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Government of India

INFORMATION OF

The Asiatic Society

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THE ASIATIC SOCIETY
(AN INSTITUTION OF NATIONAL IMPORTANCE)
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संस्कृति मंत्रालय
MINISTRY OF CULTURE

The Asiatic Society

Founded in 1784

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and
(An Autonomous Organization under Ministry of Culture, Government of India)

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NOTICE

The Monthly General Meeting of the Asiatic Society, originally scheduled for 2nd September, 2024, has been postponed. Members are requested to wait for further notifications on this matter.

Anant Sinha
Lieutenant Colonel
Administrator, The Asiatic Society

Date: 30th August, 2024

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Abanindranath Tagore: The Pioneer of the Bengal School of Art

Arun Kumar Chakraborty
Principal, Rekha Chitram

The art world has been home to a multitude of creative geniuses who have left an indelible mark on the canvas of human history. Among these luminaries, Abanindranath Tagore, a distinguished painter from India, holds a special place as the pioneer of the Bengal School of Art. His innovative approach to art, inspired by both tradition and modernity, reshaped the artistic landscape in India during the early 20th century, which explores the life and contributions of Abanindranath Tagore to the world of art.

Born on August 7, 1871, in Jorasanko, Calcutta, Abanindranath Tagore was a member of the illustrious Tagore family, a lineage renowned for its cultural and artistic contributions. He was the nephew of Rabindranath Tagore, the legendary poet, and Nobel laureate. Abanindranath's early life was steeped in artistic influences, which contributed significantly to his later achievements.

The Bengal School of Art, founded by Abanindranath Tagore, emerged during a time of significant socio-cultural change in India. Abanindranath Tagore, along with others like E. B. Havell and Sister Nivedita, played a crucial role in the establishment of the Bengal School of Art in the early 20th century.

The school aimed to break away from the Western art conventions that were prevalent at the time and revive the traditional Indian art forms that were rooted in the country's cultural and spiritual heritage.

Abanindranath emphasized the importance of reviving the principles of Indian art, drawing inspiration from Mughal and Rajput miniature paintings, ancient sculpture, and traditional folk art.

He encouraged artists to embrace the spiritual and symbolic aspects of Indian art rather than imitating Western techniques.

Abanindranath and the Bengal School rejected the Western realism that dominated academic art in India during that period.

Instead, they advocated for a more stylized and decorative approach that captured the essence of Indian aesthetics.

The late 19th and early 20th centuries were marked by a fervent desire to rediscover and celebrate Indian artistic

heritage in the face of British colonial influence. The Bengal School of Art sought to achieve this by blending the traditional techniques of Indian art with modern artistic sensibilities.

The Bengal School of Art was closely associated with the nationalist movement in India. Abanindranath believed that art could play a crucial role in fostering a sense of national identity and pride.

One of Abanindranath's most renowned works, "Bharat Mata" (Mother India), created in 1905, is a testament to his artistic vision. This iconic painting depicts a serene, four-armed mother figure, symbolizing the Indian nation, with various elements of Indian culture, landscapes, and historical events surrounding her. "Bharat Mata" encapsulates Abanindranath's desire to celebrate India's diverse culture and history through art.

Abanindranath Tagore's artistic philosophy was deeply influenced by the study of classical Indian art, including Mughal miniatures and traditional scroll paintings. He believed that Indian art had lost its way under the influence of Western styles and aimed to revive and promote the distinctive characteristics of Indian artistry. His approach was characterised by intricate detailing, vibrant colours, and an emphasis on spirituality and cultural heritage.

One of the most significant aspects of Abanindranath's work was his role in nurturing a generation of artists who would carry forward his artistic philosophy. His students, often referred to as "The Tagore School", included eminent artists like Nandalal Bose and Asit Kumar Haldar. Under Abanindranath's mentorship, these artists played a pivotal role in propagating the ideals of the Bengal School of Art.

Bharat Mata

Abanindranath's contributions were not limited to painting; he was also an accomplished author and illustrator. His writings and illustrations, especially in children's literature, were instrumental in shaping the literary and artistic landscape of the time. His illustrated version of "The Ramayana" and "The Mahabharata" are celebrated for their intricate artwork and cultural sensitivity.

