

Einstein the Artist

by Shawna Halevy, part 1 of 2

My discovery was a result of musical perception.

—Albert Einstein

The current crisis situation in politics and economics, is in no way separated from the current state of the culture of society or its beliefs. The separation of the so-called emotional side of man in art, from the rational spirit in science is what started the corruption. We must reunite these soul-mates, art and science, by reviving a Classical culture, the sanctuary of the human soul, and return Classical art to the fountainhead of science.

Classical music is the domain that was self-consciously developed to sharpen the perceptions of the mind, and to exercise the emotion of a scientific epiphany. This medium, along with other forms of art such as painting and theatre, is not determined by an era in time, as the names Baroque, Classical, and Romantic imply, but by the timeless Socratic method and the intention to organize society to realize its innate potential. Albert Einstein's personality is exemplary of this purpose.

In order to return to a human culture, and truly progress, we should bridge the gap in generations that is the Baby Boomers. Not long ago, it was common knowledge that our best thinkers in science were also musicians, or perhaps poets, or painters; it was not even considered necessary to mention the musician scientist as a novelty, as it was a given that both realms were needed for a human being to have a balanced personality.

Case Study of Einstein and His Music: A Last Remnant of our Classical Culture

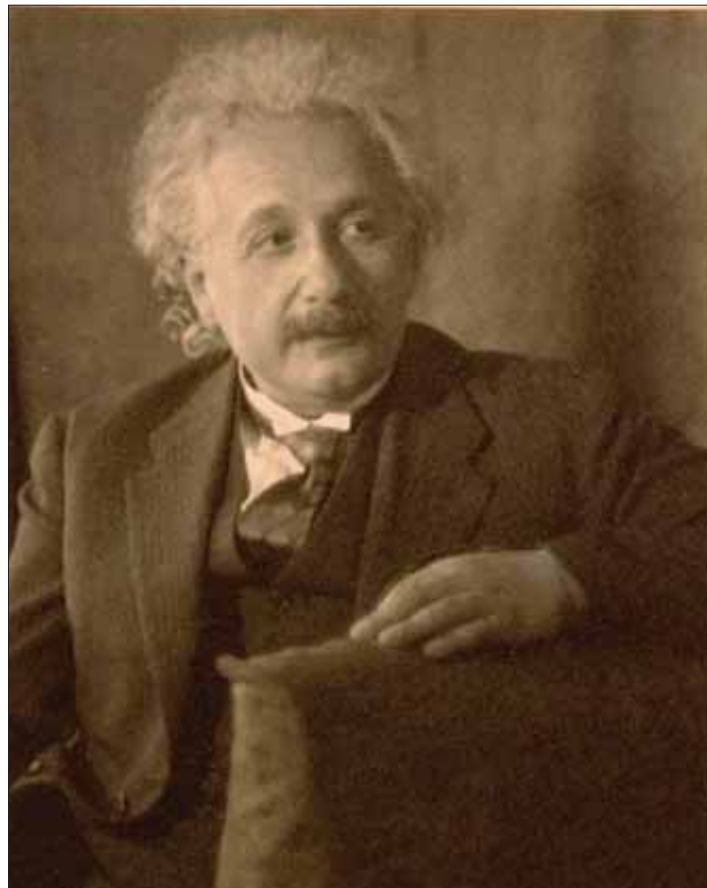
To start with, we can look to our past heroes as role models.

There's a poetic aspect to Einstein's works that does not exist in any scientific work today, which he shares generously in a most shocking and simple way. He has an intuitive drive to seek out the sufficient reasons in physics.

There's been recent criticism of Einstein's Theory, and when I started looking into it through his letters and lectures from colleagues, I found an open environment of debate, especially over General Relativity. Einstein was delighted that people took such interest in his Theory, "even if their intent is to kill it."

