

Celebrating centenary of Einstein's miracles

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If one were asked to name a famous equation in Physics, the answer would most probably be $E = mc^2$. The proponent of that famous equation is of course Albert Einstein. The year 1905 is famous to all physicists the world over, because in that year Einstein published three diverse and monumental papers that changed our whole outlook of the physical world. The three papers were on the quantum nature of light, the Brownian motion and the special theory of relativity. Given the impact of those papers in modern physics the United Nations General Assembly (contained in document A/58/L.62) declared the year 2005 the World Year of Physics the 100th anniversary of Einstein's miraculous year. It also invited the United Nations Educational, Scientific and Cultural Organization (UNESCO) to organise activities celebrating the year, collaborating with physics societies and groups throughout the world.

The World Year of Physics (WYP) 2005 is of course an endeavour by physicists, scientists and others across the world whose aim is to raise awareness of physics amongst the public in general and bring forth the tremendous contribution of physics to our everyday life in particular. One of the best ways to do so is to highlight its impact in science and technology through holding seminars, scientific discussions, displays and rallies etc. The Year should be the occasion to begin debates on the great need for scientific research in the twenty-first century. These should also address the various social issues as well as ethical questions. The Year should also encourage women to more actively participate in its advancement. While trying to focus on the contributions of physics let us also not forget to honour and understand the man Einstein.

Einstein's childhood years

Albert Einstein was born to a middle-class German Jewish family in 1879. He was a very quiet child and hardly talked until he was about three years old which led some to believe that he was a backward child. Einstein quit school at age fifteen, fed up with the strict academic disciplines and rote learning. He was so disgusted with school that for the next six months he wandered around doing

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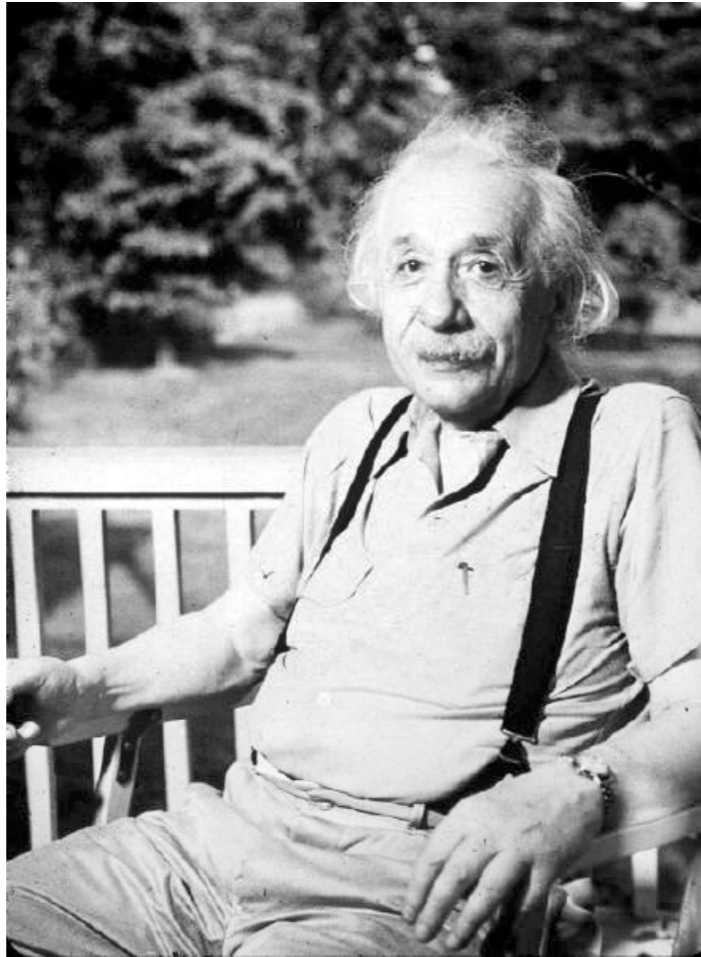
nothing. Geometry, however, fascinated him. The next year (1895) he enrolled into the Federal Institute of Technology in Zurich. For the next five years he worked very hard in the laboratories but skipping lectures, and graduated with an ordinary degree. The next two years he did various odd jobs until finally he got a post as a patent examiner.

