

Einstein and his love of music

As a keen and talented violinist, music was one of Einstein's life-long passions. His musical tastes, however, were distinctly conservative, as **Brian Foster** explains

As we celebrate the centenary of his seminal 1905 papers, it is humbling to note that Einstein was not only the outstanding scientist of the 20th century, but also a gifted and enthusiastic musician. He once said that had he not been a scientist, he would have been a musician. "Life without playing music is inconceivable for me," he declared. "I live my daydreams in music. I see my life in terms of music... I get most joy in life out of music."

Einstein's mother, Pauline, was a talented pianist who brought music to life in the family home. Albert began to learn the violin at the age of six, while his family was still living in Munich. However, he toiled under unimaginative tuition until discovering the joys of Mozart's sonatas at the age of 13. From that point on, although he had no further lessons, his violin remained his constant companion.

When Einstein moved to Aarau in Switzerland in 1895 to complete his schooling, he seems to have devoted a good deal of his time to music. It is recorded that he worked hard on the Brahms G-major violin sonata in order to get the full benefit from a visit to Aarau of the great violinist Joseph Joachim, on whose programme it appeared.

Just before his 17th birthday Albert played at a music examination in the cantonal school. The inspector reported that "a student called Einstein shone in a deeply felt performance of an adagio from one of the Beethoven sonatas". In addition to his prowess on the violin, he also played the piano and, in particular, loved to improvise.

Music for fun and physics

Music was not only a relaxation to Einstein, it also helped him in his work. His second wife, Elsa, gives a rare glimpse of their home life in Berlin. "As a little girl, I fell in love with Albert because he played Mozart so beautifully on the violin," she once wrote. "He also plays the piano. 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."

In later life, his fame as a physicist often led to invitations to perform at benefit concerts, which he generally accepted eagerly. At one such event, a critic – unaware of Einstein's real claim to fame as a physicist – wrote, "Einstein plays excellently. However, his world-wide fame is undeserved. There are many violinists who are just as good".

One wag, on leaving another concert in which Einstein had played, commented, "I suppose now [the Austrian violinist] Fritz

Kreisler is going to start giving physics lectures".

There are nevertheless conflicting accounts of his musical abilities. Probably the least generous come from great artists, of whom Einstein counted many as personal friends as well as chamber-music partners. These included the pianist Artur Schnabel, the cellist Gregor Piatigorski, and Bronislaw Huberman, one of the most remarkable and idiosyncratic violin virtuosos of the 20th century.

In 1936 Huberman visited Einstein in Princeton to discuss his plans to found the orchestra that eventually became the Israel Philharmonic, of which Einstein was a prominent supporter. Probably the summary of Einstein the violinist that comes

nearest to the mark comes from his friend Janos Plesch, who wrote, "There are many musicians with much better technique, but none, I believe, who ever played with more sincerity or deeper feeling".

Conservative tastes

The physics revolutionary who overturned the classical universe of Newton was nonetheless deeply conservative in his musical tastes. He adored Mozart and worshipped Bach, of whom he wrote in response to an editor, "I have this to say about Bach's works: listen, play, love, revere – and keep your trap shut". Beethoven he admired but did not love, while Schubert, Schumann and Brahms gained only guarded and partial approval.

Indeed, the more contemporary the composer, the less enthusiastic Einstein became. Of Wagner he said, "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".

Despite having been offered the chance to own a Guarneri, Einstein preferred to play a much less distinguished violin, leaving the great instruments to those whom he felt really needed their power and complexity. Towards the end of his life, as he felt facility leaving his left hand, he laid down his violin and never picked it up again. However, Einstein never lost his love for the instrument. As he once said, "I know that the most joy in my life has come to me from my violin".

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Listen and learn

Einstein Year will encompass many celebrations of his science, personality, interest in peace and engagement with the state of Israel. Few of these events would have been closer to his heart than the world tour of concerts to celebrate World Year of Physics being undertaken by one of the most brilliant of young UK violinists, Jack Liebeck. This series will open with a gala concert in London organized by the Institute of Physics on 14 March – Einstein's birthday.

Liebeck and I will also be touring with a lecture that mixes physics with specially commissioned music from two outstanding young UK composers, Emily Hall and Anna Meredith. Funded by the UK research councils, the performances will mostly be in schools and concert halls in the UK, but also in venues stretching from the US to Korea. The lecture will look at how our understanding of the universe has developed through modern ideas of particle physics and cosmology up to the concept of superstrings.

Liebeck uses his great Guadagnini violin, the "ex-Wilhelmj", made in 1785 to demonstrate some of the concepts in the lecture by analogy. For example, the sequence of harmonics on one violin string represents the mass spectrum of some families of particles in superstring space. I hope that this lecture will not only introduce those interested in physics to music played by a superb violinist, but also that lovers of music will gain an appreciation of the excitement of physics.

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