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Keynote Address, January 20, 2005 at the Einstein Forum Conference on Einstein 2005

“Who was Einstein? Why is He Still so Alive?”

Gerald Holton

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We have come together to consider the work and influence of a man who, starting just a century ago, overthrown the scientific Weltbild of the time, and prepared a new one for us. Only he of all 20th-century scientists could possibly be the subject of a wide-ranging meeting such as ours, with contributions to come from art historians and chemists, political scientists and philosophers, musicologists and physicists, historians of science and more. Not since Isaac Newton’s Principia can one imagine an analogous symposium to mark a physical scientist’s legacy in such a wide spectrum of fields.

This fact demands some commentary, on two entangled levels: Who was Einstein? And why, fifty years after his death, is he still so uniquely alive, with the year 2005 having been declared an International Year of Physics by the UN, by UNESCO, even by the US House of Representatives, all of them citing his work in 1905 as the main reason for their decision?

When contemplating the work and influence of a person with such gigantic and manifold characteristics as Einstein, it is wise to remember a remark of Werner Heisenberg: “The space in which a person developed as an intellectual/spiritual being [geistiges Wesen] has more dimensions than the space which he occupied [physically].”

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Einstein himself, in a letter of 1914, gave us an even better metaphor. He wrote to Heinrich Zanger in triumph that “I succeeded in proving that the gravit. equations hold for arbitrarily moving reference systems, and thus that the hypothesis of the equivalence of acceleration and the gravitational field is absolutely correct, in the widest sense. Now the harmony of the mutual relationships in the theory is such that I no longer have the slightest doubt about its correctness.” Typically Einstein! But then he added at once: “Nature shows us of the lion only the tail. But there is no doubt in my mind that the lion belongs with it, even if he cannot reveal himself to the eye all at once because of his huge dimensions. We see him only the way a louse that sits upon him would do.” In that spirit, it seems to me that the Einstein phenomenon itself is, as it were, a grand, multi-dimensional lion, and that in this conference, acting together, we shall try to coax the lion from his lair and catch him with our various Euclidean nets. Of course, we cannot hope to comprehend the whole n-dimensional being once and for all. But each of us may try to map at least one of its dimensions and influence, from his days to ours.

I came upon this useful metaphor one day, in the early 1960s. The Estate of Einstein had earlier asked me to help put together the vast collection of his correspondence and manuscripts, then kept at the Institute for Advanced Study in Princeton, and to convert it into an archive accessible to scholars. The Director of the Institute, Robert Oppenheimer, had invited me to be a member of the Institute for this purpose. After having immersed myself at length in the glorious materials, I received from Oppenheimer a message that he wanted to speak with me in his office. I found him quietly sucking on his pipe, with a frown that signaled his wrenching ambivalence about Einstein. At last he asked: “So. What is the most important thing you have found out about Einstein?”

For a moment I was quite stunned. Surely I did not need to tell him about Einstein’s transcendental scientific genius. Then, out of the wealth of alternatives, I said that in those letters and manuscripts two things had struck me most. One was Einstein’s utter self-confidence, despite many setbacks. Max Planck called it “freudige Sicherheit,” joyful certainty. Of course Einstein knew well that eventually good experiments would decide. But when the very first response in the Annalen der Physik to Einstein’s Relativity paper reported in early 1906 it to be empirically a failure, as revealed by none
other than the foremost experimental physicist in the field, Walter Kaufmann of Göttingen, Einstein paid no attention to it for two years. Somehow he knew Kaufmann’s to be a bad experiment, which eventually turned out to be the case, and in the meantime he left it to Max Planck to defend Relativity, who said he valued “simplicity and intuitiveness” and, when pushed to the wall in a debate in 1906, had to fall back on saying about Einstein’s paper, “Mir ist das eigentlich sympatischer.” On his part, Einstein was apt to take the chance to be guided by what he called his Fingerspitzengefühl, rather than by the inductive method taught in schoolbooks—or, as he put it in a letter to Max Born: “I try to capture [the ‘objectively existing world’] in a wildly speculative way.” And indeed he was one of the rare scientists who had, again and again, an insight of what is still around the corner—a talent that Hans Christian Oersted had so memorably named “an anticipatory consonance with Nature.”

The other, related point that had struck me early in reading his documents was that Einstein very often let himself be guided, through thick and thin, by a few thematic presuppositions, which he called ”non-Kantian categories,” above all by these seven: unity (Kant’s own first Category), simplicity, generalization, logical parsimony, deterministic causality, completeness, and the continuum.

