

NETAJI SUBHAS CHANDRA BOSE, BIDHU BHUSHAN RAY AND “SCIENCE AND CULTURE” – HISTORY OF SCIENCE VS. POLITICAL HISTORY

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Every Indian knows the name of Netaji Subhas Chandra Bose— one of the most celebrated Indian freedom fighters. His patriotism made him a hero and earned the name ‘Netaji’. In contrast, Bidhu Bhushan Ray, a Physics Professor at the University of Calcutta, and one of the Founder Editors of “Science and Culture”, is almost unknown even among the physicists. The present communication explores the interaction between the two men; and the probable role B.B. Ray played in establishing contact between Netaji and the German dictator Adolf Hitler.

Introduction

Bidhu Bhushan Ray (also written as Bidhubhusan Ray or Bidhu Bhusan Ray or B.B. Ray or B.B. Roy, Figure 1) is one of the founders of the X-ray spectroscopy in India.¹ Almost nothing is known about his interest in politics, his political views and activities. The present article intends to fulfil the gap.

B.B. Ray’s Political Views – The Early Phase

In the beginning of the 1920s, M.K. Gandhi was the President of the Indian National Congress. In view of his strong individuality, he had complete control over the Congress, one of the newspapers even published an article entitled “Mahatma—the Dictator” (Figure 2).

Gandhi promised to achieve India’s independence within a year first in the meeting of National Congress in Kolkata in September 1920 while moving a resolution of Non-cooperation movement and reiterated couple of times later. His “non-cooperation” and “non-violent” movement did not produce any tangible result. The expert of the Peace Nobel Prize Committee, Jacob S. Worm-Müller, a historian and politician, who wrote report on Gandhi’s achievements



Figure 1: B.B. Ray (Credit: “Science and Culture.”).

stated that many had predicted the publicly distorted picture of Gandhi’s ideals would cause problems. The Indian Nobel Laureate Rabindranath Tagore, among others was one of

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Figure 2: “Mahatma – The Dictator” – (Credit: “The Bombay Chronicle.”).²

the sceptics.³ In 1922, in „Gandhi and Anarchy”, the author C.S. Nair published tables, where he listed the number of deaths and revolts due to Gandhi’s politics.⁴ Due to Gandhi’s ideas as well as the communist movement, India’s students and workers became active in politics. Gandhi belonged to the so-called “moderate wing” of the Indian National Congress Party, which demanded political power via political reforms. In contrast, Subhas Chandra Bose belonged to the radical wing of the Party, which was influenced by ideologies of communism and socialism. In the late 1930s, Bose became the President of the Congress Party.

To the best of my knowledge, the political history does not tell us about B.B. Ray’s contacts with S.C. Bose; which eventually led to Bose-Hitler contact via Werner Heisenberg – German Physics Nobel Prize winner and one of the founders of the quantum mechanics.

According to the authors D.C.V. Mallik and S. Chatterjee young physicist K.S. Krishnan

“attended every session of the Congress meeting in September and recounted the proceedings of it to his fellow classmates with great enthusiasm. His involvement in the emerging movement led to his selection as one of the student representatives from Calcutta to the All India Students’ Convention, which was held to be in Nagpur along with the Congress session. It looked as though Krishnan was ready to take on a serious role in the freedom movement forgetting for the moment his own career in physics.

But he was dissuaded from going to Nagpur by his well-wisher friend and teacher Bidhu Bhushan Ray, who did not want his young and promising student to stray from the path of science to the uncertain and dangerous by-ways of the freedom struggle.”⁵

One may ask – why Ray did so, in spite of being a person interested in Indian politics from his student life as has been revealed from his family members. On May 20, 2017, Mr. S. Roy (son of a cousin brother from B.B. Ray. For more detail, see ‘Acknowledgements’), B.B. Ray’s nephew revealed to me:

“As far as connection between S.C. Bose and Ray concerned, I have a diary of my father which he wrote 6 months before his death. He mentioned in the diary that they (Ray and Bose) studied together at Ravenshaw College at Cuttack, Orissa. They used to discuss politics, which was not encouraged by his father and my grandfather Nalini Mohon Ray.”

