

A Rare Glimpse into a Bygone Era

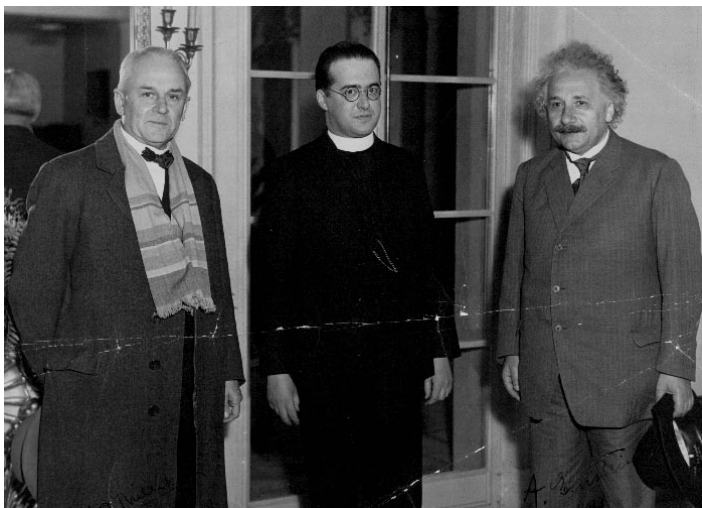
The resurfacing of a unique video of the physicist Georges Lemaître provides a rare view of a pioneer of cosmology.

By **Katherine Wright**

Type “video of James Peebles” into your favorite search engine and up pops a plethora of recordings of the 2022 Nobel Prize winner discussing his research on the first few moments of the Universe. Nowadays, most scientists have been filmed for online seminars and colloquia, but scarce is the footage of scientists who lived and worked prior to the age of YouTube. At the end of last year, one such rarity resurfaced. That video contains the only known recorded interview of the Belgian physicist Georges Lemaître, who died in 1966. In 1927, Lemaître proposed the concept of the big bang, a cosmic origins scenario that Peebles developed further in his work. The interview, which was conducted in French, was recently

translated into English, allowing a broader swath of scientists a rare view of one of the pioneers of cosmology [1].

The video was found in the archives of the Belgian national broadcaster VRT (Vlaamse Radio- en Televisieomroeporganisatie). Originally aired on February 14th, 1964, all but 3 minutes of the footage was thought to have been lost to history. But a 20-minute reel resurfaced after the broadcaster found it in a mislabeled box. **VRT made that reel public** on December 31st, 2022, subtitling the French audio with Flemish text (Flemish and French are the two official languages of Belgium).



Georges Lemaître (middle) with Albert Einstein (right) and Robert Millikan (left) at the California Institute of Technology in January 1933, six years after Lemaître proposed the concept of the big bang. Credit: Public domain/Wikimedia

The VRT interview was conducted long after Lemaître had proposed his big bang theory but before the discovery of the cosmic microwave background, which gave strong experimental support for Lemaître’s idea. The motivation for the discussion is unclear—the introduction and initial question are missing from the video—but the interview provides an overview of the scientist’s work on the big bang and a brief look into his thoughts on alternative theories. “In my opinion, in the 1930s, [Lemaître] understood the application of Einstein’s general theory of relativity to cosmology better than anyone else, including Einstein,” Peebles says.

As well as being a professor of physics at the Catholic University of Louvain, Belgium, Lemaître was a Catholic priest—ordained in 1923, three years after obtaining his master’s thesis. Because of his religious affiliation, the Vatican Observatory asked one of its astronomers, Jean-Baptiste Kikwaya Eluo, to transcribe the video. Kikwaya—whose first language is French—enlisted help from his friend and colleague Satya Gontcho A Gontcho, a

French astrophysicist at Lawrence Berkeley National Laboratory, California, and from Dominique Lambert, a Belgian theoretical physicist and philosopher at the University of Namur, Belgium, and the author of a book on Lemaître's life. After completing the transcript, the trio then translated it into English. "We wanted to make the interview available to the whole science community," Gontcho A Gontcho says.

The anthropological aspect of restoring a lost voice particularly captured the imagination of Gontcho A Gontcho. Scientists can, for example, read the letters exchanged between Lemaître and Fred Hoyle on their views on the origin of the Universe, she says. But those letters are one dimensional. "This [video] is much more vivid," she says. "We can see how [Lemaître] moved; hear how he talked about his own work."

One passage that Gontcho A Gontcho says particularly stood out to her is one where Lemaître talks about Hoyle's views on the origin of the Universe's hydrogen. At the time of the interview, Hoyle was a champion of the now obsolete steady-state theory of the Universe, which states that the average density of matter in the Universe has and will always be constant. To reconcile the theory with Edwin Hubble's observations that the Universe was expanding, the steady-state theory assumed that the expansion is driven by the continuous creation of hydrogen, an idea Lemaître said went against the laws of physics.

"This hydrogen appears in a totally unexpected way like a ghost. It's a kind of ghost as it would appear in castles in Scotland," Lemaître says in the English translation. "And what can we expect from hydrogen appearing without any physical reason, without any normal connection? One could...expect it to disappear in the same way as it appeared. So, this is how this theory presents itself."

The phrasing is evocative and quite different to that which a scientist might use when discussing these ideas today, even in

the context of outreach, Gontcho A Gontcho says. "It's interesting to see how the vocabulary that we use to talk about scientific concepts has evolved."

Gontcho A Gontcho also found a personal connection to watching Lemaître speak, as her father was educated in Jesuit schools, with science teachers who were also priests. "This video gave me a glimpse into what his teachers might have been like in terms of how they spoke and how they carried themselves—it gives them dimension and color."

At the end of the interview, Lemaître also discusses his views on the connections between science and religion, noting that—for him—there is no conflict in being a scientist and being a priest. "[Lemaître] is characteristically careful about the role of God," Peebles says. That opinion resonates with Lambert, who remarks that Lemaître is very deliberate in the words he uses, carefully distinguishing scientific concepts (the beginning of the Universe) from theological ones (creation). "According to Lemaître, there is no rational conflict between science and religion, because the subjects are located at different epistemological levels," Lambert says.

The notion that faith and science are incompatible is, according to Lambert, a relatively recent concept and one that is at odds with historical evidence. "The opposition of science and priesthood is a kind of ideology—we have simply to look to the Vatican Observatory or to the many examples of priests who were also scientists (Gregor Mendel, Henri Breuil, Pierre Teilhard de Chardin) to see that priesthood is compatible with a scientific career."

Katherine Wright is the Deputy Editor of *Physics Magazine*.

REFERENCES

1. S. Gontcho A Gontcho *et al.*, "Resurfaced 1964 VRT video interview of Georges Lemaître," (2023) [arXiv:2301.07198](https://arxiv.org/abs/2301.07198).