Oppenheimer, who was brought up to think quite differently in science, managed some pleasant remarks and went back to his pipe. But to me these were crucial findings, though I will not use this occasion to elaborate on it.

When we ask, who was Einstein?, we need not be discouraged by the obvious gap between him and those who study and write about his work. After all, Einstein too did not fully and properly describe himself. He tried to do so in his Royal Albert Hall speech in London, October 3, 1933, where he said only: “I am a man, a good European, a Jew.” But of course he had left out many of his other properties, about which we may be hearing in this symposium. His most obvious omission from his brief self-description was his role as scientist. That role was also the reason he had accepted the offer to come to Berlin in 1914, the place where at the time science was the best in the world, the place to be for a physicist. Even during the war years and in the decade that followed, despite the hardships, Berlin could boast of a constellation of extraordinary physicists, with their high standards and the exciting atmosphere in their colloquia and publications. One may
well ask how much these facts contributed to Einstein’s unique ability and daring to develop his General Relativity Theory in Berlin. Could he have done so if he had remained in Zürich? My own answer is: No other man than Einstein could have produced General Relativity, and in no other city than in Berlin.

So much has been written about the science Einstein left us in some 300 publications. But these are not sitting on some dusty shelf, as research material for historians. No, while there was often a substantial delay before Einstein’s ideas could be tested or used, they are alive today among active scientists around the globe, in a great variety of new work that testifies to his genetic role, in the explicit and implicit citations of new publications as well as in the rise of new technologies. The so-called ether drift, which Einstein dismissed in 1905 in one sentence, has been experimentally determined to be absent, to within $10^{-6}$ m/sec. This is common knowledge. The gravitational lensing effect which he published in 1936 turned out to work also for galaxies and much else. The Bose-Einstein condensate, predicted in 1925, helped to explain superfluidity in 1928, and just a few years ago even trapped light. Einstein’s 1924 prediction that matter waves would show interference effects was fulfilled three years later. Stimulated emission (1916) is at the heart of the operation of lasers. In many parts of the world a good portion of the electricity used daily comes from $E=mc^2$. The Equivalence Principle of General Relativity was finally confirmed in the elegant terrestrial experiments by Robert V. Pound and his students more than five decades after Einstein first intuited it. Gravitational waves, predicted in an article in 1918, have now become near certainty, by remarkable experimental techniques unknown in Einstein’s days. Again and again, the headline shouts, Einstein was right.

To be sure, his image is also alive in banal advertisements, on T-shirts, in the fantasies of people who know nothing about physics itself. On the Internet, the last time I looked, there were over 300 sales offers of dolls in the shape of Einstein and similar trivia. Something more will have to be said about this phenomenon. But it is a significant factor in Einstein’s ubiquity that today’s scientists, the best judges of his standing, find it safe and necessary to build their theories and experiments on what he achieved so many years ago, and that scientists continue to honor and celebrate him.

So, Einstein’s self-description should have been, at least: Scientist and Man, etc.
Man

I shall later add under the heading of “Man,” but one main point must suffice for the moment: It is the disparity between, on the one hand, the ever-approachable, humanitarian, kindly person with those eyes of a saint, always generous and vulnerable to pity, from his Berlin years on constantly using his fame on behalf of equality, liberty, moral conviction—and on the other hand, the puzzling and chilling picture Einstein often gave of himself. The louder the acclaim from the world outside, the more did he feel lonely, isolated, unable to have truly close relationships, like those he had had joyfully in the early decade of life with Mileva Marić, and a few close friends, as with Michele Besso, Marcel Grossmann, Paul Ehrenfest, and Max von Laue.

In March 1920, just a few months after having been catapulted to near-immortality by the confirmation by the eclipse expedition result of his General Theory of Relativity Einstein wrote these heart-wrenching lines to Max Born: “[I am] a person without roots anywhere….My father’s ashes lie in Milan. I buried my mother here only a few days ago. I myself have journeyed to and fro continuously—a stranger everywhere. My children are in Switzerland under conditions which make it a troublesome undertaking for me when I want to see them.” Ten years later, he writes the deeply introspective essay, “Wie ich die Welt sehe,” famous for the two sentences near the end: “The most beautiful experience we can have is the mysterious (das Geheimnisvolle). It is the fundamental emotion that stands on the cradle of true art and true science.” But earlier in that essay he said again: “My passionate sense of social justice and social responsibility has always contrasted oddly with my pronounced lack of need for direct contact with other human beings and human communities. I am truly a ‘lone traveler’ and have never belonged to my country, my home, my friends, or even my immediate family, with my whole heart…. Always seemingly approachable, according to those who knew him well, Einstein would quite often suddenly seem to leave our world, to withdraw into his own, the other one—perhaps the kind of transformation which Goethe called “a loving self-drowning into Nature.”

