

Frankenstein

the science and the fiction

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Chemistry in Britain, nov. 2002

On a stormy night in June 1816, after having read a book of ghost tales, five people each decided to write what we would now call a thriller. They were staying at the house of Lord Byron, and the group included Byron himself, his lover Claire, his personal physician Polidori, the poet Percy Shelley and his wife Mary (then 20 years old and Claire's step-sister).

Two years later Mary Shelley published *Frankenstein: or the modern Prometheus*, a book that has sold in millions, is translated in umpteen languages around the world and is the basis for several movies of the same title. All of us must know the story of how scientist Victor Frankenstein brought to life an unnamed monster by weird electrical devices.

In the scarce hints to the techniques used by Frankenstein, Mary Shelley always uses the term 'chemical' for the instruments Frankenstein would have used in his Promethean undertaking. What was Mary Shelley thinking of? In her preface to the novel, she speaks of galvanism.

In well-known experiments in 1780, Italian scientist Luigi Galvani made frog limbs contract by touching them with thin metallic wires. As is clear from the ensuing discussion with Alessandro Volta, the real cause of those contractions was a potential generated by the contact of two metals. In 1800 Volta constructed his electric pile with zinc and silver disks, spaced by felt disks soaked in slightly acidic water. This first source of continuous electric current soon became famous, and Volta himself showed it to Napoleon Bonaparte.

In Britain, Humphry Davy used this battery for electrolytic processes, and 10 years later he succeeded in isolating metallic sodium, potassium, magnesium and calcium. The wonders of electricity astonished people, and Davy gave a number of successful public lectures on scientific topics, gathering more than a thousand people every time. (A young man in the audience asked Davy if he could become his assistant: he was Michael Faraday, one of the foremost scientists and experimentalists of his day.)

In 1803 Davy invited Giovanni Aldini from the University of Bologna to one of his public lectures. During a memorable night, Aldini, nephew and follower of Galvani (who had died in 1798), applied the electrodes of a voltaic battery to the body of an executed convict that had been brought into the hall. The current made the dead man's legs bend and a hand contract. It also generated various facial expressions and made the eyes open. A member of the audience fainted.

Mary Shelley was only six at that time, but that evening was remembered for a long time, and most likely she later heard vivid descriptions of it. (About 12 years later, Davy and his wife were members of the same literary circle of Mary and Percy Shelley.)

The young Mary grew up with scientists and philosophers as family friends. Her mother, Mary Wollstonecraft, was a writer and a feminist; her father was philosopher William Godwin, and one of the family's closest friends was Erasmus Darwin, a famous anthropologist - and grandfather of Charles. In 1771 Erasmus Darwin had performed another gruesome experiment - described in his book *The Temple of Nature* - that could have influenced Mary. He had taken the vocal cords from a human corpse and inserted them in a sort of mannequin head. Then, by means of mechanical and electrical stimuli, he had succeeded in obtaining sounds quite similar to a human voice.

In *Frankenstein*, some of the sentences uttered by Professor Waldman (Victor Frankenstein's chemistry professor at the University of Ingolstadt) are taken, nearly verbatim, from texts by Davy, including *A discourse: introduction to a course of lectures on chemistry* (1802) and *Elements of chemical philosophy*, I (1812).

Mary Shelley considered her novel quite different from the usual fantasy ones; it presented hints taken from a surreal - but not totally impossible - science, and depicted them within a plausible setting. For these reasons, *Frankenstein* has been considered the first science fiction novel. We can find in it the sources of plots that would be later exploited and become popular: the difficult

communication between individuals from different origins; their reciprocal fear and their final clash; the bright and lonely scientist whose research takes him into territory where others don't dare to venture; an artificial intelligence that hurls itself against its human creator; knowledge that, beyond a certain threshold, turns itself into a nemesis. Born from an unusual mixture of 19th century positivism and of romanticism, Frankenstein's myth owes its appeal to other factors as well. A man who wants to steal immortality from God and recreate life seems to be a recurrent literary archetype, encountered in Pygmalion's statue, in the Golem legend, even in present day Blade Runner droids, and in Isaac Asimov's robots. But Frankenstein's creature, like these, at the end suffers for not being fully human, for being discriminated against as different, for not receiving the love that every conscious creature maybe has a right to get.

Further reading

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