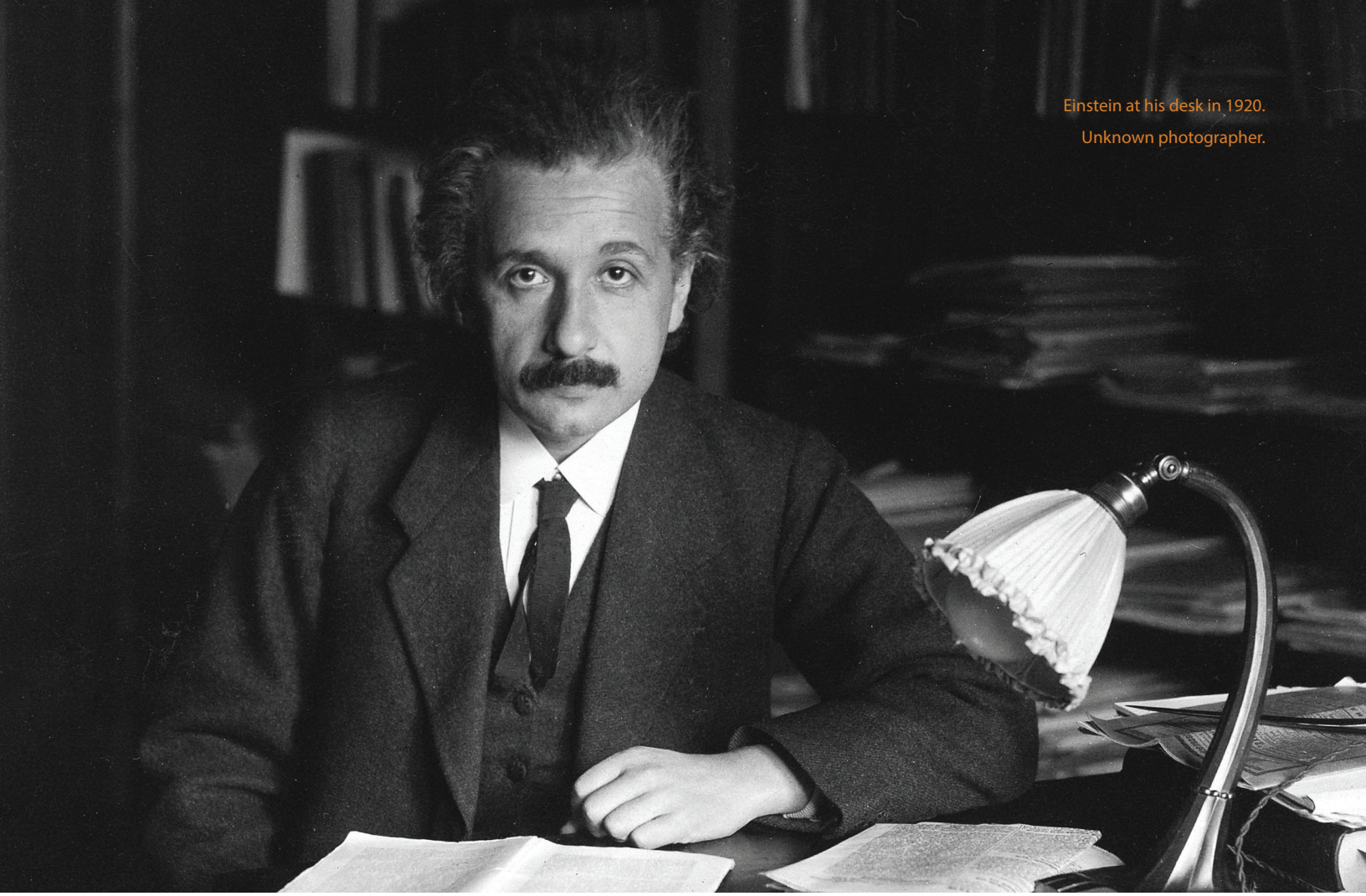

Einstein at his desk in 1920.
Unknown photographer.

