

The Einstein exposition in Bern

Recently, I had the opportunity to visit the Einstein exhibition being held in Bern, Switzerland. It was an enriching experience that I would like to share with readers and maybe if some do get a chance, they should look it over.

Many a graduate student would have been fascinated by Albert Einstein's papers of 1905 (see Rao, K. R., *Curr. Sci.*, 2005, **89**, 589–590) and more often perhaps exasperated by the difficulties in understanding them! Any effort in making his work comprehensible to the layman is worth it and the exhibition at the Historical Museum, Bern (on from 16 June 2005 to 17 April 2006 with a short break in December) attempts to do so. It shows his life and times as an icon of 20th century science and as a witness to far-reaching social and political changes. Bern was chosen for the exhibition since it was there while employed at the patent office from 1902–1909 that he published those most important papers.

The exhibition covers all aspects of Einstein's life – especially Jewish environment in early life, family background beginning with grandparents, education in Germany and Switzerland, social life in Europe in early 1900s and later till he left, Einstein's marriage, his women friends, anti-Jewish sentiments in Europe and its effects on Einstein, politics before and after Hitler, besides the science. Hence I would call it an exposition.

Many original documents are displayed. Einstein's birth certificate, passports, mark sheets and grade certificates during his education, etc. They are in German, but an explanation is given in a majority of cases. The grading in examinations is up to a maximum of 6 in the Swiss system (even now) and I saw that Einstein had 4 or 5 in most subjects. He landed the patent office job after trying and failing to get a teaching job due to lack of publications and a postgraduate degree, both of which he managed while in Bern. Some original research notes are exhibited. A patent on refrigeration that he obtained with Leo Szilard while at Bern is on display. His papers got him a position in 1909 in Zurich University from where an attendance register to his class on 'heat' is shown with just three students attending (his colleagues from the Bern patent office!). After his papers became famous, he got

his first professorship at Prague in 1911, which he left in about a year and subsequently took similar positions in Zurich Polytechnic and later for a long time at the University of Berlin, till he left for the US in 1933. Einstein seems to have got exempted from military service since he suffered from flat feet and varicose veins! The documents related to this are displayed. During the First World War period itself, he held pacifist views. He had relinquished German citizenship as early as 1896 and had become a Swiss citizen in 1901, that he held on to even after obtaining his American citizenship. The American citizenship document is on display and the Swiss express their happiness that he retained the citizenship of their country also. Another interesting document is a gently sarcastic letter refusing to attend a Jewish congregation, making a remark that God is unlikely to recognize him as a good Jew. The letter offering him the position of the President of Israel is on display, as well as his refusal. Both are in German. The Nobel Prize that Einstein won is exhibited, as also those of some other Swiss recipients. The famous letter Einstein wrote to President Roosevelt suggesting the making of the atomic bomb and the latter's reply (both originals) are displayed. Einstein was not involved in the Manhattan project possibly because of his pacifist views. The FBI prepared a dossier on him and a copy is there at the exhibition. This was possibly done later, after he made known his views on the dangers of atomic war. One among his women friends was also suspected to be a Russian spy.

A lot of information with photographs is given about the women in his life. One comes away with a feeling that he was less than fair to his first wife Mileva Maric. Till date, it is not known what happened to their first child – a girl born in 1902 before his official marriage. Books published on the personal affairs of Einstein are on sale at the exhibition.

The science behind his work is well explained by different means – experimental set-ups as well as videos. Visitors can operate the experimental set-ups to understand the photoelectric effect and Brownian motion. The constancy of the speed of light is shown by a video as also the Lorenz contraction. One can pedal a

bicycle as if on the road to the Bern patent office that is shown in front with the present-day buildings on either side. The changes as your speed approaches 30 kph, if it were the speed of light are nicely depicted in front on a large screen. One is reminded of the drawings in Gamow's Mr Tompkins books. I was naturally keen to see if S. N. Bose of the Bose–Einstein statistics was mentioned anywhere but apart from colleagues at the patent office, there are no details of any co-workers. Maybe the organizers felt that only Einstein need be highlighted. Different video presentations also describe Einstein's concept of gravity, curved space and space-time continuum and the present theories. Attention is drawn to the movie *Contact* based on Carl Sagan's book, where the heroine travels through time by passing through a 'wormhole'. Photographs from the latest satellite probes are used to present a journey through the solar system, stellar and galactic evolution, black holes, etc. The experiments related to Einstein's general theory of relativity and gravitation are explained. The possible detection of gravity waves is shown, as also details of the proposed LISA (Laser Interferometer Space Antenna; web: <http://lisa.jpl.nasa.gov/>) satellite mission in 2013 to detect it.

Short films of Einstein lecturing with his German accent, dropping of the two atomic bombs and its aftermath, Goebbels' anti-semitic rhetoric in German, and Jewish pogroms and the community's sufferings are also shown on TV screens.

The exhibition shows all facets of Einstein's life and I think it is an extremely good effort in educating the public as well. The organizers say no expenses have been spared (reflected in the entrance fee of 24 CHF equivalent to about Rs 850!). Most of the original documents have been obtained from the Hebrew University, Jerusalem to which Albert Einstein had bequeathed his private papers. Apart from the exhibition, one can visit other places in Bern with which he was associated, like houses where he stayed, the patent office, University of Bern, etc. – all for a fee!

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