There are plausible speculations to try to understand what seems to us to be this example of Einstein’s complexity, of the apparent internal opposites which we shall encounter again. Einstein himself once wrote that his “kind of popularity…is forcing its
victims into a defensive position which leads to isolation.” But in studying the lives and works of others, such as Kepler, Bohr, and Fermi, I came in each case also upon puzzling diametricals, whether in their science or in their personal characteristics. I suspect that such perceptions made by us earth-bound persons may often be only an optical illusion. What appears to us down here as contrary parts may well be up there mutually coherent elements that combine and help to produce that extraordinary scientist’s particular brilliance. I call it the Rainbow Illusion, because that bright, intangible display, with its very different colors, is not really up in the sky, but appears only on our own retina.

I should also confess to an attractive speculation. Perhaps just because Einstein could live with and bridge what seem to us puzzling contradictions in his life and character, this man was able to find unities among the contradictions and dualities in the physics of his time, such as removing the antithesis between the electromagnetic and mechanistic worldviews, resolved by Relativity Theory; dissolving also the antithesis between the wave theory of light and photoelectric emission; making in 1909 a first attempt of a field theory to explain both the electron and the light quantum; and even overcoming the epistemological differences between empiricism and rationalism, as well as emotionally the contrary pulls of rationality and romanticism.

So: scientist, man, European, etc.

**European**

The historian Fritz Stern once wrote: “Einstein and Germany: they illuminate each other.” Especially because we are meeting in Berlin, we must not overlook Einstein’s familiar trait of apparent complexity on the topic of his nationality, too. Certainly he was a German, born in Ulm to a family that on both sides could trace its origins in Southern Germany back at least to the 17th century. He was educated up to his mid-teens in Munich, and later, starting from age 34, was the holder of most distinguished academic positions in Berlin for nearly twenty years. During the worst year of World War I, Einstein refused a very attractive offer to return to the University and Polytechnic in Zürich, especially, in his words, because he would not want to separate himself from his excellent colleagues in Berlin. In the immediate aftermath of that war,
he worked energetically against the isolation of German scholars. And, not to forget, he is listed as a German in the records of the Nobel Prize institution.

But it is equally well established that when it came to declare a choice, more often than not he rejected that nationality label, starting with his early flight from Munich to Italy and Switzerland, renouncing his German citizenship at the time. Especially from 1914, most memorably in 1933, after having again discarded his German citizenship (March 1933), he declared himself to be a European at a time when Europe meant chiefly only a geographical entity. Long before the pioneering vision of Konrad Adenauer, Jean Monnet, Robert Schuman, and Paul Henry Spaak, Europe existed as a political and economic entity only in the imagination of the likes of G. F. Nicolai, whose ill-fated manifesto of October 1914 called for the creation of “an organic unity of Europe,” or, from the ‘20s, in Count Coudenhove-Kalergi and his supranational Pan-Europa movement. That movement counted among its members Sigmund Freud, Thomas Mann, Rilke, Unamuno—and Einstein, who even wrote an article on Pan-Europa, and spoke out in defense of what he called “European civilization.” Again, as in his science, Einstein prophesied Europe’s eventual unification (as in his London 1933 speech) at the very time when it was being thought by almost all others to be blatantly utopian and impossible.

