



## Jagdish Chandra Bose

*D.K.Hari & D.K.Hema Hari, Founders, Bharath Gyan*

### A Multidimensional Scientist

He is the father of Bengali fiction. IEEE honoured him as one of the fathers of radio science. A crater on the moon is named after him. A polymath, biologist, physicist, botanist, biophysicist, archaeologist all rolled into one, and also a writer of English fiction. He was India's first modern scientist and the first scientist to discover that plants too are living beings and have similar life cycles and functions like animals. As a biophysicist, he invented the crescograph, an instrument for measuring the growth of plant. When we speak of the contributions of this multidimensional scientist, words are found lacking. He is today reverentially known as Acharya Jagadish Chandra Bose.



**Acharya Jagadish Chandra Bose**

### Birth and Education

J C Bose came into this world on November 30<sup>th</sup>, 1858, at Munishiganj, Bengal Presidency, in today's Bangladesh. He started his education in a Bengali vernacular school.

Bose gives us a glimpse into his childhood upbringing, at the Bikrampur Conference speech of his in 1915. This is recorded in the book '**Jagdish Chandra Bose**', a biographical account by Vishvapriya Mukherji.

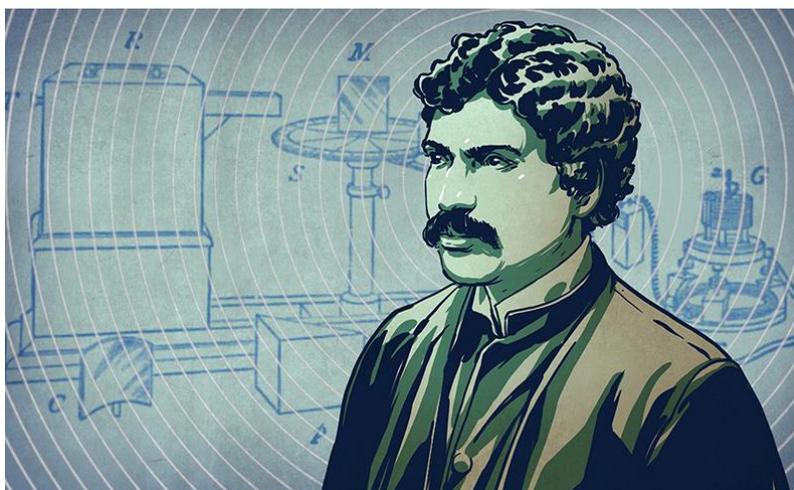
*“At that time, sending children to English schools was an aristocratic status symbol. In the vernacular school, to which I was sent, the son of the Muslim attendant of my father sat on my right side, and the son of a fisherman sat on my left. They were my playmates. I listened spellbound to their stories of birds, animals and aquatic creatures. Perhaps these stories created in my mind a keen interest in investigating the workings of Nature. When I returned home from school accompanied by my school fellows, my mother welcomed and fed all of us without discrimination. Although she was an orthodox old-fashioned lady, she never considered herself guilty of impiety by treating these ‘untouchables’ as her own children. It was because of my childhood friendship with them that I could never feel that there were ‘creatures’ who might be labelled ‘low-caste’. I never realized that there existed a ‘problem’ common to the two communities, Hindus and Muslims.”*

Bose joined the Hare School in 1869 and then St. Xavier's School at Kolkata. He graduated from the Xavier's college, Calcutta University in 1879 and left for England to pursue a course in medicine. However, due to health issues, he had to discontinue this course, as the odour in the dissection room worsened his health situation. He secured admission into Christ College in Cambridge, to pursue natural science, and received the Natural Science Tripos Certificate from Cambridge University and a Bachelor's degree in Science from London University.

Bose subsequently began his scientific research, which he pursued with full vigour, despite facing many hurdles, including racial discrimination and fund shortage.

## Radio Research

He soon achieved great success in remote wireless signalling and was the first to use semiconductor junctions to detect radio signals. The magnanimity of Bose was such that he did not go for patent for this invention of his, but made his inventions public, for others to further his research. This led to Guglielmo Marconi doing further research on radio transmission, and being credited as ‘the inventor of Radio’, when the actual credit should have gone to Acharya Bose.



**Acharya J C Bose, the first to demonstrate Radio Waves**

## Plant Research

The other major contribution of Bose was in Plant Psychology. Here his own invention, crescograph came in handy as he used it to measure plant responses to various stimuli. He scientifically proved the similarity between plant and animal tissues, and thereby also proved that even plants experienced pain and other sensations.

