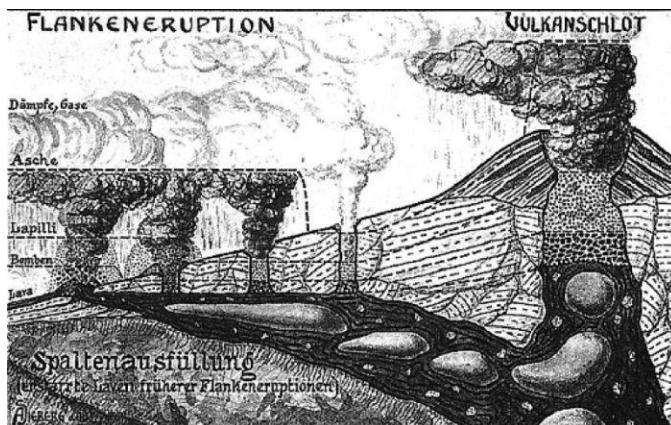


Jules Verne: Father of Science Fiction?

Jules Verne (1828-1905) is conventionally regarded as the father of science fiction. Novelist [Jules Verne](#) was born on February 8, 1828, in the French city of Nantes. Today he is known as a pioneer of the science-fiction genre, imagining a submarine traveling twenty thousand leagues under the sea, a space projectile heading to the moon and a fantastic journey into the depths of our world. One hundred and fifty years after Verne's visions, humans have walked on the moon, nuclear submarines can travel under the sea and we have started to explore the mysteries of the deep earth.

Journey to the Center of the Earth was published in 1864 and was immediately a critical success, and has remained in publication in both French and English to this day. In the opening chapters of the novel, the German Professor Otto Lidenbrock and his nephew Axel discover an ancient document, written by Snorri Sturluson. This (fictional) 16th-century alchemist described a journey into a large system of volcanic conduits, accessible from the crater of the Icelandic volcano So Lidenbrock and his nephew traveled to Iceland, employed a local guide, and following the document's coded directions, entered the volcanic crater.

There, they descended through the sedimentary layers of the crust into its foundation. About 87 miles beneath the surface they discovered an underground sea occupying a cavern, roughly the size of Europe, hollowed in the granite of the lower crust. The travellers ventured upon the "Lidenbrock Sea", as they name the newly discovered ocean, in a raft built out of the logs of "great palm-trees of species no longer existing" growing along the shores.



Geological section, published by German geophysicist August Sieberg in 1914, showing the anatomy of... [+]

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An important source of inspiration to Verne were the books by the French scientist and writer Louis Figuier. In 1864 Figuier published [La Terre avant le déluge](#), a popular science book discussing geology and paleontology. From Verne's surviving correspondence with his publisher, we know that he started to work on his novel sometimes between January to

August 1864. Some passages and scenes in Verne's novel, like the battle between an ichthyosaur and a plesiosaur witnessed by the travelers, was likely inspired by an illustration in Figuier's book. Verne's imaginary forest growing along the "Lidenbrock Sea" was similar to the fossil forests of the [Carboniferous](#) period. The heat necessary to keep the forest alive comes from "the excessive heat of the globe. The Earth was still so hot in itself that its innate temperature dominated" as Figuier writes in his textbook. Before the discovery of radioactive decay, geologists believed that earth's inner heat was the residual heat of its formation from a molten ball. Over time earth cooled down and a solid crust formed.

Verne's explorers used the hollow volcanic conduit of Snæfellsjökull as a gateway to earth's interior. Many geologists at the time believed that volcanic conduits, empty once the volcano erupted, connected a volcanic crater to magma chambers deep underground. Today we know that such conduits are far too small (and obstructed by solid rock) for humans to move through.



A figure from the novel "Journey to the Center of the Earth" published by Jules Verne in 1864.

VERNE

However, Verne was right when he described a chamber full of gigantic crystals found deep underground. For crystals to grow, they need the right conditions and a lot of time. In theory, there are no limits to how large a crystal can become, however, perfect conditions for crystal growth are rarely met. That said, such perfect conditions are found in the Cueva de los Cristales, located in the Naica Mine, Chihuahua, Mexico