

Books & arts

Medical drama shines spotlight on antiseptics pioneer

Pride and tragedy stymied ideas about how infections spread, suggests a show about nineteenth-century doctor Ignaz Semmelweis. **By Georgina Ferry**

How do great scientific discoveries make it into the mainstream, and who gets credit? A play now showing in London tells the story of the Hungarian physician and obstetrician Ignaz Semmelweis, who in the mid-nineteenth century radically reduced rates of death in childbirth at Vienna General Hospital – the largest hospital in Europe at the time. His practice – a strict hand-washing regime for doctors and nurses – was remarkably effective. Yet his ideas were rejected. Unlike French chemist Louis Pasteur, British surgeon Joseph Lister and German physician Robert Koch, who made their discoveries between the 1860s and 1880s, he is barely given a footnote in the history of antiseptic procedures and the germ theory of disease.

Why did his ideas fail to catch on? That question is at the core of *Dr Semmelweis*, a fascinating play produced by the UK National Theatre, and created by the writer Stephen Brown with the actor Mark Rylance, who plays Semmelweis. They powerfully capture the personal dramas that drove him to make his discoveries, the barriers to new ideas that were erected by ingrained beliefs and professional pride, and the ultimate tragedy made inevitable by the doctor's personal flaws.

We first encounter Semmelweis towards the end of his life, working in a small obstetric ward in his native Budapest in the 1850s. His stubborn personality is immediately on show: he refuses point-blank when his former colleagues ask him to return to Vienna, or even to converse with them in German – the language of his colonial overlords. The play then unfolds in flashbacks.

Soon after his arrival in Vienna in 1847 as assistant to obstetrics professor Johann Klein (Alan Williams), Semmelweis attends a young dancer in childbirth. She pleads to be cared for in the midwives' ward, not the doctors', because she's heard that it's safer. The woman dies of childbed fever, now known to be a type of sepsis. Semmelweis learns from



Dr Ignaz Semmelweis (Mark Rylance) and Ferdinand von Hebra (Felix Hayes).

Dr Semmelweis

Dir. Tom Morris
Harold Pinter Theatre, London
29 Jun – 7 Oct 2023

hospital records that at 18%, the death rate of mothers in the doctors' ward is three times that in the midwives'. As the doctors cross the stage through an empty door frame, we realize why: unlike the midwives, they are constantly moving between the anatomy theatre, where they plunge their hands into putrefying carcasses, and the obstetric ward where they deliver babies.

Realizing this is the only difference, Semmelweis requires that all those entering the obstetric ward wash their hands in a chlorine solution. The death rate plummets to less than 3%. He wonders why, concluding that 'cadaveric particles' must pass from the corpses to the women's bodies and cause infection. When he traces a further outbreak

of childbed fever to a woman in the ward with an infected knee, he changes his description of the infectious agent to 'decaying organic matter'.

At that time, the existence of microorganisms had been known for two centuries, since Dutch microbiologist Antonie van Leeuwenhoek invented the microscope (coincidentally, Leeuwenhoek died 300 years ago this month). But no one had yet connected microbes to disease transmission. In the play, Semmelweis's inability to describe a mechanism of infection is used against him by his own professor. Klein and other senior academics refuse to accept that they themselves were agents of death to thousands of young women and children. Instead, Klein thinks new windows in the doctors' ward will solve the problem of 'bad air'.

Rylance's portrayal makes clear that Semmelweis's gifts included neither charm nor empathy, as evidenced by the increasingly bitter and offensive letters he fired off

Books & arts

to his detractors in later life. He upsets the initially sympathetic Baroness Maria-Teresa (Roseanna Anderson), an important source of funds for the hospital, by demanding that she wash her hands in bleach. He falls out with his devoted supporters over his own failure to effectively communicate his ideas. He fails to visit his father on his deathbed or attend his funeral. With tragic results, he severely punishes a mistake made by the senior midwife (Pauline McLynn), who had aided his endeavours throughout.

Klein fires Semmelweis, who returns to Budapest in 1849. A final effort to present his ideas at a public conference ends in disaster when he calls his critics murderers, and his life soon reaches its end. He dies – of sepsis, ironically – in a psychiatric hospital at the age of 47.

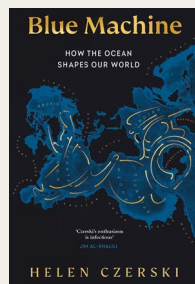
Brown and Rylance have pulled off a remarkable feat in conveying a great deal of historical and scientific information, without descending into didacticism. This is a complete piece of theatre. An all-female string quartet plays throughout (Franz Schubert's *Death and the Maiden* features prominently), giving an urgent quality to key moments. Observing and responding as events unfold, conveying emotion through their bodies, are the Mothers, a group of ghostly ballet dancers. They remind us that Semmelweis's driving motivation was to save women, for whom childbirth was the most dangerous moment in their lives. The set and lighting evoke the pitiless focus of the anatomy theatre.