Bose also performed a comparative study of the fatigue response of various metals and organic tissue in plants.

In this field, his two major works include **Response in the Living and Non-Living** and **The Nervous Mechanism of Plants**.

The other works being,

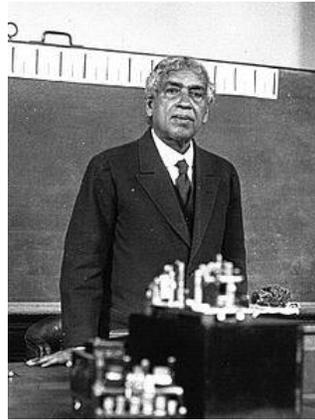
- Response in the Living and Non-living,
- Plant response as a means of physiological investigation,
- Comparative Electro-physiology: A Physico-physiological Study,
- Researches on Irritability of Plants,
- Life Movements in Plants Volume I
- Life Movements in Plants, Volume II,
- Physiology of the Ascent of Sap,
- The physiology of photosynthesis,
- The Nervous Mechanisms of Plants,
- Plant Autographs and Their Revelations,
- Growth and tropic movements of plants,
- Motor mechanism of plants.

In 1917, he founded the Bose Institute one of the earliest and perhaps the first modern research institute in India.



**Bose Institute, Kolkata**

Bose subsequently delivered many lectures on his scientific research and discoveries, in India and other parts of the world.



**Bose lecturing on the "Nervous System" of plants at the Sorbonne in Paris in 1926**

## Science Fiction

Bose also excelled in another field and it is science fiction. In 1896, Bose authored Niruddeshar Kahani, *The Story of the Missing One*, which was one of first works in Bengali Science fiction.

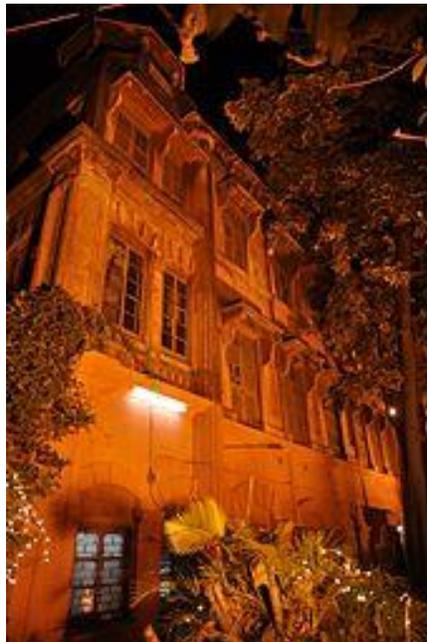
## Other Recognitions

Bose held many honours and positions during the course of his life. Some of them being,

- President of the 14<sup>th</sup> session of the Indian Science Congress in 1927
- Knight Bachelor, in 1917, a part of the British honours system
- Member of the Vienna Academy of Sciences in 1928
- Member of the League of Nations Committee for intellectual cooperation
- Member of the Finnish Society of Sciences and Letters in 1929

## Legacy

Today, his legacy stands tall as he is credited with the invention of the first wireless detective device, and also with the discovery of sensations and feelings in plant life. Acharya Bhavan, the residence of Bose, built in 1902, has been converted into a museum, which houses many of the instruments that he used. These include antennas, waveguides and polarizers, and remains to be used even to this day.



**Acharya Bhavan Museum**

In 1958, the government of India issued a stamp in his name.



The Indian Botanical Garden was renamed in his honour as Acharya Jagadish Chandra Bose Indian Botanical Garden in 2009.



### **Acharya Jagadish Chandra Bose Botanical Garden**

In 2012, Bose's millimeter band radio was recognized as IEEE Milestone in electrical and computer engineering, a unique recognition for a discovery in India.

While summing up the legacy and life of Acharya Jagadish Chandra Bose, it will be apt to say that, He is one of the architects of Modern India, especially in the scientific sphere.

**Email** [bharathgyan@gmail.com](mailto:bharathgyan@gmail.com)  
**Website** [www.bharathgyan.com](http://www.bharathgyan.com)  
**Blog** <http://bharathgyanblog.wordpress.com>  
**Twitter** <http://www.twitter.com/bharathgyan>  
**Facebook** <http://www.facebook.com/bharathgyan>  
**You Tube** <http://www.youtube.com/user/bharathgyan>

### **Our Books Avail**

**In India** <https://www.artoflivingshop.com>  
**Outside India** <http://www.amazon.com>  
**Teleshop** **1 800 258 8888 (India Tollfree)**