Today, with all its difficulties, there is of course an EU, and given the current hegemonic ambitions on other continents, there will soon have to be a stronger EU. But Einstein, the most famous and self-declared internationalist of his time, looked even beyond an organic unity of Europe, and lent his fame to that cause. He lived to see with pleasure the beginnings of one of the most promising developments in Western history—the rise of a previously unimaginable set of internationalizing institutions. With all their flaws and faults, their wrong starts and mistakes, today there is a UN and a UNESCO, a World Health Organization, and similar ones each for Food, for Trade, for Banking, an International Criminal Court, and international protocols on the Environment, on Arms Inspection, and on and on. A whole encyclopedia is devoted to listing international organizations such as these. And equally significantly, in science itself, where Einstein contributed not only to physics but also to chemistry, cosmology, mathematics, and inventive engineering, there is forming now a kind of Bose-Einstein condensate. To cite two parochial examples of a worldwide trend: A new building with the remarkable name
“Laboratory for Integrated Science and Engineering” is now going up next to our old physics building back home. It is to bring together faculty and students from about a dozen fields in common research. Also, a new doctoral program has just been established at the University, called System Biology, in which research is to combine biology, medicine, chemistry, physics, mathematics, and engineering. So as in international relations, something analogous is forming in science. It is not quite the dream of the Einheitswissenschaft of Einstein’s early hero, Ernst Mach, which, in the logical empiricist circles in Vienna and Berlin, became the Unity of Science movement in the 1920s and ‘30s, constantly invoking Einstein as a Vorbild. Indeed, in both world politics and world science, something is trying to be born, just as the man from Ulm had intuited, had hoped for, had worked for.

Still, there is again another side. While Einstein in his years in Germany was, in sociopolitical terms, only ambivalently a German, preferring to be a good European and even a world citizen, he presents another, quite different view if we look at one of his other dimensions which he did not mention in his brief self-description. That is, Einstein was quite recognizably a German Kulturträger.

Kulturträger

To be sure, Einstein’s reputation as an obstinate nonconformist, a defiant rebel, even as a vagabond and gypsy, as he repeatedly described himself, is solidly grounded in many of his actions, and it is also lively in the popular imagination. But there is equal evidence for viewing Einstein as a cultural traditionalist, even of the kind that the sociologist Karl Mannheim had identified as a free-floating intellectual (freischwebende Intelligenz), one without a well defined anchor in society. More than that, there is evidence that even Einstein’s science itself had roots in the standard Kultur of the period of his youth and his early years, in the European and especially in the German literary and philosophical cultural tradition.

Kultur in Germany was of course arguably a most widely shared identifier during the period not long before Einstein’s birth, when Germany was politically still an ungovernable pastiche of fragments. On Einstein’s interaction with German Kultur there is also some scholarly literature, and a major book to come out in a few months, written by my colleague, Dr. Gerhard Sonnert.
I need not linger long over Einstein’s German-based scientific education as part of his cultural preparation. In his very early youth, he read with enthusiasm such popular science books as Ludwig Büchner’s and Aaron Bernstein’s, as well as Alexander von Humboldt’s Kosmos. Later, we know from his so-called love letters to Mileva, written while he was hatching those key papers during the very period we are celebrating, that this bookworm—as even his mother called him—who always preferred self-cultivation, was carefully studying books and articles in physics. Here they all are, in the order which he listed them in those letters: Paul Drude, Helmholtz, Hertz, Boltzmann (“absolutely magnificent”), Ernst Mach, Wilhelm Wien, Kirchhoff, Ostwald, Planck, Lenard, Lorentz Voigt, and as we know from other sources, importantly, August Föppl. It is a splendid, almost entirely German diet for any young physicist in Wilhelminian Germany.

Bildung, the process by which the German of his day acquired the products and attitudes of Kultur, went of course far beyond learning only from science books. A biographer who was also a member of the family (Rudolf Kaiser) revealed that in the home of Einstein’s childhood, evenings would typically include listening to his mother playing classics of music on the piano, or helping him with his violin lessons from age six, perhaps introducing him already then to his life-long favorites, Bach and Mozart. His father would assemble the family around the lamplight to read aloud from writers such as Friedrich Schiller and Heinrich Heine. Through a regular guest of the family, Max Talmey, the precocious youngster was introduced to the philosophy of Immanuel Kant, starting with the Critique of Pure Reason, at the tender age of thirteen. He reread it at sixteen, and while a student at the Technical Institute in Zürich, young Einstein enrolled in an optional lecture course on Immanuel Kant, under Professor August Stadler. In 1918 he wrote to Max Born that he was reading Kant’s Prolegomena, saying he was “beginning to comprehend the enormous suggestive power that emanated from that fellow (von diesem Kerl), and still does.” Later, Einstein wrote a lengthy review of a book analyzing Kant’s philosophy, and he referred repeatedly to Kant’s ideas in his conversations and correspondence.

All this of course did not make Einstein a follower of transcendental idealism; but it is the background to Einstein’s own twist. He explicitly freed Kantian Categories from
their unalterable a priori, letting them be chosen freely, and thus making them a central tool in Einstein’s epistemology.