Relativity and other works

Einstein wrote three fundamental papers in a matter of few months (1905) that shot him into prominence and brought him instant fame. The first of which proposed that light under certain circumstances behaved like particles with discrete energies called quanta. The second of which gave an explanation to the Brownian motion in terms of the theory of heat. The third paper, by far the most famous of them all, addressed the connection of electromagnetic theory and ordinary motion propounded in what is known as 'special theory of relativity'. Einstein during the course of those works is believed to have said I want to know how God created this world. I am not interested in this or that phenomenon, in the spectrum of this or that element. I want to know His thoughts; the rest are details.

In 1909 Einstein became an assistant professor at the University of Zurich. In 1911 he moved to the German University of Prague and the following year was appointed a Professor of Physics at the Federal Institute of Technology in Zurich. In order to devote completely to research, Einstein left his teaching job and moved to Berlin. In the meantime Einstein completed his work on 'General Theory of Relativity' that gave new understanding to space and time, and gravity. Confirmation of his theory came in 1918, when British astronomers confirmed the bending of starlight by gravity exactly as Einstein predicted.

Einstein received the Nobel Prize in physics in 1924 for his work on the quantum theory of light. He traveled extensively during this period also supporting various pacifist and progressive parties. Meanwhile his scientific work continued in ways to unify



Albert Einstein (1879-1955)

electromagnetism and gravity. In 1929 he propounded the unified field theory but the mathematics could not be compared to experiments and so the search for a useful theory had just begun. Unable to compromise with the then Nazi rulers Einstein migrated to the United States in 1933 and joined the Institute for Advanced Study in Princeton, New Jersey. Einstein became a US citizen in 1940.

The final days

Einstein was asked to become the second President of the State of Israel, but declined. He was supporting many causes, such as the United Nations, Nuclear Disarmament, and Civil Liberties etc. The search for a true unified field theory for a more profound understanding of nature continued to fill Einstein's days. While corresponding about a new anti-war project and writing a speech for Israel he was taken ill and died

in 1955.

WYP in Bangladesh

Physics departments all over the country, science museums, laboratories, science teachers and others can plan and organise events that raise awareness of physics and science in their communities.

On the national scale, however, the Ministry of Science and

Information and Communication Technology has kindly consented to be joint organiser for all the events of the Bangladesh Physical Society in celebrating the World Year of Physics 2005. The activities that have been planned include the following, among others:

- λ Regional Physics Conference : The Inauguration will be held at the Auditorium of Shishu Academy, Dhaka, while the Technical Sessions will be held at the Atomic Energy Centre, Dhaka. BPS also plans to hold a rally, starting immediately after the inauguration from Curzon Hall and terminate at the Teacher Student Centre of Dhaka University (date to be announced).

- λ One day Seminar in Chittagong University : It will be on the theme "Physics and Nature" where natural calamities (like the recent Tsunami in Asia) will be discussed.

- λ One day Seminar at Jahangirnagar University : It will be on "Physics and Society" highlighting the contributions of Physics to contemporary society.

- λ One day Seminar in Dhaka : It will be on improving the education in Physics at the pre-university and university levels. BPS plans to involve the Physics Teachers' Association in the Seminar.

- λ One day Seminar on employment of Physics graduates in collaboration with the employers (FBCCI) will be requested to participate).

- λ Physics Olympiad.

- λ Bose Memorial Lecture.

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Tribute to a great soldier

AKKU CHOWDHURY

As part of the Liberation War Museum's 2nd anniversary celebration, when Mofidul Hoque suggested to invite Lt. Gen. Aurora as the Guest of Honour, I thought it was a great idea but my only question was why should he come on our invitation. I felt we needed a contact person and I was quite sure the IHC would not be very willing about it as he had a show down with Indira Gandhi during the showdown on Golden Temple in Srinagar. It turned out that Dr. Anisuzzaman had met the General and had his telephone number. So on 2nd March we had the Professor over at the Museum and called the General inviting him as the guest of the Museum. The General accepted and the invitation was extended to include our 'independence day' celebration. Mofidul and I were thrilled and the next day the proposal was placed to the Board of Trustees. The Board overwhelmingly accepted the programme and an itinerary was set from March 20 to 25.