According to Dr. Uma Sen, B.B. Ray’s daughter: “I have seen a photo of my father and Netaji together in a picnic,” (Private communication, June 17, 2017). Unfortunately, the photograph is no longer available.

BBR was born on July 1, 1894, in the village of Khandarpara in District Faridpur in East Bengal, now known as Bangladesh. His father, Basanta Kumar Ray, was a postmaster in Mangaldai, Assam and his mother, Bamasunderi Devi, was a housewife. Bidhubhusan was the eldest of four children, with two brothers and a sister. He was only 14 when his father passed away at the age of 49. This led to a hard life for his wife and children. BBR passed the Matriculation Examination in 1911 with distinction, and graduated with an Intermediate Science degree from Ravenshaw College. He did B.Sc. from Presidency College in Calcutta in 1915 and obtained his M.Sc. degree from Calcutta University in 1918. Ray was offered a job in the Bengal Civil Service. He declined the offer because Sir Asutosh Mukherjee, the educationist and judge, inspired him to pursue research.⁶ B.B. Ray started his research career under C.V. Raman.⁷ After obtaining the D.Sc. degree, he was awarded travelling Fellowship to study abroad. He went to Stockholm and Copenhagen to work in the laboratories of Manne Siegbahn and Niels Bohr respectively. After finishing his research work in Copenhagen, he went to Berlin, a center of Indian revolutionaries. He stayed there for a few days, as is

evident from his letter, which he wrote to the Dane physicist Niels Bohr.⁸

B.B. Ray's Active Participation in Politics

BBR became interested in politics during his stay abroad. Shortly after arriving in Kolkata from Europe, on June 29, 1926, he wrote to Samuel Goudsmit, one of the founders of electron spin, about his scientific work and politics as follows: "There is nothing interesting at the present moment, of course politics are going on with full vigour"⁹ After being involved in the current events in India, on Feb. 29, 1928, he wrote a letter to the Japanese physicist Y. Nishina, who was at the Niels Bohr Institute, Copenhagen, and had worked with Ray (Figure 3). BBR called politicians as "scoundrels" (Figure 4).

BBR wrote:

"You know, I was once interested in politics, and I did a little bit when I came back here, but I have found out that the politicians are, as a rule, ... scoundrels, and I have given it up as hopeless, and have returned to my laboratory, only to find it also a horrible mess."¹⁰

In spite of his dislike for the politics, in the beginning of 1930s, BBR became active in the politics. In an undated letter, Ray told Niels Bohr:

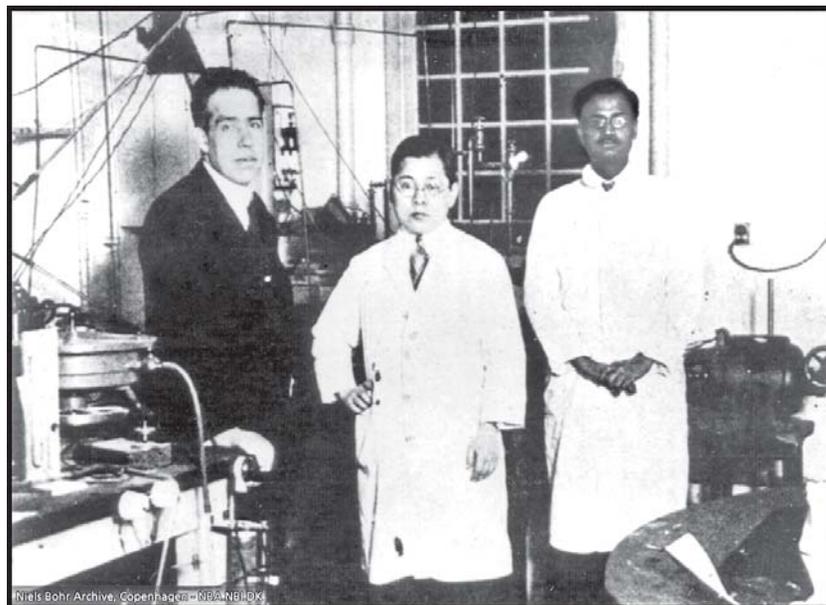


Figure 3: Niels Bohr, Yoshio Nishina and B.B. Ray (Credit: Niels Bohr Archive, Copenhagen).