Although *Dr Semmelweis* acknowledges that the medical establishment was at fault for its resistance to change, the play seems to place most of the blame on defects in Semmelweis's own character. There is plenty of historical evidence that the frustrations he faced eventually drove him to outbursts that hint at madness; whether Rylance's portrayal of a stuttering, tunnel-visioned obsessive is accurate is harder to verify. Semmelweis is just about rescued from the lone-genius caricature by his dependence on the statistical skill of his assistant Franz (Ewan Black) and the professional support of the cheery anatomy professor Rokatsinsky ("Just keep looking!"; Daniel York Loh).

Originally conceived before the COVID-19 pandemic, the play addresses themes that will resonate strongly with audiences who lived through those dark times – washing your hands till they are sore, divergent views in the medical establishment, the ever-present threat of disease and death. *Dr Semmelweis* might also be perceived as a warning to medicine, scientists and others not to pursue their professional goals at the expense of their humanity.

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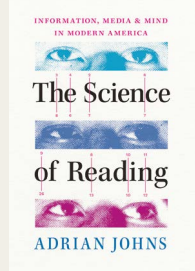
Books in brief



Blue Machine

Helen Czerski *Torva* (2023)

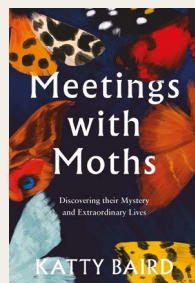
Few scientific subjects are so vast, and yet oceans "often seem invisible", remarks physicist and broadcaster Helen Czerski; the workings of the seas got no mention in her physics training. She now studies the bubbles created by breaking waves and their influence on weather and climate. Her profound, sparkling global ocean voyage mingles history and culture, natural history, geography, animals and people, to understand the "blue machine": the ocean engine powered by sunlight that shunts energy from Equator to poles.



The Science of Reading

Adrian Johns *Univ. Chicago Press* (2023)

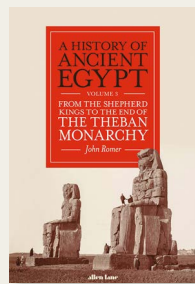
Starting in the 1880s with US psychologist James Cattell, the experimental study of reading dealt in extremes, notes information historian Adrian Johns in his intriguing analysis. Researchers devised mechanical ways to measure quantities that were nearly imperceptible, such as pauses in motion as an eye scans prose. Yet they were certain that the work had vast consequences — that "civilization itself depended on those measurements". Today, scanners can measure brain activity, but the reading process remains mostly imponderable.



Meetings with Moths

Katty Baird *Fourth Estate* (2023)

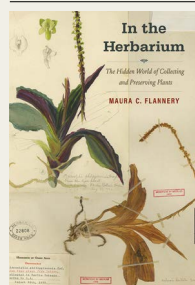
Ecologist Katty Baird's fly-specialist friend grumbles that butterflies should be renamed 'butter-moths'. Butterflies and moths belong to one order, and are not always easy to tell apart. However, most butterflies rest with wings shut, whereas resting moths display theirs. The garden tiger moth (*Arctia caja*), for example, has "forewings a mosaic of darkest brown and white which conceal shocking scarlet underwings spotted with denim blue". Happily for roaming moth-inspector Baird, her household has been spared the ravages of clothes moths.



A History of Ancient Egypt, Volume 3

John Romer *Allen Lane* (2023)

This deeply informed history by Egyptologist John Romer focuses on the New Kingdom, 1550–1185 BC, including rulers Nefertiti, Tutankhamun and Ramesses II: crucial figures in popular perception. Calling it the "most fantasized period in all of ancient history", Romer criticizes much scholarship on the era for being "firmly stuck" in the nineteenth-century European vision of ancient Egypt, launched by Jean-François Champollion in the 1820s. Romer avoids this pitfall, but ironically misdates Champollion's pivotal visit to Egypt.



In the Herbarium

Maura C. Flannery *Yale Univ. Press* (2023)

London's Royal Botanic Gardens at Kew are open to all. Not so Kew's Herbarium, a collection of more than seven million plant specimens reserved for academic visitors. Access to most herbaria is restricted: biologist Maura Flannery knew "almost nothing" about them until 2010, when a US curator took her behind the scenes at one and she fell in love with them. Her history dramatizes this revelation, discussing global collections and collectors using fine period drawings, regrettably not in colour. **Andrew Robinson**