As we discussed the upcoming visit by such an icon of our liberation war with the freedom fighters there was a great excitement. On personnel level the enthusiasm was overwhelming. But we were meeting roadblocks trying to get an official stamp to the visit. We were hoping the government would come forward to give him a 'VIP' status. Unfortunately we were getting nowhere. A valiant freedom fighter Matin Chowdhury was of great help in trying to pull all his connections but to no avail. He and I spent hours trying to find ways to set appointments with all high officials without any luck. At last we gave up and set our own arrangements to make his visit a 'grand' one from private citizens. Matin arranged a grand dinner with freedom fighters for one night and we set out visits to Museum, Smriti Shoudha, Shikha Chironton etc. Our friends in the print media were very excited and promised to give us all out support that they surely did, as always.

On the day of March 20, he arrived, and our friend freedom fighter Zafar, who was the boss in the civil aviation, arranged for the VIP lounge to receive him. From the airport we drove him to the Sheraton Hotel so that he could rest. I had promised his daughter I would make sure he was not over exerted and followed his diet and took the medicine. I became his aide-de-camp and attached myself from morning to night to his services. It was one of my greatest moments to have spent so much time with one of the Heros of our Liberation War.

We spent hours in the car traveling from one appointment to another and shared reminiscences of the great moments of 1971. I have come to know him and respect him much more by that attachment. He shared memories of his personnel life, of his youth when as a young lieutenant he was married to the beautiful woman whom he loved so dearly and that on the historic moment of December 16, 1971, when he came to Dhaka to accept the surrender of the Pakistan Army, she accompanied him. It was not a journey free of possible risk, but he was not going to deny to his love the joy of sharing the most precious moment of his life.

While talking about our freedom fighters, for which he had great admiration, respect and love, he also recollected his frustrations that were overpowered by his determination of the ultimate goal to assist in the liberation of Bangladesh. He recalled General Zia as a professional soldier and a valiant sector commander and remembered fondly later meeting him as the President of Bangladesh.

When Aurora was made the commander of the Eastern Command to lead the war against Pakistan Army it was one of his high point of life. He was professional to the hilt and took the challenge as a true



Late Lt. Gen. Jagjit Singh Aurora

soldier and promised to deliver within the set time. He did it and after the war when the job was done he made sure his troops left Bangladesh in the shortest time possible. He was the commander of an allied force, not an occupying army, which he kept reminding both his superiors and subordinates. He wanted to make sure his troops were in Bangladesh for the shortest possible time and departed as soon as possible.

Not only that, it was his professional duty to make sure neither his allied victorious troops, the Indian Army or the Bangladesh Forces, were indulged in any looting, arson or vendetta against the defeated forces, which were not only the Pakistan Army under his custody, but the Biharis, collaborators such as Razakars, Al-Badr and Al-Shams. He took stern action against the perpetrators and was very displeased when a few collaborators were publicly punished at Paltan Maidan by some freedom fighters. Many may criticize General Aurora's such professionalism but for that in today's world Bangladesh can be a shining example of not seeking vendetta after its victory.

After he returned to India he was awarded the Padma Bhushan for his command during the war and retired from the military services. In 1984 he fell out of favour with Indira Gandhi as he opposed the security forces' 'Operation Blue Star' at the Golden Temple. When she was assassinated in October the same year, he condemned the assassins for such a cowardly act. He took up the cause of victims of anti-Sikh riots following the assassination of Indira Gandhi. In 1986 he was elected to Rajya Sabha, the upper house of the Indian Parliament, as a candidate of Shromani Akali Dal.

Although many of his compatriots from the 1971 on both sides wrote many books he never penned his experiences except for giving a few interviews, for which he got in trouble. When I asked him why he never wrote, his simple answer was 'I am a soldier not a scholar'. I remember Lt. Gen. J S Aurora as an excellent soldier and a thorough gentleman. He will always live on, as good soldiers never die.