While Abanindranath Tagore's artistic philosophy drew inspiration from India's rich heritage, he also recognized the importance of adapting to modern

The Passing of Shah Jahan

Departure of Siddhartha

influences. He did not simply seek to replicate the past; rather, he aimed to reinterpret traditional themes in a contemporary context. This approach made his work relevant to the changing socio-cultural landscape of India.

One of the most significant accolades bestowed upon Abanindranath Tagore was his appointment as the first Indian Principal of the Government School of Art in Calcutta in 1905. This appointment reflected the growing recognition of his artistic prowess and his influence on the next generation of artists. His tenure at the school allowed him to install the values of the Bengal School of Art in young and aspiring artists.

Abanindranath's impact extended beyond the world of art. His vision for cultural rejuvenation and his commitment to celebrating India's heritage left an enduring legacy. His approach to art as a means of cultural and national expression was an integral part of the broader Indian struggle for independence from British colonial rule.

Abanindranath was a true pioneer of the Bengal School of Art, an artistic movement that sought to revitalize India's rich cultural heritage while embracing modernity. His innovative approach to painting, drawing on classical Indian art forms, continues to influence artists and art enthusiasts today. His dedication to nurturing the next generation of artists and his contributions to Indian literature and culture make him a towering figure in the history of Indian art. Abanindranath Tagore's life and work are a testament to the enduring power of art to convey cultural and national identity, making him an inspiration for artists and cultural enthusiasts worldwide.

Abanindranath Tagore's contributions to the Bengal School of Art earned him recognition as a key figure in the cultural and artistic renaissance of India.

His legacy is not only reflected in his own artistic works but also in the continued influence of the Bengal School on Indian art and culture.

Abanindranath Tagore's pioneering efforts in establishing and promoting the Bengal School of Art laid the foundation for a distinct Indian artistic identity, blending tradition with a sense of national pride and cultural revival.

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Revisiting the Expert Committee Report of Howrah Bridge Presided by Sir R.N. Mookerjee in 1921, and Building of the Bridge across Hooghly River

Pronoy Roy Chowdhury
Life Member, The Asiatic Society

The iconic Howrah Bridge between the twin cities of Howrah and Kolkata started functioning on February 1943. It has completed a journey of 80 years in 2023 and is still continuing to serve the cause for which it was designed.

It is one of the busiest structures of the city. A huge traffic load of 1,00,000 vehicles and 1,50,000 pedestrian traffic regularly cross the bridge.

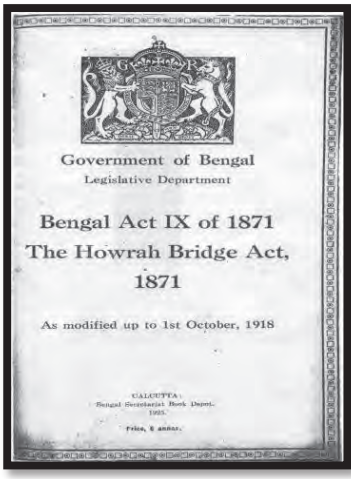
Structurally it is a balanced cantilever steel bridge, which was built with a technology and thinking much ahead of its time. It is a feat of structural, metallurgical and civil engineering, which consumed a huge 26,500 tonnes of structural steel, which was mostly manufactured at the TISCO Jamshedpur.

The structure is an example of sustainable construction in steel, which accommodates heavy traffic load, and has faced many natural challenges such as severe cyclonic storms like 'Aila', 'Bulbul', 'Fani', 'Amphan' & 'Yaas' and many moderate earthquakes in the recent past.

The Howrah Bridge in its 80 years 'youth' is one of the main entrances to the metropolis of Calcutta (Kolkata) connecting the Howrah Station to the business district of Barabazar and the surrounding official areas of Dalhousie and Esplanade.