The period around 1919-21 of proving the General Theory, which took the whole modern world to accomplish, seemed to be a real struggle over scientific truth; though many of the people had bad approaches, they were still seeking for the most reasonable reality. That ended with the Solvay Conference of 1927.¹

Einstein's and his circle's opponents were mostly Newtonian loyalists or aetherist ideologues. But there were also many professional scientists who seemed quite offended that, after all their years of service, some guy from a patent office dared to shake the foundation of their physics.



Why was it Albert Einstein, out of all the competent physicists of his time, who discovered the Theory of Relativity? The reason must be: He thought as a creative artist would.

Consequently, their objections were academic; picking on the math of the theory, and accusing it of not playing by the rules, much like the criticisms of today.

Some physicists contemporary with Einstein who had differing theories were Gustav Mie, Max Abraham, Gunnar Nordström, and Friedrich Kottler. These men had already been working on their own theories of gravitation had held professorships for decades, and felt as though Einstein had side-stepped issues generally accepted as crucial. Some felt his novel approach would lead off into the wilderness, and that a more conservative approach was required. The environment at the turn of the century was ripe for fundamental change, as physics was in a crisis, which Einstein consolidated.

Max Planck's work on quantum phenomena disturbed the reliance on the cause-and-effect relation of the continuum; the discovery of radiation was challenging the conservation laws, and experimentation in electro-magnetism threw Newton's action-at-a-distance postulates into the wastebasket. Mie, being a materialist, was trying to develop General Relativity from the standpoint of a comprehensive theory of matter, missing the point of Special Relativity, which smashed all previous conceptions of the tangible universe.²

How did Einstein, out of all these other competent

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"Shown: Herman Einstein, his father; his mother Pauline; and below Albert with his sister Maya.



scientists who had the same, or perhaps more, access to the data, discover the Theory of Relativity?

Why is it that Einstein's thought was so original, as exemplified by his thought experiments, and had a sound epistemological method, while others, who were bright, were nonetheless held down by their formulaic beliefs?

The answer must be: his music. Even though others may have played music as Einstein did, Einstein did not just see music as a recreation: He thought as a creative artist would. This difference in thinking is what enabled Einstein to make breakthroughs in science by seeing the world through the eyes of a creator.

'Love Is a Better Teacher than Duty'

Let us quickly review the lesser-known side of Albert Einstein ((1879-1955). First, from his childhood:

Einstein's mother Pauline "had talent and liked to perform piano duets with engineers from her husband's factory. Einstein showed an early aptitude, starting to learn the violin at the age of five. By his own account his progress was only workmanlike until about thirteen, but he persisted, with his mother acting as eager accompanist at the keyboard."^{3,4}

It was the discovery of Mozart's sonatas that inspired Einstein to keep playing. "I took violin lessons from age six to fourteen, but had no luck with my teachers, for whom music did not transcend mechanical practicing. I really began to learn only when I was about thirteen years old, mainly after I had fallen in love with Mozart's sonatas. The attempt to reproduce, to some extent, their artistic content and their singular grace compelled me to improve my technique, which improvement I obtained from these sonatas without practicing systematically. I believe, on the whole, that love is a better teacher than sense of duty—with me, at least,

it certainly was. It is in fact, nothing short of a miracle that the modern methods of instruction have not yet entirely strangled the holy curiosity of inquiry; for this delicate plant, aside from stimulation, stands mainly in need of freedom; without this, it goes to wrack and ruin without fail. It is a very grave mistake to think that the enjoyment of seeing and searching can be promoted by coercion and a sense of duty."⁵

Later, "At age sixteen Einstein had an epiphany in the school cafeteria at Aarau. Reflecting on Bismarck's famous line that 'beer makes one stupid and lazy,' Einstein vowed that he would be a theoretical physicist and henceforth become intoxicated instead on physics and Kant's *Critique of Pure Reason*. To celebrate, he invited his friend Hans Bylandt to accompany him on the piano in a Mozart sonata. What happened next, Bylandt never forgot: 'When his violin began to sing, the walls of the room seemed to recede—for the first time, Mozart in all his purity appeared before me, bathed in Hellenic beauty with its pure lines, roguishly playful, mightily sublime.' "⁶ The gestalt psychologist, fellow musician, and friend of Einstein, Max Wertheimer, reports that it was also around this age that Einstein started grappling with the famous questions on light, that led, seven years later, to his discovery of Special Relativity.⁷