One could elaborate at length on this single example of the Bildung of this German Kulturträger. Here it must suffice to refer to one rough indicator. The team which has been assiduously preparing Einstein’s Collected Papers for publication found the curricula at his Munich Gymnasium and in his school in Aarau. So we have a familiar list of preparation or indoctrination for this typical young aspirant to the Bildungsbürgertum, year by year: first the Bible, Caesar’s Gallic Wars, Ovid’s Metamorphoses, poems by Uhland, Schiller, Goethe, and others; then more Goethe and more Schiller; Cicero, and Goethe again; and so forth. Outlining the plot of “Goetz von Berlichingen” was one of Einstein’s tasks during his final exam at the school.

We have also the extensive reading list of books Einstein discussed at length with two friends, Maurice Solovine and Conrad Habicht, at their frequent meetings in Bern of their private Akademie Olympia, sometimes several times a week, just during Einstein’s most creative period in science: There we find, for example, Spinoza, Hume, Riemann, Poincaré, Mach, Kirchhoff, Helmholtz, as well as literary classics from Sophocles on. Throughout his life Einstein was a man of the book, to a much higher degree than other scientists whom I have studied, and the remarkably diverse collection of volumes in his library grew constantly. Even if we look only at German-language books published before 1910 which survived in Einstein’s household in Princeton, the list includes much of the canon of the time: For example, Boltzmann, Büchner, Hebbel, the collected works of Heine in two editions, Helmholtz, von Humboldt, many books of Kant, Lessing, Mach, Nietzsche, and Schopenhauer. But what looms largest are the collected works of Goethe, in a thirty-six volume edition, and another of twelve volumes, plus two volumes on his Optics, one on the exchange of letters between Goethe and Schiller, and also a separate volume of Faust. Thus it was not a mere phrase when Einstein later mourned in a letter of 1917 that the downward spiral of German society “totally replaced the ideals of Goethe’s and Schiller’s era.”

Whether one agreed with all Goethe had written—and Einstein did not—Goethe was of course a touchstone for a cultured person in German-speaking countries. And so it is no surprise that as a student at the Zürich Polytechnic, young Einstein, while still
regarding himself as a kind of bohemian at war with the “philistines,” had also taken a second optional course while preparing to become just a high school science teacher. The title of the course was nothing less than “Goethe, Werke und Weltanschauung.”

Let me linger a moment more on that author as an exemplar in the cultural context from which, I maintain, some major German scientists seemed to draw courage for their originality. As all here know well, Goethe’s work was an essential part of the background of culture bearers in all fields. Some of Goethe’s writings were to be thought about, written about, and quoted to each other, usually without attribution, like a secret Masonic handshake of mutual recognition and cultural legitimation. Physicists of those days, such as Wilhelm Wien, Boltzmann, Sommerfeld, Max Born and Erwin Schrödinger, interspersed their lectures and books with quotations from Goethe. In Helmholtz’s volume of popular lectures, mostly on science, the first and last essays are both on Goethe—on which, by the way, Einstein wrote a review. Sigmund Freud ends one of his letter to Einstein by quoting two lines from Faust, and Einstein writes to Freud listing three “moral and spiritual leaders”—Jesus, Goethe, and Kant. Goethe was also the iconic center of a movement of German idealism and neo-Romanticism that stretched to the modern period.

The insistent message of that aesthetic-philosophical movement, which Einstein, that obsessed questor for “Verallgemeinerung,” was exposed to all his life, was the existence, as the physicist and historian David Cassidy put it, of “some sort of transcendent higher unity, the existence of permanent ideas or forces that supersede or underlie the transient, ephemeral world of natural phenomena, practical applications, and the daily struggle of human existence. The scholar, the artist, the poet, the theoretical physicist, all strove to grasp that higher reality, a reality that because of its permanence and transcendence must reveal ultimate ‘truth,’ and hence serve as a unifying basis for comprehending, for reacting to, the broader world of existence in its many manifestations.” And the historian of science, Anne Harrington, agreed when she wrote: “Goethe’s resulting aesthetic-teleological vision of living nature would subsequently function as one of the later generation’s recurrent answers to the question of what it ‘meant’ to be a holistic scientist in the grand German style.”
Certainly, there were additional forces at work to make the pursuit of holism important at the time. One need only mention the popular philosophical movement of Monismus, launched and propagated by such commanding scientists as Ernst Haeckel and Wilhelm Ostwald. Significantly, young Einstein turned to Ostwald in March 1901, asking for a position (of course, in vain). In his later correspondence, Einstein supported much of Monism.