However, the structure as we see today has evolved over the years. Initiative for construction of a bridge across river Hooghly started taking shape since 1860s after the establishment of Howrah Station, which is the terminal station of the then East India Railways. Huge number of freight and passengers came in large number from all corners of the country to Howrah. Carrying such huge quantity of freight across the river Hooghly to the capital city of Calcutta in ferries, steamers and country boats was a daunting task, and also time consuming, so a bridge across the river Hooghly was a necessity. However, the Calcutta Port Commissioners (presently Kolkata Port Trust) were very conservative on the question of allowing any construction of a permanent pier bridge over river Hooghly, because, it shall expose the regime of the river to vagaries of siltation.

In the year 1871, the Howrah Bridge Act was passed (Bengal Act IX of 1871) by the then Lieutenant Governor of Bengal Sir George Campbell, which


Government of Bengal
Legislative Department

Bengal Act IX of 1871
The Howrah Bridge Act,
1871

As modified up to 1st October, 1918

CALCUTTA:
Bengal Secretariat Book Depot.
1925.
Price, 6 annas.


Pontoon Bridge designed by Sir Bradford Leslie

enabled the Bengal Government to construct a pontoon bridge across the river Hooghly and to levy toll tax. The Act provided the then authorities of Calcutta Port Commissioners to carry out the purpose of the Act. Around the year 1871, a contract was executed by the then Government of Bengal with Mr. Bradford Leslie (Later Sir Bradford Leslie) the then Chief Engineer of East India Railways to execute a floating bridge between Howrah and Calcutta across the Hooghly River. The Bridge was called a Pontoon Bridge which had an opening span at the middle of the Bridge. The Bridge was commissioned in the year 1874. The design of the Bridge was approved by the then Viceroy of British India Lord Mayo. The Bridge was meant to last for 25 years, but it served more than three times its expected life.

With the development of the city around the year 1909, it was found that the pedestrian load and freight carried across the bridge increased in such great volumes, that the pontoon bridge was found inadequate to accommodate the heavy load. To add to the difficulty was the


Sir Bradford Leslie, K.C.I.E

central opening bascule span of the bridge, when the central span was open to allow large steamers/ ships to pass the bridge, the passengers on both the sides of the bridge were kept waiting until the ship passed and the bascules were closed. During high tide in river Hooghly, the inclination of the floating bridge became very stiff and it was quite difficult for animal-driven carts to be pulled against such stiff inclination. Thus crossing the pontoon bridge was often a bad experience.

The then Bengal Government was for sometime seriously considering for replacement of the bridge. A committee was formed by inviting the Chief Engineers of Calcutta Port Commissioners, East India Railways and Calcutta Corporation to advise the Port Commissioners on the following issues:-

- Selection of engineering consultant firms from whom design and tenders for the proposed new bridge to be invited.
- The general design of the new bridge.
- Forms to be adopted for invitation of tenders and design.
- The primary information to be given to the competing firms for submitting of designs and tenders.
- The prize if any to be given to the firms.

On the basis of resolution taken by the committee the then Calcutta Port Commissioners floated global tenders for design and specification. Some 23 firms submitted technical proposals, Mr. R.S. Highet the then Chief Engineer of East India Railways, Mr. William Bernard MacCabe the then Chief Engineer of Calcutta Corporation and Mr. R.R. Gales, the then Chief Engineer of Lower Ganges Bridge Project and Mr. Scott, the then Chief Engineer of the Port Commissioner examined the various designs received in the tender. The expert committee reported exhaustibly on the submitted proposals. The design submitted by the German company Maschinenfabrik Augsburg et Nuremberg Co. was found to be the appropriate design which received the award. But World War-I broke out in Europe in 1914. Awarding the work to a German organization by the British administration in the outbreak of World War-I was not practical politics, so all the tenders were cancelled by the discretion of the Tender Inviting Authority.

The then Chief Engineer to Government of Bengal, Colonel A.C. de L. Lotbiniere was doubtful about the popular opinion that only a floating bridge shall preserve the regime condition of the Hooghly river, but a pier bridge would have badly affected the regime and caused scour and siltation in the river channel, affecting the navigable depth of the stream. He argued that about 10000 tons of water displaced by pontoons may cause more scouring than would be done due to 1000 tons of water displaced by pile and pier of a permanent bridge structure. He opined that a fixed bridge shall be much better than a floating bridge and insisted that better professional opinion should be taken.

