Tycho has a metal nose as well as an island with a castle and an observatory, financed by the king of Denmark and equipped with the most precise instruments yet built for tracking the planets and stars.

Tycho wins renown by identifying new stars, including a supernova, but after his royal patron dies, Tycho finds himself out of favor with the son and successor, Christian IV. Tycho goes to Prague and a new patron, Rudolf II, the Holy Roman Emperor. As he prepares to publish his decades of celestial observations, Tycho hopes to prove that all the planets except Earth revolve around the [Sun](#), which in turn revolves around the Earth.

To help with the calculations, he brings in Kepler, a 28-year-old with his own weird model of the universe. Kepler, a devout Lutheran as well as a Copernican, believes that God created cosmic "harmony" by arranging the planets' orbits around the Sun so that they're spaced at distances corresponding to certain geometrical figures (the five "Platonic solids"). Tycho introduces Kepler to the emperor and lobbies for his appointment as imperial mathematician. But before Kepler's appointment is formalized, Tycho suddenly becomes terribly ill after a banquet and dies 11 days later, at the age of 54.

What killed him? At the time of Tycho's death, in 1601, the blame fell on his failure to relieve himself while drinking profusely at the banquet, supposedly injuring his bladder and making him unable to urinate. (Danes still sometimes invoke Tycho when they explain their need to excuse themselves during a meal.) Later medical experts discounted that and said some kind of kidney problem was more likely.

But then, in the 1990s, some hairs from Tycho were separately analyzed. Researchers reported elevated levels of mercury, including [one brief high dose](#) that was absorbed within 10 minutes during the final 24 hours of his life.

Those findings inspired "[Heavenly Intrigue: Johannes Kepler, Tycho Brahe, and the Murder Behind One of History's Greatest Scientific Discoveries](#)," a 2004 book by a pair of married journalists, Joshua Gilder and Anne-Lee Gilder. They argue that the evidence from the hairs points to two incidents of mercury poisoning, one at the time of the banquet and the other just before death, and that Kepler is the prime suspect because he had the means, the motive and the opportunity.

As an assistant living at Tycho's home, Kepler had access to toxic mercury compounds in Tycho's alchemical lab and could have poisoned him at the time of the banquet, the Gilders write. When Tycho began to recover 10 days later, they reason,

Kepler could have administered a second dose because he was one of the few people at the home who saw Tycho the evening before his death.

A devoutly religious scholar may not sound like a good candidate for murderer, but the Gilders argue that Kepler was an unhappy, temperamental zealot. In an astrological self-analysis, he described his “eagerness for trickery” and his plots against his “enemies,” and said he was under the influence of [Mars](#)’s “rage-provoking force.” In his furious arguments with Tycho, he called himself an “uncontrollable spirit” and once told a friend that he felt like attacking Tycho with a sword.

Kepler resented Tycho’s higher status and, above all, his refusal to allow access to the full log of observations, including the records of Mars’s movements that Kepler considered essential to demonstrate the validity of his own model of the universe. Kepler tried several schemes to see Tycho’s data — to sneakily “wrest his riches away,” as Kepler put it — but Tycho resisted and forced Kepler to keep working on calculations aimed at supporting the Tychonic cosmology.

“Kepler’s ambition was to prove his vision of the divine architecture of God’s universe,” Mr. Gilder says in an interview. “Every time he feels Tycho is getting in the way, he blows up at him. Is it plausible that Kepler would kill for a vision? I look around the world and see it happening all the time. Kepler had felt himself despised and outcast his whole life. This would make him famous.”

The Gilders’ theory doesn’t sound so plausible to [Owen Gingerich](#), an expert on Kepler who is an emeritus professor of astronomy at Harvard. “The single biggest problem with the theory,” Dr. Gingerich says, “is that at this point Tycho was very actively lobbying with the Emperor Rudolf to appoint Kepler the imperial mathematician. The appointment was in the final stages of the negotiation. It would have been very dangerous for Kepler to bump off his chief sponsor for the job.”

Nonetheless, things ultimately worked out quite nicely for Kepler because after Brahe’s death he still got the job — and the data. Even though Tycho bequeathed the observatory’s logs to his family, Kepler grabbed them first and held on to the crucial Mars records until he and the heirs and the emperor worked out an arrangement allowing him to finish the project of publishing the observations.

Kepler never managed to prove his divine-architecture model, but he made his name anyway, thanks to the records and his own hunch that the Sun exerted some kind of pull on the planets. Using Tycho’s data, he formulated his famous three laws of planetary motion and discovered that the planets traveled around the Sun in elliptical, not circular, orbits. If he did commit a crime, it certainly paid.

The other murder suspect is Eric Brahe, a Swedish relative of Tycho’s who was staying at his home. Eric attended the fateful banquet, and his diary contains incriminating entries alluding to his role in the poisoning, [says Peter Andersen](#), a professor of literature at the University of Strasbourg in France. He argues that Eric was hard up for money and was hired for the hit by the new Danish king, Christian IV.

Professor Andersen has several hypotheses explaining the king’s animus. One is that a royal science adviser was a Copernican feuding against Tycho. A more cinematic — and Oedipal — hypothesis is that Tycho may have been secretly consorting with Christian’s mother, Queen Sophie, and may have been Christian’s father. Professor Andersen argues that the rumors about Tycho’s royal affair contributed to Shakespeare’s “Hamlet.”

Professor Andersen is requesting that the current Danish royal family allow Christian’s body to be exhumed so that his DNA can be compared with Tycho’s, but don’t expect any immediate results. It took Jens Vellev, the archaeologist at Aarhus University in Denmark who is leading the project, nearly a decade to get permission to [exhume Tycho’s body](#).

Professor Vellev suspects that if Tycho was poisoned by mercury, it was from an accidental ingestion in his laboratory or from a medicine administered to treat his urinary problems. That suspicion is shared by Lawrence Principe, a historian of science at [Johns Hopkins University](#) who is an expert in alchemy. He says it’s rash to accuse anyone of murder without direct evidence — and maybe it is, to academics and prosecutors.

But not, of course, to Hollywood producers. They’d have no qualms about accusing *both* men (maybe Eric gives the first dose at the banquet, and then Kepler delivers the second one). The producers’ chief concern, when they pitched the project, would be dealing with the response from a typical studio executive:

“Look, you’ve got some interesting elements to work with here. I love the royal sex and the poison and the duel — could we call him Goldnose? The clairvoyant jester is a nice device. And I totally get the Tycho-Kepler conflict — high-living nobleman versus tormented commoner. But ... do they have to be astronomers?”