Einstein's had strong opinions about various composers: "Mozart's music is so pure and beautiful that I see it as a reflection of the inner beauty of the universe itself ... like all great beauty, his music was pure simplicity."⁸

"Einstein preferred the highly structured, deterministic music of Bach and Mozart. He imagined Mozart plucking melodies out of the air as if they were ever present in

the universe, and he thought of himself as working like Mozart, not merely spinning theories, but responding to Nature, in tune with the cosmos. To an insistent reporter asking his opinion of Bach, Einstein replied brusquely, 'This is what I have to say about Bach's life work: listen, play, love, revere—and keep your mouth shut.' He found Handel interesting, but somewhat shallow; some of Brahms he considered significant, 'but most of his works have for me no inner persuasiveness;' he thought Richard Strauss gifted but 'concerned only with outside effects;' and Debussy was 'delicately colourful but shows a poverty of structure.' After a performance at the Bern Opera, in 1908, of Richard Wagner's "Götterdämmerung," Einstein commented to his companion, 'Wagner is, God forgive me, not to my taste.' "

His dislike for Wagner was especially strong: "I admire Wagner's inventiveness, but I see his lack of architectural structure as decadence. Moreover, to me his musical personality is indescribably offensive, so that for the most part, I can listen to him only with disgust."

Einstein admired Schubert for his "superlative ability to express emotion."

One opinion sticks out as odd, that of Beethoven: "I think he is too personal ... almost naked ... I feel uncomfortable listening to Beethoven ... give me Bach rather, then more Bach. ..."

Not only was Einstein spiritually connected to the great composers of the past, but physically, he was in contact with the generation of students and followers of the last of the eminent musicians. Einstein had the chance as a teenager to see the famous violinist Joseph Joachim in Aarau, for which he studied the Brahms G-major violin sonata that was going to be performed. Joachim was a collaborator of the revolutionary circles of Felix Mendelssohn, Brahms, and the Schumanns.^{10, 11} Later, Einstein, Planck, and Joachim played music together, this being the best example of the well-known musicians who were in Einstein's intimate circle.¹²

Einstein's Violin: 'My Old Friend'

From Einstein's sharp critiques of Wagner, you see that it's not just any music that can stimulate human creativity. What's required is an art created by geniuses for the purpose of engaging the mind, to recreate ideas, instead of going for effects. Therefore, it's no wonder we lack creative thinkers like Einstein today, given the terrible state of music and culture. More important than asking, "Did Einstein like the right people?" would be, "What was it about the composer's method which he appreciated and used?" The answer to which is reflected in his thoughts about Mozart.

How does the beauty of Classical music work on your subconscious?

He called his violin "my old friend, through whom I say and I sing to myself all that which I often do not admit myself at all, but which at best makes me laugh when I see it in others."

How does it develop an intuitive sense?

"In music, as in physics, Einstein was never satisfied with mere technique; instead, he sought in both rhapsodic pleasure from an underlying harmony. His long hours in



Einstein called his violin, "my old friend." According to his son, "He would often play his violin in his kitchen late at night, improvising melodies while he pondered complicated problems. Then, suddenly, in the middle of playing, he would announce excitedly, 'I've got it!'"

Weber's laboratory, like his music lessons, sensitized Einstein to the delicacy of instruments in general, to the beauty and harmony that they could create, when properly used, and to the importance of caring for one's instrument. This sensitivity to precision instruments and their use in assessing theory against physical reality is one of the principal features of the young Einstein's writings.¹³

This adds a dimension to the use of instrumentation when investigating the universe; in art, we also use our instruments; not only do we respond to the effect produced by the instrument to get a picture of the reality outside us, we create it!¹⁴

The Function of the Imagination: An Organized Structure for Freedom

One could superficially ask, how directly was Einstein's work tied into his music? His second wife tells us in a letter: "Music helps him when he is thinking about his theories. He goes to his study, comes back, strikes a few chords on the piano, jots something down, returns to his study."