The then Bengal Government approached the then President of the Institution of Civil Engineers, UK, who recommended for engaging an eminent British Engineer, Sir Basil Mott to advice regarding the construction of the Bridge. Sir Mott visited the river site in the winter of 1916 and reported around 1918, that the best type of bridge structure shall be a single span Arch Bridge. He recommended the bridge should be of

Fig No.1 : Layout of proposed Howrah Bridge as submitted by German Company Maschinenfabrick Ausberg Nurenberg (picture adopted from the article *Howrah Bridge Problem* - By F.R. Bagley, the *IEI Journal* Vol.-I, September, 1921, Pg.-53-71)

Fig No.2 : The Single span Arch Bridge Proposal of Howrah Bridge by Sir Basil Mott (Figure adopted from the article *Howrah Bridge Problem* – by F.R. Bagley, the *IEI Journal* Vol.-I, September, 1921, Pg.-53-71)

a span of 1400 feet (426.72 m). The bridge shall have a roadway, suspended at a height permitting 25 ft headway at highest water level, with a central opening span of 200 ft (60-9 m) with Bascule type span to permit the biggest ships to pass.

However the Arch Bridge proposal was not accepted by engineers working in Calcutta as it was a very costly option; the abutments of the arches are subjected to large horizontal thrust, which would require large foundation area in the alluvial soil of Calcutta. Also the city of Calcutta is prone to cyclonic winds and moderate earthquakes which may destabilize the structure. Thus, again it was not possible to come to any conclusion on the type of structure to be selected for the Bridge.

In October 1920, a discussion was held with the public bodies and representative associations in Calcutta, on whether it is at all required to provide an opening span for the bridge for passing of ocean going streamers. Lord Ronaldshay the then Lieutenant Governor of Bengal, appointed a representative committee to investigate the necessity of the opening span. The committee expressed it was not necessary for the working of the port, that ocean-going steamers should continue to proceed above the bridge through the open span.

The Bengal Government accepted the recommendations of the committee and constituted another expert committee vide Resolution no. 3541 Marine dated 4th November 1921, to re-examine the question of the type of bridge to be constructed. The expert Committee of Engineers constituted in 1921 was a six member committee, presided by Sir Rajendranath Mookerjee, a well-known Bengali industrialist and the senior partner of Martin & Co. The committee included the following individuals:-

(i) Sir R.N. Mookerjee, KCIE, KCVO, an Industrialist and Civil Engineer, Resident of the Committee.
(ii) Sir C.D.M. Hindley, KCIE, the then Chairman of Calcutta Port Commissioners.
(iii) Mr. J. McGlashan, the then Chief Engineer, Calcutta Port Commissioners.
(iv) Sir George Godfrey, Agent of Bengal Nagpur Railway and Member of Bengal Legislative Council.

(v) Mr. James R. Coats, the then Chief Engineer of Calcutta Co-operation.
(vi) Mr. C. Addams Williams, Secretary to the then Government of Bengal, Irrigation Department,
(vii) Mr. G.G. Dey Member Secretary to the Committee.

The Terms of Reference of the Committee of Engineers appointed for construction of New Bridge between Calcutta & Howrah (from Calcutta Gazette Supplement, 15th March, 1922) were as follows:-

(a) Whether the risks attendant upon the single span arch type of bridge even after the elimination of the opening span are so serious, as to make its adoption unduly hazardous.
(b) If it is decided that Government would not be justified in running risks involved in the single span arch type, the committee should consider what other type they can recommend, having regard to the consideration set out in the resolution, and to any other consideration which may present themselves.
(c) If, on the other hand, the committee considered that the difficulties connected with the single span arch type are not insuperable, the question will still remain whether the advantages of this type are sufficient to outweigh the additional expense involved.

