The Tragedy of Thomas Hobbes (by Adriano Shaplin) was running in London’s East End at Wilton’s Music Hall. Some of the most provocative aspects of Schaffer and Shaplin’s work on the 1640s to discuss Francis Bacon’s ideas. They, as modern scientists are now, were trapped by an ever-preserving need for funds, hence their continual and oftentimes desperate seeking of patronage, any sort of patronage. By 1660, they managed to wrest a Royal Charter from Charles II. But they found no financial backing from him—being a party animal, Charles was spent up. Money is why Boyle was so important.

The other major protagonist, Hobbes, was notorious for being an atheist. After the 1651 publication of his Leviathan, Hobbes was kicked out of Charles’s exiled court in France. He fled to Cromwell’s England, where his authoritarian ideas were less anathema. Schaffer drew attention to the fact that Hobbes’s views had been formed during a period of terrifying war and dislocation. Shaplin’s script interprets the effect of civil disorder on Hobbes by depicting him as a seeker of rigid certainty. He has Hobbes saying, “A real philosopher instantly Knows, he doesn’t do poking.” For Hobbes, Boyle’s experiments, which went wrong more often than they went right, were a confidence trick. Hobbes was only too aware of the manipulation and spin prevalent in politically tumultuous times, and he believed this true of the experimental demonstrations as well. The trouble with Hobbes’s method of unfalsifiable reasoning is that it depended on being clever to remain credible. Shaplin shows Hobbes’s knowledge under persistent bombardment by pamphlet, primarily from John Wallis (another member of the invisible college), who derided Hobbes for his lack of talent in mathematics.

By contrast, Boyle had it all. Boyle’s family owned land in Ireland. The wealth from this property funded Boyle’s laboratory and allowed him to think independently of any patron, to form democratic collaborations and discussion groups, to buy knowledge and expertise no matter the price, and, importantly, to be able to afford to acknowledge mistakes and bear the cost of repeating and redesigning experiments. It all sounds like very modern science. Shaplin’s Boyle comments, “if a fact is over-turned, it vanishes, It never was a fact. I’ve noticed knowledge hangs around, it hangs on men.” The difficulty for modern scientists, as Schaffer pointed out, is that Boyle saw doing an experiment as a way of revealing God’s design and thus a way to increase faith. For him, one had to be a Christian filled with humility to be a good experimentalist.

Most important, Boyle’s wealth allowed him to buy Robert Hooke. In Shaplin’s play, the handover of the young Hooke from John Wilkins’s sphere of control to Boyle’s symbolically takes place during an auction of Descartes’s work. At the time, Boyle viewed Descartes in the same light as he viewed atheists; he did not want to be tempted from Bacon’s way. Hooke was mighty clever. His cleverness allowed him to emerge from an obscure cleric’s family on the Isle of Wight to become curator of experiments at the Royal Society. He was an energetic and industrious

Robert Boyle reckoned that to be a credible scientist one had to be a good Christian gentleman, because experimental science relies on trust in its practitioners and faith in the integrity of its demonstration. Adriano Shaplin’s The Tragedy of Thomas Hobbes presents the story of the revolution in thought that culminated in the founding of Britain’s Royal Society by Boyle and his collaborators. The play sets pure reason, promulgated by the philosopher Thomas Hobbes, against the disinterested experimentation conducted by Boyle as opposing ways of exploring the ways the world works. Shaplin’s treatment reveals the breaking waves of real and cultural conflict at work in the British Isles the middle of the 17th century: the transitions of the civil wars that started in England in 1642 and continued past Oliver Cromwell’s death in 1658 to the restoration of the monarchy in 1660 under Charles II.

This history play is a spectacular windmill of ideas, and although it works less well as a piece of theatre it makes for provoking entertainment. Fortunately Shaplin (an American playwright and artistic director of the award-winning company Riot Group) and historian of science Simon Schaffer (University of Cambridge) were on hand at the Royal Society on 20 November 2008 to guide us through the action (1). Meanwhile, a performance of the play by the Royal Shakespeare Company (which, with the Massachusetts Institute of Technology, commissioned the work) was running in London’s East End at Wilton’s Music Hall. Some of the most provocative aspects of Schaffer and Shaplin’s conversation were their references to the modern practice of science. Their heterodox ideas might be bread and butter for historians or sociologists, but practicing scientists are unlikely to feel comfortable seeing themselves in the same light as these authors see Boyle and the early Royal Society.

First up, Schaffer was keen to reveal the parallels between theatrical performance and scientific performance. Most directly, he suggested that public demonstrations of experiments may have been replacements for the theatrical performances that had been abolished during the Puritan interregnum. Perhaps Shaplin’s modern play leaves a chaotic sensation because it works in the same way as one of Boyle’s experimental demonstrations. Thus, the play objectively generates a mass of data unbound by Hobbesian reasoning. The trouble is that it takes a lot of reasoning to stitch large amounts of data together to produce a useful history—even as it does to produce a useful genome or a useful Higgs boson.