your long letter. Indeed I was started very much to find you in Europe and I was going to write to you in Japan. How glad I am that you are here and please try to remain in Europe as long as possible. The condition of the Eastern Country is simply hopeless. you know, I was once interested in politics, and I did a little bit when I came back here, but I have found out that the politicians are as a rule so many many scoundrels, and I have given it up as hopeless, and have returned to my laboratory, only to find it also a horrible mess. Any how I am now decided to remain in Educational depart and leave politics for good. I hope you will agree with me in my wise decision.

Figure 4: BB Ray's letter to Y. Nishina showing the former's political views (Credit: Niels Bohr Archive, Copenhagen).

"You know we are all passing through very bad times and at the present moment, more than fifty thousand people are now in jail. My house was searched and my younger brother and two cousins were arrested. After being detained for about a month and a half, they are all now released."¹¹

Dr. Debabrata Ray - son of BBR's younger brother S.B. Ray, recalls:

"Prof. Ray had regular connections with freedom fighters. He was an adviser to many of them. He used to provide financial support to some of them. Many freedom fighters having arrest warrants would take shelter in our house in the late thirties and early forties. There were many police raids in our house"

(D. Ray, private communication, Dec. 28, 2016.).

The next statement about the political activities of family members is from Mr. S. Roy in a private communication, dated Dec. 29, 2016, he told me:

"With regard to the arrest, I believe it may be my father as he was involved with a secret political organisation when he was in the B.Sc. standard. He was arrested and interrogated but escaped from legal punishment due to Ray's influence."

The second time BBR visited Europe was in 1934. Although WWI ended in 1918, the countries involved were still far from having recovered. In an undated letter from Vienna, BBR wrote

to Swede Ivar Waller, a theoretical physicist, describing the situation as follows:

“After the war they have lost everything, now they have nothing, now they have no money but their temperament is “lordly”. They have as yet not been able to accommodate themselves with their own position. The streets are not repaired for want of money, buildings are not painted for a long time. The gardens are not so clean as should be -”¹²

Europe was preparing for WWII, with Italy and Germany under dictatorship and Austria seemed to be following in their footsteps. In July 1934, Austria’s Chancellor, Engelbert Dollfuss, was shot dead by a nationalist socialist Otto Planetta. BBR wrote to I. Waller:

“I have a mind to write to you about this place afterward as we are now living under Martial law. The sad death of ... Dollfuss has shaken the people, and all of them abuse Germany very much though I think it quite wrong. It is the work of mischief makers here. Austria seems to depend on Italy very much.”¹³

During WWII the Nazi regime occupied countries like Denmark, Holland and France. Not only Jews, but also critics of the regime and scientists were forced to leave their countries. German physicists like Werner Heisenberg, who stayed in Germany had to work under the dictatorship of the politicians.

W. Heisenberg and B.B. Ray

According to N. Bohr’s letter of Jan. 22, 1927, BBR knew W. Heisenberg personally. The second piece of