CALTECH AND PRINCETON UNIVERSITY PRESS RELEASE FIFTEENTH VOLUME OF EINSTEIN'S COLLECTED PAPERS

By Diana Kormos Buchwald, Director and General Editor, Einstein Papers Project

Volume 15: The Berlin Years: Writings & Correspondence, June 1925-May 1927, is the latest volume published as a collaboration between Caltech's Einstein Papers Project, Princeton University Press, and the Albert Einstein Archives at the Hebrew University of Jerusalem. It covers Einstein's writings and correspondence on the new quantum theories emerging in the late 1920s, his unwitting collaboration with an academic fraud, and letters to his teenage sweetheart. The almost 100 writings by Einstein, of which a third have never been published, and the more than 1,300 letters contained in this latest volume, show Einstein's immense productivity and hectic pace of life.

The years 1925–1927 were an extraordinarily busy, engaged, and, on occasion, turbulent time in Einstein's life. Despite having won the Nobel Prize in Physics in 1922 for work he had produced nearly two decades before, Einstein remained immensely active at the forefront of scientific research and academic commitments. We find him working daily on the latest developments in modern physics; engaging with his colleagues and perfect strangers in considerate discussions; being a referee

for scientific journals; applying for grants; administering funds and institutions; grappling with personal issues; and being bored in meetings.

The present volume covers a thrilling two-year period in 20th-century physics, for during this time matrix mechanics—developed by Werner Heisenberg, Max Born, and Pascual Jordan—and wave mechanics, developed by Erwin Schrödinger, supplanted the earlier quantum theory. In extensive exchanges with the creators of the new approaches, Einstein quickly recognized their great importance and the conceptual peculiarities involved. From the beginning he preferred wave mechanics over matrix mechanics. He thought he had found a convincing refutation of the probabilistic interpretation of quantum mechanics in what would today be called a hidden variable theory, but he retracted the paper before publication.

In early 1925 he had turned to a new mathematical foundation of unified field theory that generalized Arthur S. Eddington's affine approach on which most of his previous attempts at a unified theory had been based. But he soon abandoned this approach, and in 1927 returned to a different one that he had earlier dismissed: the idea of Theodor Kaluza, further developed by Oskar Klein, that gravity and electromagnetism can be unified by introducing a fifth spacetime dimension. Between these two approaches, and inspired by detailed correspondence with the mathematician G. Y. Rainich, Einstein explored features of general relativity in the hope of finding new hints at how the correct unified field theory might look. This correspondence eventually brought about the important Einstein-Grommer paper of 1927, in which they aimed to derive the motion of particles subject to gravitational fields from the gravitational field equations themselves.

At the same time, Einstein discussed the interpretation of general relativity and unified field theories with the philosopher Hans Reichenbach. It is here that we find the first statements expressing his decade-long opposition to the idea that general relativity shows that gravity is "geometrized."

In a collaboration with Emil Rupp, Einstein became convinced that Rupp's experiments showed that excited atoms emitted light in a finite time (in waves) rather than instantly (in quanta). However, in subsequent years Rupp's experiments could not be reproduced and he was later revealed to have fabricated much of his work. Surprisingly, we found no statements by Einstein so far decrying this mishap.

Much of Einstein's correspondence in this volume engages with Dayton C. Miller's interferometric experiments in which he claimed to have detected an ether drift, overturning the null result of the Michelson-Morley experiment and generating renewed interest in experiments of this type in both Europe and the United States.

As in the past, relativity remained a contested topic among right-wing circles in Germany and abroad. In March 1927, Einstein learned that a high school teacher in Virginia had been charged with blasphemy for teaching relativity. In his sarcastic retort, Einstein lampooned the school's directors, pointing out that they were so lacking in confidence that they needed God's help to assist them in their campaign against relativity.