This reminds me of Plato's conception of recollection and innate ideas: The answer to a paradox exists nowhere but within yourself. You let your mind work to get an idea and you find it inside yourself.

"He had his music. But this, as he would explain on occasions, was in some ways an extension of his thinking processes, a method of allowing the subconscious to solve particularly tricky problems. ... He would often play his violin in his kitchen late at night, improvising melodies while he pondered complicated problems. Then, suddenly, in the middle of playing, he would announce excitedly, 'I've got it!' As if by inspiration, the answer to the problem would have come to him in the midst of music. ... Whenever he felt that he had come to the end of the road or into a difficult situation in his work, he would take refuge in music, and that would usually resolve all his difficulties."¹⁵

Einstein's violin was no magic wand. Art distills the

world of experience into its essential nature, leaving out all the accidents and limits of the material, leaving behind the actual substance of reality. This is what we are trying to obtain in physics. The reason why a thought process can be carried over from one realm to another (art to science) is because both realms are governed by the same universal principle of creativity.

An account of Einstein from his friend, the Japanese violinist and teacher Shin'ichi Suzuki,¹⁶ presents it more clearly:

"[My discovery of Special Relativity] occurred to me by intuition, and music was the driving force behind that intuition. My discovery was the result of musical perception."

Intuition is a subtle aspect of human work, though it plays such an important part. People who demand a practical or logical demonstration of something for it to be accepted, eliminate actual human science. True, this necessary discontinuity in thought needs to be educated and disciplined, but Einstein promotes the intuitive imagination as crucial, as seen in this exchange between Einstein and George Sylvester Viereck:

Einstein: I believe in the brotherhood of man and the uniqueness of the individual. But if you ask me to prove what I believe, I can't. You know them to be true but you could spend a whole lifetime without being able to prove them. The mind can proceed only so far upon what it knows and can prove. There comes a point where the mind takes a leap—call it intuition or what you will—and comes out upon a higher plane of knowledge, but can never prove how it got there. All great discoveries have involved such a leap.

Viereck: If we owe so little to the experience of others, how do you account for sudden leaps forward in the sphere of science? Do you ascribe your own discoveries

to intuition or inspiration?

Einstein: I believe in intuitions and inspirations. I sometimes feel that I am right. I do not know that I am. When two expeditions of scientists, financed by the Royal Academy, went forth to test my theory of relativity, I was convinced that their conclusions would tally with my hypothesis. I was not surprised when the eclipse of May 29, 1919, confirmed my intuitions. I would have been surprised if I had been wrong.

Viereck: Then you trust more to your imagination than to your knowledge?

Einstein: I am enough of the artist to draw freely upon my imagination. Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world."¹⁷

The element of play as exercised in music is seen as central to Einstein's character as described by his son:

"As a matter of fact, he always liked to improvise things of that sort, just as he would also like to improvise in his work in a way: for instance, when he had to give a talk he never knew ahead of time exactly what he was going to say. It would depend on the impression he got from the audience in which way he would express himself, and into how much detail he would go. And so, this improvisation was a very important part of his character and of his way of working. In other respects, he had a character more like that of an artist than of a scientist as we usually think of them. For instance, the highest praise for a good theory or a good piece of work was not that it was correct nor that it was exact but that it was beautiful."¹⁸

To be continued...

Footnotes:

1. For details on the Solvay debate, see: http://www.schillerinstitute.org/fid_91-96/943_tao.html

2. What we consider most real according to our senses and everyday experience is shown by Einstein to be continually changing, as mere shadows, and that the only "things" which have an invariant quality, are the invisible physical principles of the universe. Think of Plato's cave parable in providing an analogy of Being and Becoming. See the author's video: <http://www.larouchepac.com/node/15482> 3. Roger Highfield and Paul Carter, *The Private Lives of Albert Einstein*, (1994).