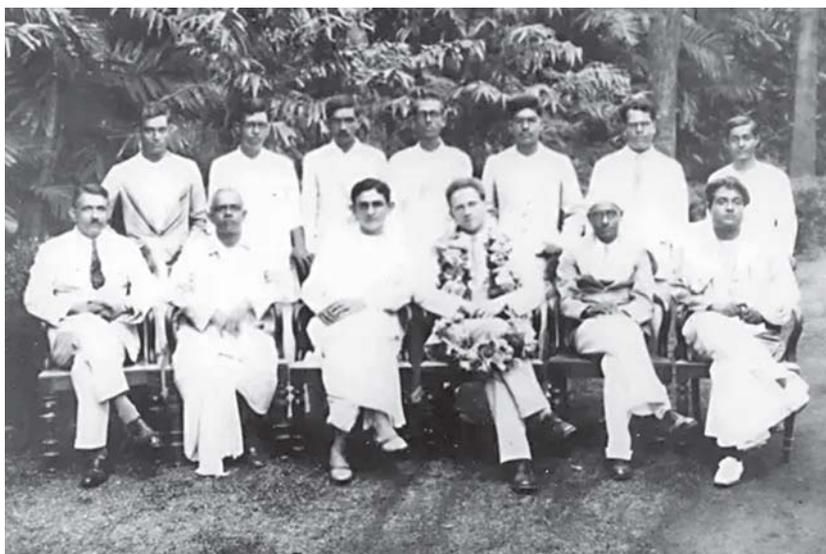


Figure 5: From left to right: R. Rao, Dey, D.M. Bose, W. Heisenberg, K.S. Krishan, S.N. Bose (Credit: Late Dr. Helmut Rechenberg).

evidence showing this familiarity is Ray’s letter to Y. Nishina. On Feb. 29, 1928, BBR asked Y. Nishina - Please give my best wishes to everybody at the institute. I understand Mr. Werner is engaged. My hearty congratulations to him for his success. Werner-Ray’s contact continued. In 1929 Heisenberg visited India (Figure 5).

After returning to Germany Heisenberg wrote a short letter to Bohr, telling him that he had been impressed by a tour of the Himalayas. He promised to tell him more when he met him¹⁴ What he told Bohr is unknown. The fact is, D.M. Bose, Physics Professor at the University of Calcutta and later Director of the Bose Institute, noted in his private diary about Heisenberg’s visit as follows:

“Heisenberg appeared one day without any previous introduction to the University College of Science. Some of us, so far as I remember, S.K. Mitra, P.N. Ghosh, B.B. Ray and myself arranged a lunch at Firpo’s for Heisenberg. Rabindranath was in Calcutta at that time. Heisenberg having expressed a desire to see him, it was arranged that we were to take him the same afternoon to Jorasanko. On arriving at Jorasanko we found that Rathi Babu had arranged a fine tea for us. We left Heisenberg to have talk with the poet. I do not remember what was the substance of his talk, but Heisenberg was very much impressed by the poet’s illuminatory personality which reminded him of a prophet of the old days.”¹⁵

According to Dr. D. Ray, before WWII, W. Heisenberg came to India. BBR took him to Jorasanko to see the poet, Rabindranath Tagore and subsequently to the city of Benares. When BBR’s younger brother, Shashi Bhusan Ray¹⁶, went to Germany for higher studies, he met Heisenberg. (Private communication, Nov. 26, 2016).

B.B. Ray, S.C. Bose, Indian Science News Association and “Science and Culture”

It will be of interest to note that the Nobel Peace Committee was well-informed about S.C. Bose’s political activities and views. Bose’s book (Figure 6) is kept in the archive of the Nobel Committee. More importantly, in 1937, while evaluating Gandhi’s achievements, the expert of the Nobel Committee J. Worm-Müller stated: “He is a man of freedom, a dictator, an idealist and a nationalist. He is frequently a Christ, but sometimes suddenly a politician. S.C.