The current volume encompasses a wealth of documents, ranging over several significant scientific topics, as well as politics, Zionism, and myriad family concerns. We present 535 documents as full text and more than 900 documents in the Calendar of Abstracts. Among the former are 99 writings, of which only 56 have previously been published. They include two dozen scientific papers, drafts, and calculations, as well as poems, aphorisms, homages to Isaac Newton and Hendrik A. Lorentz, more than three dozen appeals and writings on political matters and Jewish affairs, and several patents. Among the 440 letters presented as full text, 270 were written by Einstein. This massive personal and professional correspondence of more than 1,300 letters, and the almost 100 writings show that Einstein's immense productivity and hectic pace of life were more intense during the 24 months covered by this volume than in the previous two years.

He undertook several unsuccessful attempts to reduce his involvement in various spheres of activity and to balance private life, work, and public roles. In mid-June 1925, Einstein informed Mileva Marić that he felt well after his South American trip because the return voyage had been "so restful." However, merely eight days later, he wrote to Paul Ehrenfest and others that he did not intend to travel either to Pasadena or to Petrograd, as he needed to be "more frugal with his nerves." During 1926, Einstein attempted to lighten the burden of responsibilities. In January, he offered his resignation from the board of the German League of Human Rights, but eventually decided to remain on it. He also informed the Marxist-Zionist party Poale Zion that he would no longer support multiple individual Jewish causes since the overuse of his name would lead to its devaluation. In this spirit, he also let the World Union of Jewish Students know that he had "resigned [his] honorary position as king of the schnorrers for good."

The 1925 Locarno Treaties renewed Einstein's optimism in the prospects for European reconciliation. He continued to participate in the League of Nations' International Committee on Intellectual Cooperation and efforts to end the boycott of German scientists. He also remained committed to the shaping of the Hebrew University in Jerusalem, although his enthusiasm for this cause was sorely tested during these years.

Einstein received many honors, among

continued on page 18

them the Royal Society's Copley Medal, the Royal Astronomical Society's Gold Medal, and election as corresponding member of the Academy of Sciences of the USSR. He was also offered a faculty position at Johns Hopkins University.

While the new volume focuses on the years 1925–27, it also includes hitherto unknown, much earlier correspondence between the sixteen-year-old Einstein and members of the Winteler family, with whom he lodged while attending the Aargau Kantonsschule in 1895–1896. In 2015, the Bernisches Historisches Museum made accessible a bundle of letters and postcards written by Einstein that had been obtained from the Winteler family estate. Most of these letters are addressed to the eighteen-year-old Marie Winteler, his hosts' daughter, with whom he became romantically involved at the time. They also include a "Contract for the Purchase of a Box of Water Colors," drawn up with great, yet most likely, mock seriousness, by Einstein and his cousin, Robert Koch. Some of the items only exist as fragments or snippets, as many were torn and subsequently glued back together. Prior to the release of this new correspondence, only one letter by Einstein to Marie, and two letters by Marie to Einstein, were known to scholars. The 34 documents from this collection now published in Volume 15 reveal Einstein's passionate and tender sentiments toward Marie. Einstein mentioned to Marie his difficulties in being a disciplined correspondent, an issue he would often return to in later years, and allows glimpses into his career ambitions as well. On the eve of his departure from Aarau to take up his university studies at the ETH, he reported a conversation with the rector of the Kantonsschule during which he was told that he possessed the prerequisites for an academic career and was advised not to take up a position as a schoolteacher.

In a surprising turn of events hitherto unknown to scholars, three letters and one postcard written by Einstein in 1909–1910 reveal that his love for Marie was rekindled at that time; more than a decade after their first relationship had ended. They apparently had a brief romantic encounter in 1909, by which time Einstein had already been married for over six years to Mileva Marić. But Marie seems to have ignored his subsequent advances, eliciting feelings of utmost anguish in Einstein. In his despair, he wrote in September 1909 that he felt "as if dead in this life filled with obligations, without love and without happiness," decrying his "failed love, failed life, that's how it always reverberates to me."