The forerunners of the Royal Society were initially members of the “invisible college” of natural philosophers, who gathered in the 1640s to discuss Francis Bacon’s ideas. They, as modern scientists are now, were trapped by an ever-preserving need for funds, hence their continual and oftentimes desperate seeking of patronage, any sort of patronage. By 1660, they managed to wrest a Royal Charter from Charles II. But they found no financial backing from him—being a party animal, Charles was spent up. Money is why Boyle was so important.

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polymath, sampling everything from microscopy and evolution to architecture. This breadth of vision was also his undoing.

In the final twist, Shaplin brings on Isaac Newton as Hooke’s nemesis. Newton derided Hooke as a “mere smatterer” and was probably responsible for trying to erase Hooke’s record. Newton’s jealousy best explains why there is no surviving portrait of Hooke and why so little survives of Hooke’s ideas on evolution and many other topics. And so the play comes full circle: Hobbes’s absolutist reasoning being replaced by Hooke and Boyle’s democratic experimental approach, only for that to be usurped by Newton’s autocracy in the fully fledged Royal Society.

I loved the show—the acting is wonderful and the crumbling Music Hall venue with its vertical set provides a suitably dusty atmosphere for Restoration London—but not so many were as enthusiastic as I was. Charles II (played by Arsher Ali) as a Russell Brand–style vulgarian, complete with fluffy detachable head piece, did offer a frisson. Shaplin’s stipulation that Boyle must be played by a woman has a lucky manifestation in Amanda Hadingue, who closely resembles Boyle’s portraits and has the suitably fastidious demeanor of the sickly man. (Shaplin explained that the purpose was to have a woman play the part was to emphasise Boyle’s special character: his collaborative instincts and his disengagement from the prevailing masculine brawling.) Jack Laskey is particularly good as the energetic and engaging Hooke. Unfortunately, Will Sharpe as Newton does not project dark enough foreboding and his soliloquy makes for a collapse rather than a finale. But, and it is a big but, despite the performance’s many pleasures, the audience was left largely mystified, sometimes sleeping. The play is truly a mass of facts that fall and drift hypnotically like confetti.

Unless theaters hand out copies of Steven Shapin and Schaffer’s Leviathan and the Air Pump (2) as a study aid, the director Elizabeth Freestone and the playwright should have reined in the text, slapped a stronger structure on the story, and given the performance an emotional heart. I hate to fault a play that so rumbustiously turns over so many brilliant ideas. Go and see The Tragedy of Thomas Hobbes if you get a chance, but be prepared.

—Caroline Ash

References and Notes
1. A Webcast of the conversation between Shaplin and Schaffer at the Royal Society event is archived at http://royalsociety.tv (look under the history of science offerings).

—Steven Shapin
—Paul Schaffer

Audubon: Early Drawings. Richard Rhodes, Scott V. Edwards, and Leslie A. Morris. Harvard University Press, Cambridge, MA, 2008. Boxed, 292 pp. $125, £92.95, €112.50. ISBN 9780674031029. These 116 early Audubons from the collections of Harvard University provide a perspective on the development of the artist’s mature style. In accordance with established ornithological presentation of the time, most of the birds are stiffly posed in profile with little or no background. Some drawings, however, show their subjects in action [e.g., the whip-poor-will, _Caprimulgus vociferus_, in flight (1812), right] or include details of diet or habitat—approaches Audubon took to portray specimens as “drawn from Nature” in his monumental _The Birds of America_. The watercolors and pastels of the European species were executed in France in 1805 and 1806, and those of the North American birds date from 1805 to 1821. The captions discuss when and where Audubon collected the specimens. Morris, Rhodes, and Edwards contribute essays on the history of the drawings, the artist’s life, and his science.

Albatross: Their World, Their Ways. Tui De Roy, Mark Jones, and Julian Fitter. Firefly, Toronto, 2008. 240 pp. $49.95, £54.95. ISBN 9781554074150. Christopher Helm, London. £35. ISBN 9780713688122. Renowned for their mastery of marine air and wide-ranging trips over the oceans, albatrosses may spend 95% of their long lives (which can extend beyond 60 years) riding the winds and waves. Being birds, the adults must return to land to nest and hatch the single large egg that they produce every other year. Traveling on a 13-m sailboat, natural history writer-photographers De Roy and Jones observed nearly all the albatross species at breeding sites. De Roy’s descriptions of their visits to these species, in which Fitter summarizes taxonomy, identification, population, distribution, breeding, food, and threats.
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