



DON LINCOLN GIVING A TALK titled “The Birth of the Universe, Recreated” in 2012. The talk was given at TED@NewYork, an event that was part of a worldwide TED talent search. (Photo by Ryan Lash/TED.)

of the story that comes naturally to historians, who weave webs of interconnections among all participants, figuring out who contributed what and who influenced whom. With that perspective, it is hard to give too much credit to a singular act of discovery, because the “aha” moment has been preceded not only by the preparatory work of the individual but by the work of many others as well.

The complementary perspective is that of the research physicist. Research can be frustrating. One can spend large amounts of time getting precisely nowhere. Then, suddenly, there might be a moment of clarity, a new way forward. Few have experienced a breakthrough as significant as Werner Heisenberg’s in the summer of 1925,

Not all scientists need to become science communication experts—certainly not in the modern world, which values specialization. In physics, people become theorists or experimentalists, but they are rarely both. In my own field, experimental particle physics, the specialization is even more specific: Some people design accelerators, while others design detectors. Some specialize in the flow of data around the world and others in statistics or machine learning. But it is essentially unheard of for any individual to master all of those skills. So I am certainly not proposing that all scientists master the art of communication.

Large physics departments should include a member or two who spend some fraction of their time engaging with the public and helping the community advertise the value of physics research. Importantly, I am suggesting that this be done not by communications professionals (although they are also important) but by practicing physicists. By virtue of their scientific expertise and skills at science communication, these communication-minded physicists are best suited to share the excitement of scientific research with the public in a way that is accurate. If excellent science communication skills were recognized in the hiring and tenure

processes for scientists, it would make all of our lives easier.

In a world of social media, where many voices can be heard, it is important that the voice of science be strongly represented. Who can do that better than a scientist? And if it’s not something you want to do, consider supporting and rewarding those who do it well.

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Editor’s note: If you are inspired to speak up for science, a forthcoming article will tell you how to get started.

LETTERS

A complementary perspective on quantum history

Complementarity applies not only to quantum physics but to its history. Ryan Dahn’s article “Demythologizing quantum history” (PHYSICS TODAY, April 2025, page 38) provides the side

but similar, if usually lesser, rewards are what researchers crave.

The details of an actual breakthrough may not appear very impressive. The Wright brothers’ famous “first flight” in 1903 traveled only 37 meters and lasted only 12 seconds, but it opened up a whole new universe of aviation. It is likewise not surprising that Heisenberg’s *Umdeutung* (“reinterpretation”) paper was sketchy and hard to understand. It is also not surprising that he was uncertain (no pun intended) about the worth of his achievement; new ideas often do not pan out. It is greatly to the credit of Max Born and Pascual Jordan that they were able to turn Heisenberg’s insight into a cogent theory of the atomic world.

Looking back in 1963 on his trip to Helgoland, Heisenberg said he remembered feeling, “Well, now something has happened.”¹ In later years, he may have been vague on the details, but the reality of the breakthrough seems to have been seared in his memory.

Reference

1. W. Heisenberg, interview by T. S. Kuhn, 22 February 1963, session VII, p. 14, Oral History Interviews, Niels Bohr Library & Archives, <https://doi.org/10.1063/nbla.wbnv.eibc>.

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