In all this we see one of the main messages emanating from the surrounding culture, to which Einstein resonated in his central preoccupation: the search for a general Verallgemeinerung, for unity. As he put it in a beautiful essay on one of his heroes, Johannes Kepler, that search was the road toward “the mysterious harmony of the world into which we are born.”

When considering Einstein as a traditional carrier of culture, one must also not omit mentioning three points. One is that he not only absorbed the current culture but in turn also later stimulated poets and other artists. A second point is that in his role as a traditionalist Einstein constantly objected to the popular notion that the relativity theory was a revolutionary act, or as some recent writings put it, that it was “incommensurable” with previous physics. On the contrary. For example, Einstein even wrote a sort of counter-revolutionary manifesto in 1920. “Above all, I must note that in the development of science there occurs only a building up [Aufbau]…. It would be sad if the Relativity theory had to cause the fall of hitherto existing mechanics, similar to one tyrannical ruler causing the fall of another one. Relativity theory is nothing else than a further step in the hundred-years’-old development of our natural science, a step that preserves relationships found so far as correct, and makes them deeper and adds to them. Relativity theory causes the fall of the theories of Newton and Maxwell as little as the League of Nations annihilates those states that join it. They must allow some modifications of their own laws, but in turn they reach a higher level of security. I will touch on this in a little while.

The third point to remember is Einstein’s love for Spinoza and for Schopenhauer. Both these authors often were read by him, referred to, and quoted. They furnished emotional and intellectual support for Einstein’s desperate hold on the thema of scientific determinism, while the large majority of his contemporaries in physics went triumphantly over to the counter thema, to indeterminism. Today almost all scientists regard Einstein
to have been wrong on that point. But let us at least put into some Time Capsule the opinion of the then-reigning Dean of theoretical physics, P. A. M. Dirac. At the Centenary Symposium in Jerusalem in 1979, Dirac said:

“It might very well be that [a] new quantum mechanics will have determinism in the way that Einstein wanted. This determinism will be introduced only at the expense of abandoning some other preconceptions that physicists now hold. So, under these conditions I think it is very likely, or at any rate quite possible, that in the long run Einstein will turn out to be correct, even though for the time being physicists have to accept the Bohr probability interpretation, especially if they have examinations in front of them.”

So, Einstein as scientist, as man, as European, as culture carrier.

**Jew**

And, last but not least, as on Einstein’s own list, Einstein the Jew,—but a Jew whose theological views few rabbis would approve of. On that dimension in Einstein, with typical fluctuations between extremes, I need to say little here. His birth certificate listed him of course as “Israelitisch.” We remember that he reported on the first page of his *Autobiographical Notes* that as a child, through reading “the stories of the Bible,” he “came to a deep religiosity,” which he called his first “religious paradise of youth,” “a first attempt to free myself from the chains of the ‘merely personal.’”. He then abandoned that at age twelve, on finding his second paradise, namely science. At age about fifteen he had himself formally withdrawn from the roles of the synagogue. For some seventeen years more was essentially without denomination, or *konfessionslos*, as he wrote on his application for his Swiss citizenship of 1901. But Philipp Frank told me that when Einstein was appointed Professor at the German University in Prague in 1911, he had to fill out a questionnaire before delivering his oath of loyalty to the reigning monarch, Kaiser Franz Joseph. That was mandatory for all civil servants. When it came to record his religious affiliation on that sheet, Einstein began to write *konfessionslos*. A friend who was there stopped him, saying, “You must have some religion, otherwise you can’t take the oath.” So Einstein wrote, reluctantly, “Mosaisch,” and he later joked, “It was Franz Joseph who made me into a Jew.”
But what really reestablished Einstein’s life-long identification with what he called “our tribe,” was Berlin. As Einstein put it, “there I discovered for the first time that I was a Jew,” as well as experiencing a never-vanishing “feeling of strangeness” between Jews and other citizens. From 1914 on, soon after his arrival in Berlin, and more and more intensely in the wake of his fame of 1919, he became all too aware of the increasingly brutal anti-Semitism, and the vicious attacks on him from extreme segments of the public, as well as from some of his fellow scientists, including one Nobel Prize scientist (Lenard) who openly called Einstein’s theories “a Jewish Fraud.” To be sure, much of the rest of the world was also infected by that persistent virus. In his archive there is a letter by Einstein explaining why he chose in 1933 to live in Princeton instead of at the California Institute of Technology, where he had repeatedly visited, and where he been much honored and was wanted. Einstein wrote that he had not been happy that in California he had to go out so often to formal occasions, whereas he knew from a previous visit to Princeton, and from rumors, that this would not be required of him in Princeton because, he wrote, there was quite enough anti-Semitism there to keep him from being invited out so much.