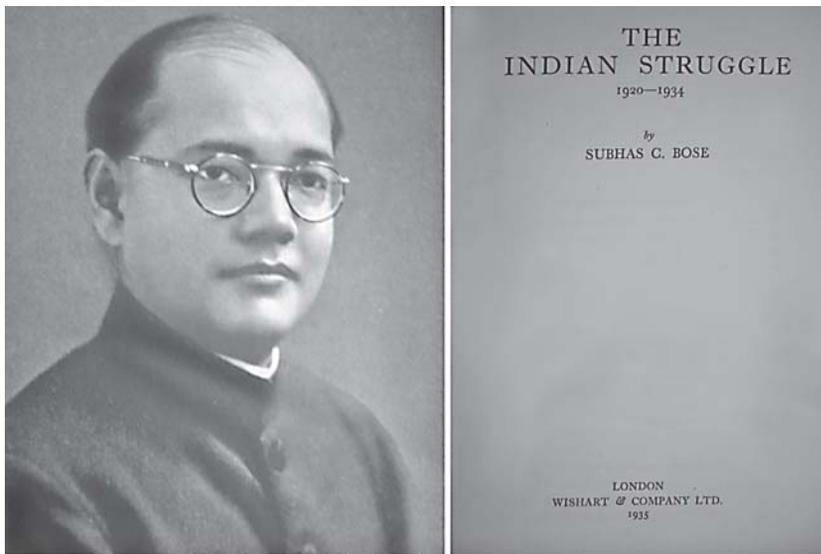


Figure 6: S.C. Bose and the title cover of his book (Credit: Archive of Peace Nobel Prize, Oslo).

Bose believes that he lacks political instinct.”¹⁷ According to the other expert of the Nobel Committee, J.A.Seip, who wrote report for the year 1947: “... when S.C. Bose became the President of the Congress Party, Gandhi’s hinted that he would retire. This subtle threat alone was enough to remove S.C. Bose from the President’s position.”¹⁸

According to the political historians, after the Gandhians refused to cooperate with Bose, he had no other choice but to resign. To continue his political work he founded a new political party in 1939 known as “Forward Bloc” in Bengal. Due to his political activities, he was arrested in July 1940.¹⁹ “An Indian doctor who was a member of the Forward Bloc, (but the British did not know the connection), examined Bose in prison and reported that B. [Bose] was too sick to stay in Jail.”²⁰ He was released in December 1940, but kept under police supervision. However, he managed to escape to Berlin (via Afghanistan and Moscow) in January 1941. The political history does not tell us about the role played by the physicists B.B. Ray and Werner Heisenberg in establishing the political connection between these two leaders (detail below).

In the August 1935 issue of the “Science and Culture”, it was reported that the inaugural meeting of the Indian Science News Association (ISNA) was held on July 9, 1935, at the University College of Science. Interestingly, “*Science and Culture*” was published before the formation of ISNA. M.N. Saha and B. B. Ray were the editors of first few journals. As Saha used to live in Allahabad, BBR single handedly brought out the first issues of the journal. However, due to health problems, after about a year, BBR ceased to be the editor of the journal.²¹

According to “Science and Culture” vol. 4, year 1938, Supplement on ISNA – At the third annual meeting of ISNA, S.C. Bose, President of the Indian National Congress, presided over the meeting. The Secretary of the Association, S.K. Mitra²² read the report and reminded of the objectives of the foundation of “Science and Culture” and told about articles published on River Project and Organisation of Science. For the year 1938-1939, B.B. Ray was elected as one of the Members of the Council. In the meeting, M.N. Saha in his talk imposed many questions, which were directed to S.C. Bose. For instance:

“May I inquire whether the India of future is going to revive the philosophy of village life, of bullock cart, thereby perpetuating servitude, or is she going to be a modern industrialized nation which having developed all her natural resources will solve the problem of poverty, ignorance and defence and will take an honoured place in the comity of nations and begin a new cycle of civilization?”

And further:

“If the Congress High Command decides on a policy of industrialization are they going to set up a rationalized scheme of industrialization and establish a National Research Council and mobilize the scientific intelligentsia of the country? I put the question as Congress has come into power in several provinces and because there is a great confusion of ideas regarding the future industrialization of India.”

Evidently, Saha wanted to know, whether Congress will run on Gandhi’s lines which opposed industrialization.