We are always asked, "Is there anything we don't know about Einstein after all these years?" And as editors of the Einstein Papers Project we always reply, "Yes, there is a lot that we are learning and discovering." Published beginning in 1987, The Collected Papers eventually will comprise nearly 30 volumes and will contain more than 14,000 documents. Sponsored by the Hebrew University of Jerusalem and Princeton University Press, the project is located at and supported by Caltech.

MARIE CURIE HAS A FAVOR TO ASK...

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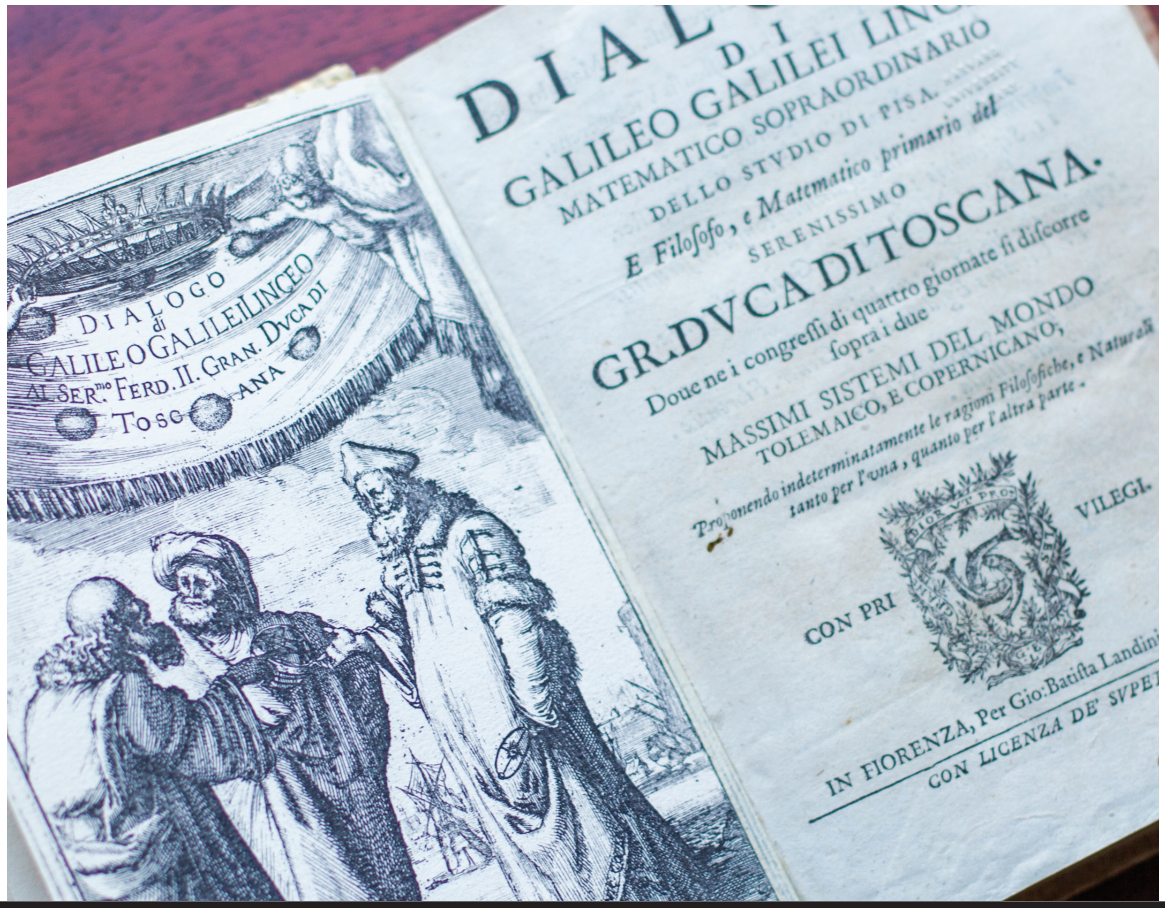

Together We Make History

More on the Physics Heritage & Promise Campaign on page 8

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ABOUT THE NEWSLETTER

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