Of course, Germany had been a very different story. In 1919, General Hindenburg was called to testify why Germany had lost the war. He had a ready answer: Germany’s brave soldiers had been betrayed, by a “stab in the back,” specifically by communists, Jews, and women. As early as 1920, the German ambassador in London felt it necessary to write confidentially to his Ministry of Exterior that “Professor Einstein is just at this time for Germany a cultural factor of first rank….We should not drive such a man out of Germany with whom we can carry on real Kultur propaganda.” One year later, with Nazi gangs already roaming the streets, Einstein told Philipp Frank that he was unlikely to remain in Germany for another ten years. As usual, his prediction was close to the mark. By May 1933, his books were among those being burned, and his property confiscated.

It was no accident that he had been away from Berlin in 1922, soon after his friend, Germany’s Foreign Minister Walther Rathenau, was assassinated in June of that year, in one of a large number of such murders since 1918 by right-wing, Nationalist fanatics. Einstein’s name was reported to be on the list of the next intended victims. He
cancelled his lectures, some of which had been interrupted by rowdies, and left, feeling it wise to accept invitations from abroad, that required a lengthy absence from Germany. As he put it frankly in a letter at the time, he felt he had to “escape the increasing danger.” After his journey to Japan, during which he heard about the award of his Nobel Prize, he found himself in February 1923 in Jerusalem. There he gave what was effectively the first major lecture at Hebrew University, whose establishment had become one of Einstein’s passions. But after his return to Berlin in 1923, Einstein was told of a continuing danger to his life, and he felt he had to flee again for a time, to Leiden in Holland.

From that time on, with a stubbornness which he often declared to be one of his most evident characteristics, Einstein became more and more openly and emotionally explicit about, and involved in, a Jewish identity, finally writing to Abba Eban in 1952: “My relationship to the Jewish people has become my strongest human bond.” Related to that, from his Berlin days on, Einstein was attracted to a particular view of Zionism—for two major reasons. One was that he thought a Jewish commonwealth in Palestine, then under British rule, would be a solution for the suffering and the precarious predicament of young Jews who were being denied access to education and employment in much of Europe, but who might flourish at the planned Hebrew University in Jerusalem. The other reason was to give the widely dispersed fellow religionists a spiritual home. Already in a letter of 5 April 1920 to a Jewish group, Einstein had declared that “only when we dare to consider ourselves as a nation, only when we esteem ourselves, can we earn the estimation of others, or rather it will come by itself.” As Isaiah Berlin put it in an essay, “Einstein and Israel,” Einstein’s “Zionism was grounded in the belief that basic human needs create a right to their satisfaction: men have an inalienable right to freedom from hunger, nakedness, insecurity, injustice, and from homelessness too.”

One may imagine that if Einstein somehow returned today, he would be most preoccupied with two topics—surely with the brilliance of today’s physics, but also with the tragedy of the Middle East.

Concluding this sketch of Einstein’s complex Jewish identity, one must note that just as he devised his own *physics* in resonance with German science and German
culture, he also invented his mature religiosity in resonance with earlier European philosophy and theology, above all with that of Baruch Spinoza, whom Einstein read and quoted and reread for half a century, and whose conception of the Deity as Reason embodied in Nature he fully accepted. In several essays, starting in 1930, Einstein described his own so-called Cosmic Religion, in which he tried, as usual, to bring together seeming incommensurables, this time the awe of religiosity and the passion for science. Einstein fashioned thereby what effectively was his Third Paradise, the unification of his early, first and second ones. In the pursuit of his elevated thoughts in science, he had found himself caught up in an emotionally deep religious experience, a glimpse of the vision of a divine Nature in her unity and harmony. He once defined his Cosmic Religion in highly charged words that summarized many of his dimensions, as well as returning in certain ways to his earliest, youthful preoccupation:

“The individual feels the vanity of human desires and aims, and the nobility and marvelous order which are revealed in Nature and in the world of thought. He feels the individual destiny as an imprisonment, and seeks to experience the totality of existence as a unity full of significance.”

