

in writing. With its clear and accessible style, the book could be shared with young readers, who might be less susceptible than earlier generations to narratives of romantic self-sacrifice, and more intrigued by the psychological portrait of a complicated and accomplished woman scientist. ■

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Rivalry and revenge

Costantinopoli 1786: la congiura e la beffa (Constantinople 1786: The Conspiracy and the Hoax)

by Paolo Mazzarello

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In Italian.

<http://www.bollatiboringhieri.it/>

Nicola Nosengo

The second half of the eighteenth century was a time of spectacular advances in the life sciences. Fundamental problems such as the generation of life were addressed for the first time using modern experimental tools. But these issues were the source of great controversy, and also great rivalries among biologists — or philosophers, as they still preferred to call themselves.

At a time when many scientists were still convinced that life can be generated spontaneously from decomposition, the Italian Lazzaro Spallanzani was the first to demonstrate the necessity of sperm for reproduction. He was the first to perform artificial insemination — a challenging experiment at the time, especially as he was a Catholic priest.

Spallanzani was a strong opponent of Carolus Linnaeus, who in 1735 had published the first complete classification of living species, mostly based on external traits. Spallanzani, however, was convinced that naturalists should study every aspect of living forms, including their behaviour and environment, rather than simply force them into groups according to what they look like.

Such a man could easily make enemies. In Pavia, where he taught natural history at the university and was responsible for the museum, Spallanzani was surrounded by envy, particularly from Giovanni Antonio Scopoli, a chemist and botanist, and devoted follower of Linnaeus. The rivalry between Spallanzani and Scopoli resulted in a conspiracy worthy of a Shakespearean tragedy. The tale is told in this book by Paolo Mazzarello, a professor of the history of medicine at the very same university in Pavia.

In 1785, Spallanzani set sail for Constantinople, taking advantage of Venice's new diplomatic links with the Ottoman capital. He had taken a year off from teaching in Pavia, but this was no pleasure cruise — it



Lazzaro Spallanzani poured scorn on rivals whose experiments failed to meet his own high standards.

was a genuine scientific mission. Spallanzani left Pavia equipped with scientific instruments, such as barometers, thermometers, lenses and a microscope. He spent most of his time taking measurements and collecting samples, studying everything from living species to climate and geology.

In Spallanzani's absence, his rivals conspired against him. Under the instructions of Scopoli, Serafino Volta, Spallanzani's assistant in the museum, visited his family home in Emilia, asking to see his private museum. He then accused Spallanzani of stealing objects from the Pavia museum and putting them in his own collection. The news spread throughout Europe and reached Spallanzani, by now in Vienna on his way home.

On his arrival in Pavia, Spallanzani was able to prove his innocence and restore his reputation. His rivals were severely reprimanded by the authorities in Milan.

But this was not enough for Spallanzani, who took a supplementary revenge when Scopoli, in 1785, announced his discovery of a new species of worm: a human parasite unlike any other previously known. The parasite ostensibly came from a woman from northern Italy, and its scientific description brought Scopoli fame. He even dedicated it to the botanist Joseph Banks, then president of the Royal Society in London. But in 1787 the worm turned out to be a hoax, constructed by a farmer for a joke from the oesophagus and windpipe of a chicken. Spallanzani ensured that Scopoli's humiliation was widely

known. Using a pen name, he wrote a pamphlet, full of scorn and cruel irony, condemning Scopoli's ability as a scientist.

Scopoli, he wrote, wanted to study nature inside "dead museums", only hoping to be lucky enough to discover and classify new animals and put them on the shelves. But nature, in Spallanzani's view, had to be studied in action, observing animals' behaviour, comparing them in terms of the structures and functions of their organs. Had Scopoli paid more attention to the internal structure of the worm, had he stopped to wonder how it could actually live, he would probably have realized his mistake and avoided his humiliation, argued Spallanzani in his pamphlet.

Mazzarello tells the whole story with detailed descriptions of landscapes and the people Spallanzani met during his journey, based on his diaries. He describes Spallanzani's "lust for knowledge", his being as "fascinated and seduced by Nature as his contemporary Giacomo Casanova was by women".

But what is really compelling is that through this plot we can observe the development of experimental methods in biology. It is mostly over methods that Spallanzani and his rivals clashed. The worst that Spallanzani could throw at his rival when he took his revenge was to call him a poor experimenter. Personal authority was no longer enough in science unless it was supported by reliable and replicable methods. ■

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