It is a common practice, if specific questions are asked, most of the politicians continue to be rhetoric bypassing the straight answer to straight question. S.C. Bose seemed to be of different type. In his talk, first, he appreciated “Science and Culture” as well as thanked the members of the ISNA. He told that he was greatly interested in the application of science to the problems of national reconstruction. He confessed that it cannot be done without the aid of science and scientists. Then he placed his ideas before the members of the ISNA about national reconstruction, which included the support for “Large scale industrialization” and “The need of a national planning commission.” About Saha’s question regarding the attitude

of Congress towards industrialization; Bose's clear-cut answer was that all Congressmen are not of the same opinion.

“Nevertheless, I may say without any exaggeration that the rising generation are in favour of industrialization and for several reasons. Firstly, industrialization is necessary for solving the problems of unemployment. ... Secondly, the rising generation are now thinking in terms of Socialism as the basis of national reconstruction and Socialism presupposes industrialisation. Thirdly, industrialisation is necessary if we have to compete with foreign industries. Lastly, industrialization is necessary for improving the standard of living of the people at large.”²³

Bose was for the co-operation between Science and Politics. However, he was of the opinion that:

“So far as technical research is concerned, we shall all agree that it should be freed from governmental control of every kind. It is only in this unfortunate country that government servants are entrusted with scientific research on receipt of princely salaries and we know very well what results have been obtained therefrom.”

In the end, Bose wished “Science and Culture” “a long useful and prosperous career in the service of the nation and humanity ...”

A few months later, “Science and Culture” published other lecture from S.C. Bose on “Some problems of nation-building.” He welcomed the appearance of “Science and Culture” as the journal is brought out “not only by those who are interested in abstract science, but also by those who are concerned with nation-building in practice.” He was for the nation-building by scientific spirit. He confessed that for the politicians it is not possible to acquire scientific knowledge due to various reasons. Thus, scientists and investigators had to come for their rescue. Bose's main focus was on the sociological issues such as: “Is Indian civilization at the evening of its life, or is it on the threshold of a new dawn? Under which condition the revivification of a stagnated civilization, like our, can begin?” He wanted to have, not sentimental, but scientific answers. Other issues he touched upon were Nazi's race theory, birth-control and a common language in India.²⁴

We see from the above discussion that S.C. Bose was closely related to “Science and Culture.” So far as BB Ray alone is concerned, Dr. Debabrata Ray says: “Netaji Subhas Chandra before his great escape came to Dr. Ray to have an introduction letter addressed to Prof. Heisenberg to meet

Hitler.” (Private communication, Nov. 26, 2016).

The forgoing leaves no doubt about BBR-S.C. Bose, and BBR-Heisenberg contacts. Unfortunately, neither B.B. Ray's nor W. Heisenberg's available correspondence give definite clue about regarding Heisenberg's role in establishing Bose-Hitler connection. Thus, further research is needed.

Conclusion

The fact is that most of the political historians neglect the history of science. In general, history of science is not seen as “history.” The example of the physicist Bidhu Bhushan Ray and the politician Subhas Chandra Bose shows that the politics and development of science and technology need to work, hand in hand in order to understand the society in a holistic manner.

Acknowledgements

First of all, I thank Prof. S.C. Roy, Editor-in-Chief, “Science and Culture” for editorial work; and for sending B.B. Ray's photograph as well as translation of D.M. Bose's diary referred to in the article. I would like to thank Mr. Subrata Roy, retired Director-in-Charge of Central Silk Technological Research Institute, Bangalore; and Dr. Debabrata Ray, National Education Commission Bengal, for private communication.

Thanks are due to: (i) the Philosophical Archive, University of Konstanz, Germany, for sending the correspondence of N. Bohr, Samuel Goudsmit, Ivar Waller and B.B. Ray. (ii) During my visit to Niels Bohr Archive Copenhagen, Dr. Finn Aaserud and Mrs. Felicity Pors helped me, and it is with pleasure that I acknowledge their kind assistance. (iii) I am thankful to Late Dr. Helmut Rechenberg for sending me W. Heisenberg's photograph. (iv) Nobel Peace Prize Archive Oslo for S.C. Bose photograph.

I am grateful to Prof. Dr. Michael Komorek, Head of the Research Group - Didactics and History of Science, for supporting my research work by providing appropriate facilities.