4. "One student, by name of Einstein, even sparkled by rendering an adagio from a Beethoven sonata with deep understanding." Inspector's report on a music examination, Aargau Kantonsschule, March 31, 1896.

5. Peter A. Bucky, *The Private Albert Einstein* (1993), and Einstein, *Autobiographical Notes*.

6. Arthur I. Miller, *Einstein, Picasso: Space, Time and the Beauty that Causes Havoc* (2001).

7. Max Wertheimer, *Productive Thinking*. An example of his thought experiment demonstrating the paradox of relative velocity and the constancy of the speed of light: "What if one were to run after a ray of light? What if one were riding on the beam? If one were to run after a ray of light as it travels, would its velocity thereby be decreased? If one were to run fast enough, would it no longer move at all?"

8. Bucky, op. cit.

9. "A Musical Visit with Einstein," from an interview with Lili Foldes, *The Etude*, January 1947: "The professor explained that he had found these works many years ago in a music library in Berlin, and immediately took to liking them. They were works of two Italian and two German masters of the eighteenth century: sonatas by Tartini, Corelli, Biber and a romantic sonata by Bach, familiar only to the connoisseurs of musical rarities. "Einstein was happy as a child seeing that a professional musician, a concert artist, was satisfied with his fiddling. He looked even gayer and more refreshed after an hour and a half of playing than before."

10. For more on this circle, see: www.schillerinstitute.org/music

11. <http://www.youtube.com/watch?v=f-p8YelQkxs>

12. From J.L. Heilbron's biography of Max Planck, *The Dilemmas of an Upright*

Man, another great example of a Classical imagination. "Planck's villa was full of music. He had the piano technique of a professional musician. As a student he had composed songs and an entire operetta for musical evenings in professorial houses; he served as second choir master in an academic singing group, played the organ at services in the students' church, conducted an orchestra, and studied harmony and counterpoint. At performances at his home he might accompany his good friend, the great violinist Joseph Joachim, or play in a trio that included Einstein; or he might lead friends, neighborhood children, and his twin daughters—who had inherited his musicality—in choral singing."

13. John Stachel, *Einstein: The Formative Years, 1879-1909* (2000).

14. For more on the topic of man using instrumentation to extend his sensorium and hence his knowledge of the world, see: <http://www.larouchepac.com/node/17945>. Also from Frederick Schiller's *Aesthetical Letters*, number 13: "The more diversely the receptivity [for sensuousness] develops, the more variable it is; it offers more points of contact to phenomena, thus man apprehends the world much more, and develops more faculties in himself. The more power and depth the personality gains, the more reason gains freedom, so much more man comprehends the world, thus the more form he creates out of himself. Therefore his culture will consist in two things: first, in procuring for the receptive powers the most diverse contacts with the world, and to render sensations as passive as possible; secondly, to acquire for the will the highest independence from the senses, and, to push reason's activity to its maximum. Where both qualities unite, man will combine the greatest fullness of existence with the greatest independence and freedom. And, instead of abandoning himself to the world, he will rather draw it into himself with the whole infinity of its phenomena, and subject it to the unity of his reason. To summarize: only in so far as he is independent, is reality outside him, is he receptive to it; only in so far as he is receptive, is reality in him, is he a thinking power."

15. Hans Albert Einstein (1904-1973), the second child and first son of Albert Einstein and Mileva Maric.

16. Shin'ichi Suzuki, *Nurtured by Love: The Classic Approach to Talent Education* (1986).

17. George Sylvester Viereck, "What Life Means to Einstein: An Interview," *The Saturday Evening Post*, Oct. 26, 1929.

18. G.J. Whitrow (Mayes interview with H.A. Einstein) *Einstein: The Man and His Achievement* (1986).