

Classical Music and Scientific Discovery

The LaRouchePAC Weekly [Report](#) of Jan. 2, the first of the New Year, addressed the question of the relationship between the passion for Classical art—in particular, music—and scientific genius, as this relationship was personified in the two leading scientists of the 20th Century: Albert Einstein and Max Planck, both of whom were accomplished amateur musicians.

Participating with Lyndon LaRouche in the discussion were LPAC Basement Team researchers Shawna Halevy and Jason Ross.

Halevy began by noting that, while most people know that Einstein was the father of $E=mc^2$, the world's most famous equation, what they don't know, is that Einstein attributed his scientific ability to his connection to music.

This is what Einstein said (quotes are as read):

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.

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

I believe in the brotherhood of man and the uniqueness of the individual. But if you ask me prove what I believe, I can't. You know them to be true, 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, the mind comes out upon a higher plane of knowledge, but can never

prove how it got there. All great discoveries have involved such a leap.

Einstein understood, Halevy pointed out, that knowledge, per se, can only take you so far; after that, you have to make “a leap.” And that's where music comes into play. Music is specifically designed to help the mind make those leaps. A great composer, such as Mozart or Beethoven, “will take an idea, develop it to a point where it's consistent within itself; but then they will introduce a singularity, they will introduce an irony, something that doesn't quite fit with the picture. And after that gets developed, you actually see that this paradox, something that seems like a flaw in your landscape, leads you to a higher plane, which subsumes what came before.

“So even though, at first, the paradox seemed out of place, or maybe something you would like to ignore to keep the beauty of the piece consistent, you see that on the other side of that paradox, it was a bridge to something higher and more beautiful and more perfected, than what the piece was doing to begin with.”

The Fight for Causality

In his remarks, Jason Ross reviewed the fight that Einstein waged against the quantum mechanists, who attacked him because he refused to abandon the idea of causality. To them, Einstein said:



Einstein: “My discovery of special relativity occurred to me by intuition, and music was the driving force behind that intuition.”

I believe that events in nature are controlled by a much stricter and closely binding law than we suspect today, when we speak of one event being the cause of another. Our concept here is confined to one happening within one time section. It is dissected from the whole process. Our present rough way of applying the causal principle is quite superficial.

We are like a child who judges a poem by its rhyme, and not by its rhythm. Or, we are like a juvenile learner at the piano just relating one note to that which immediately precedes or follows. To an extent, this may be all very well, when one is dealing with simple compositions; but it will not do for the interpretation of a Bach fugue. Quantum physics has presented us with very complex processes, and to meet them, we must further enlarge and refine our concept of causality.

In a similar vein, Planck said:

Where the discrepancy comes in today, is not between nature and the principle of causality, but rather, between the picture which we have made of nature, and the realities in nature itself. Our picture is not in perfect accord with the observational results, and, as I have pointed out, over and over again, it is the advancing business of science to bring about a finer accord here. I am convinced that the bringing about of that accord must take place, not in the rejection of causality, but in greater enlargement of the formula and a refinement of it, so as to meet modern discoveries.

At another time, Einstein is asked: "There are many scientists who believe that the outer world is just part of our own inner imagination." He answers:



Planck: Science cannot solve the ultimate mystery of nature. . . . Music and art are, to an extent, also attempts to solve, or at least express that mystery.

No physicist believes that. Why would anybody go to the trouble of gazing at the stars, if he did not believe the stars were really there? Here I am entirely at one with Planck. We cannot logically prove the existence of the external world, any more than you can logically prove that I am here, talking to you right now. But you know that I am here, and no subjective idealist can persuade you to the contrary.

And Planck:

Science cannot solve the ultimate mystery of nature, and that is because, in the last analysis, we ourselves are part of nature, and therefore, part of the mystery that we are trying to solve. Music and art are, to an extent, also

attempts to solve, or at least express that mystery. But to my mind, the more we progress with either, the more we are brought into harmony with all nature itself. And that is one of the great services of science to the individual.

The Mind Is the Subject

In conclusion, LaRouche said, "The point is, that the true expression of principles of science, are actually those of Classical artistic composition. And it's when you look at the world, your experience of it, through the ideas of Classical tradition, and you see the progress in what is called the Classical tradition, which goes to the functions of the mind themselves. *It's the mind itself that is the subject.* And it's the ability, through the development of the mind, that mankind is able to acquire higher orders of language, higher orders of physical science. Without Classical art, that could never have existed."