



Frankenstein The Language of Nineteenth-Century Science

Frankenstein is very much a novel about science, but the science of the nineteenth century during which Shelley was writing was very different from science today. Major scientific discoveries and ideas that are commonplace today, like electricity, were just being uncovered, and the field of "science" was just beginning to be established. The field was so new, in fact, that the term *scientist* was not even in use yet. In Shelley's time, the boundaries between science and "magic" were still very thin.

Below you'll find science-related terms Shelley uses in *Frankenstein* and the special meanings each term carried in the nineteenth century. As you read these terms, think about the relationship of the science of Shelley's time to the science of today.

Term	Explanation
alchemy; alchemist	<i>Alchemy</i> is a scientific theory of "transmutation" of lesser metals, such as lead and copper, into gold. The term was established in the twelfth century but refers to much older ideas that attempt to find out the "secret" to extending life. In chapter II, Victor Frankenstein mentions reading the works of Paracelsus, a Swiss alchemist who claimed it was possible to re-create human life.
causation	the relation of cause and effect When Victor mentions <i>causation</i> in chapter IV, he is speaking as a natural philosopher of the eighteenth century. The scientific idea that every effect can be traced to a prior effect and that there are no outside causes or "purposes" governing the processes of nature was a predominant idea at the time. This idea, also known as <i>scientific determinism</i> , has been revised and challenged since, most notably by Einstein's theory of relativity.
Heinrich Cornelius Agrippa	Heinrich Cornelius Agrippa (1486–1535) was a German physician who wrote several books on mysticism and science. Victor Frankenstein mentions that upon reading Agrippa, a "light seemed to dawn upon" his mind, but Victor's father warns him that Agrippa's works are "sad trash."
Dr. Darwin	The "Dr. Darwin" Shelley refers to in her Author's Introduction is Erasmus Darwin, grandfather of Charles Darwin. Erasmus Darwin, an important figure of the Enlightenment, posited the idea of "spontaneous generation" (later proved false by Louis Pasteur in 1859) after observing the generation of "eels" in a closed container of wheat flour that had gone sour.
electricity	While important discoveries in electricity were being developed in Shelley's time, such as Alessandro Volta's experiments with electric currents in the early nineteenth century, electricity was still a very new and foreign concept and would not be a part of everyday life until the 1880s.

galvanism	<i>Galvanism</i> is a technique developed in the late eighteenth century by the Italian experimenter Luigi Galvani in which a muscular tissue is stimulated via electric current. The effect seemed to give "life" to even a cadaver's tissues. Galvani famously made the detached legs of frogs jump with this technique. The idea that animal life is animated by an electric fluid that runs through veins (later proven false) did, however, pave the way toward the science of electrophysiology and the defibrillation machine that we use today to assist with heart emergencies.
natural philosophy; natural philosopher	<i>Natural philosophy</i> is what we now call natural science. Notably, <i>Nature</i> was often capitalized (see chapter II) in nineteenth-century works of literature since it still carried a reference to God and Newtonian laws.
physiognomy	the idea that a person's appearance is related to his or her characteristics The <i>physiognomy</i> practiced in the nineteenth century is now considered a form of scientific racism.
transmute; transmutation	Related to alchemy, <i>transmutation</i> is the idea that a lesser substance can be changed in form and nature to a higher one.

RL.11-12.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)