These few lines seem to me to describe well one main theme running through Einstein’s life and thoughts, from beginning to end.

Epilogue

A Kulturträger, properly speaking, not only imbues and represents the culture of his time and place, but also stimulates others, widens their horizon, their imagination and vocabulary, though not necessarily always in synchrony with the original meanings. That process certainly was the fate of Einstein’s ideas and publications as others used them, usually to his surprise and puzzlement. Other lectures in our Symposium will no doubt trace Einstein’s influence on the shaping of the imagination of his contemporaries and their followers, in a great variety of fields. Drawing on an essay I have written some years ago on this subject, let me mention just a few cases here: Theologians, from the Archbishop of Canterbury to the prominent system-builder Paul Tillich, struggled hard with the implication of relativity and their understanding of “relativism.” As if in accord with Heisenberg’s remark that “the most important philosophical event of the century…is
modern physics,” philosophers, from Henri Bergson and A. N. Whitehead to logical empiricists in Europe and pragmatists in the U.S., adopted or struggled with some of Einstein’s work as they understood it. So did cultural anthropologists and psychologists, such as Claude Lévy-Strauss and Jean Piaget. Einstein had special trouble with some art historians who wanted him to be the father of cubism. And most of us have seen an Einstein impersonated on the stage, in plays and in an opera. Good poets and novelists by the dozen tried their hands at celebrating or incorporating some Einsteiniana, from William Carlos Williams’ poem “St. Francis Einstein of the Daffodils” to the second chapter in William Faulkner’s The Sound and the Fury.

A special case is Thomas Mann, whose skillful incorporation of carefully studied ideas from physics, biology and medicine run through many of his books, and particularly his Zauberberg. Thomas Mann recorded as an emotional highpoint of his life his meeting with Einstein in 1939, when he received from the hand of the physicist-philosopher the Einstein Medal. Thomas Mann’s response on that occasion deserves quotation here, for it puts in a few lines how the work of a great scientist is appreciated by a great humanist:

“Ich bin fähig, wenigstens zu ahnen, daß in der modernen Physik, deren weltberühmter Repräsentant Albert Einstein [ist], Dinge vor sich gehen, phantastischer als alles, was Dichtung ersinnen könnte, und wichtiger, verändernder für den Menschen und sein Weltbild, als alles, was Literatur zu leisten vermag. Von den revolutionären Geheimnissen dieser Vorgänge, deren Schauplatz und Werkstatt sein außerordentliches Gehirn ist, ist die Person Einsteins für mich umwittert.”

This accolade brings us to a final attempt to answer the question why Einstein is still so alive in the imagination of people in all segments of the globe—a fact which Einstein, who experienced the phenomenon constantly, was himself completely unable to explain, dismissing it as a case of mass hysteria. To the hints we have encountered so far, we must add one more. It is this: The lives and works of some scientists project to the wider populace a charismatic view of science. Building on Max Weber’s original discussion of “charismatic authority,” this concept has been the subject of some scholarly

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1 “I am able at least to divine that in physics, of which Albert Einstein is the world renowned representative, there happen things more fantastic than all that fiction can invent, and more important, more transformative for mankind and its world picture than everything literature can bring about….”
study to extend the concept to scientists, for example in Joseph Ben-David’s *Scientific Growth* (1991), and earlier in Robert K. Merton’s book of 1938, *Science, Technology and Society in Seventeenth-Century England*. In the section entitled “The Integration of Religion and Science,” Merton noted that among the scientists he studied, “the religious ethic, considered as a social force, so consecrated science as to make it a highly respected and laudable focus of attention.” The social scientist Bernard H. Gustin elaborated on this perception, writing that science at the highest level is charismatic because scientists devoted to such tasks are “thought to come into contact with what is essential in the universe.”

This observation catches precisely why so many persons the world over, despite or perhaps even because they know little about Einstein’s science, still seek after him and feel somehow elated, uplifted, when contemplating his iconic image. We may have here an example of the fact that parallel to mankind’s destructive passion, mankind also has a need to admire, to seek out objects that satisfy that need. As the historian Jacob Burckhardt said long ago, there is an essential “power of veneration in us.”

I began by positing the questions, who is Einstein for us, today, and what accounts for his being still so alive. I suggested that while we never shall fully fathom the rich complexity of that great lion, we can now dare to approach many aspects of his historic role. Let our Symposium begin.