References

1. For biographical information, see, R. Singh, B.B. Ray – A pioneer of X-ray spectroscopy, 2017 (Shaker Publisher, Aachen); S.N. Sen, *The Sunday Hindustan Standard*, Aug. 13, 1944; R.C.M. (probably R.C. Majumdar), *Sci. Cult.* **10**, 111 (1944-1945); Anonymous, *Nature* **154**, 818 (1944); <http://insaindia.res.in/deceaseddetail.php?id=N350654>, Oct. 31, 2016.
2. <http://www.mahatmagandhiji.com/bio/nnviolet.htm>, March 6, 2016.

3. For detail see, J. Worn-Müller, Mohandas Karamchand Gandhi, in: Det Norske Stortings Nobelkomite, Redegjørelse For Nobels Fredspris - XXXVII, pp. 36-53, (1937) (Grøndhal & Sønns Boktrykkeri, Oslo).
4. C.S. Nair, Gandhi and anarchy, pp. 218-251, (1922). (Tagore and Co., Madras).
5. D.C.V. Mallik, S. Chatterjee, Kariamanikkam Srinivasa Krishnan – His life and work, p. 65, (2012) (University Press (India) Private Ltd., Hyderabad).
6. For more detail, see, R. Singh, Bidhu Bhushan Ray – A pioneer of the X-ray spectroscopy, pp. 7-8, (2017) (Shaker Publisher, Aachen).
7. For more detail see, R. Singh, *Sci. Cult.* **83**, 84 (2017).
8. B.B. Ray to N. Bohr, letter dated Oct. 12, 1926.
9. B.B. Ray to S. Goudsmit, letter dated June 29, 1926.
10. B.B. Ray to Y. Nishina, letter dated Feb. 29, 1928.
11. B.B. Ray to N. Bohr, letter undated 1930.
12. B.B. Ray to I. Waller, letter undated, 1934.
13. Ibid.
14. W. Heisenberg to N. Bohr, letter dated Dec. 20, 1929.
15. D.M. Bose's Private Diary, Bose Institute, Kolkata. Credit: Prof. S.C. Roy – Editor in Chief "Science and Culture". Also the book "D.M. Bose – A Scientist Incognito" by S.C. Roy and Rajinder Singh (2017).
16. W. Heisenberg to B.B. Ray, letter dated January 31, 1938. This document is of private nature and had nothing to do with political issue.
17. Ibid., ref. 3, J. Worn-Müller.
18. J.A. Seip, Mohandas Karamchand Gandhi, in: D.N.S.N., Redegjørelse For Nobels Fredspris - XLVII, pp. 38-54, (1947) (Grøndhal & Sønns Boktrykkeri, Oslo). For Gandhi's nomination for the Peace Nobel Prize and the opinion of the Nobel Committee, see, R. Singh, Inside story of Nobel Peace Prize award – Indian contestants, pp. 43-58 (2016) (Shaker Publisher Aachen). R. Singh, Mahatma Gandhi – der verpasste Friedensnobelpreis, (2017) (Shaker Verlag Aachen). R. Singh, Mahatma Gandhi and the Nobel Peace Prize, (2017) (Manohar Publisher, New Delhi).
19. http://eresources.nlb.gov.sg/infopedia/articles/SIP_745_2005-01-22.html, May 8, 2017.
20. R. Banerjee, Subhas Chandra Bose and the Bengal revolutionaries, pp. 314-315 (2010) (Reference Press, New Delhi).
21. B.B. Baliga, *Sci. Cult.* **51**, 139 (1985).
22. For S.K. Mitra's scientific work, see, R. Singh, Nobel Prize Nominator Sisir Kumar Mitra F.R.S. – His Scientific work in international context, (2014) (Shaker Publisher, Aachen).
23. S.C. Bose, *Sci. Cult.* **3**, 139 (1938).
24. S.C. Bose, *Sci. Cult.* **1**, 258 (1935-1936).