The committee was also invited to give a full expression of opinion on the most suitable type of bridge from the widest point of view. The first meeting of the expert committee was held on 15th November, 1921 and the committee held twelve meetings and a local inspection of the existing Pontoon Bridge which was operational at that point of time and five meetings of sub-committee were held.

Various learned individuals of the society, industry including consultant engineers etc. were invited before the committee to give evidence, either oral or written or both, they included:-

- Mr. F.R. Bagley, Consulting Engineer, to Messer Gillander Arbuthnot & Co.
- Mr. Humphryes and Mr. Radice, on behalf of Braithwaite & Co.
- Mr. Colin, Agent of East Indian Railways
- Mr. Higman, Traffic Manager, East Indian Railways
- Mr. Aslett, Chief Engineer, East Indian Railways
- Mr. Atkins, Chief Engineer, Calcutta Improvement Trust
- Mr. Sales, Bridge Engineer, State Railways
- Mr. Remfry, Consulting Civil Engineer
- Mr. C.D.M Hindley, Chairman Calcutta Port Commissioners
- Mr. McGlashan, Chief Engineer, Calcutta Port Commissioners

Technical Papers on Bridges were received from Messers L.H. Swain, Bridge Engineers, Oudh & Rohilkhand Railways, Mr. B.B. Gupta, G. Dubern & H. Rolfe, of Rolfe & Co. etc.

The famous Civil Engineer who constructed the Jubilee Bridge between Bandel and Naihati and the Pontoon Bridge of Calcutta, the then Chief Engineer of East India Railways, Sir Bradford Leslie also submitted a proposal of floating bridge called the twin bridge, which is an improved type of pontoon bridge with general type draw span at the central portion, which could be

withdrawn in 2 to 3 minutes time instead of half an hour as in the original Pontoon Bridge. A model of the Pontoon Bridge, designed by Sir Leslie was prepared by Mr. Frederick Robert Bagley, Ex-Chief Engineer of Burma Railways and later Consultant to Messer Gillander Arbuthnot & Co.

In fact the efficacy of the Bridge model was presented in the form of a technical paper called 'The Howrah Bridge Problem- The Case of a Floating Bridge' was which published in the first volume of the *Journal of the Institution of Engineers* (India) in 1921. The paper was deliberated at the Hall of The Asiatic Society during the formal Inauguration of the Institution on 23rd February 1921 under the Presidentship of Sir R.N. Mookerjee, KCIE, KCVO.

These were the three options of Bridges types before the committee for consideration, from technical and economic point of view:-

a) The single span Arch Bridge, submitted by Sir Basil Mott
b) The pier or girder type Bridge
c) The floating type Bridge, 'Twin Bridge' submitted by Sir Bradford Leslie.

A summary of comparative study on the various types of Bridges placed before the committee is given below:-

- The single span Arch Bridge is aesthetic in looking, and does not provide any obstruction to navigation.
- In case of pier bridge, there shall be risk of siltation near the Calcutta Port which shall affect the course of the river, if the piers are sunk in the bed of river Hooghly.
- However, the single span Arch Bridge has other problem of huge lateral thrust at abutments requiring huge foundations in the deltaic soil of Calcutta. The wind pressure to which the bridge truss may be subjected due to its location to the near vicinity of the Bay of Bengal and overturning of the superstructure under severe earthquakes. Although when the opening span shall be eliminated, the various risks shall be reduced to considerable extent, but the cost of the single span Arch Bridge is very high as it will require a costly steel structure, elaborate foundation and acquisition of land.
- For Pier Bridge, the then Governor in Council was advised to sink trial piers to ascertain the effects of such structures on the regime of the river. However, the experiments may run into 2 or 3 years time and even at the end of the period the result may not be conclusive.
- The disadvantage of floating bridge is well known. If the central span is open, the road traffic has considerable inconvenience. On closing the opening span the obstruction shall be lessened. The risk of siltation from a floating bridge is also less and it can be constructed more cheaply than other types of bridges. Thus it is to be considered whether the floating bridge shall be a single bridge with wider roadway or is it preferable to replace it with Twin Bridge as per the model placed before the committee of experts by Sir Bradford Leslie.
- The moot question before the committee was from a wider perspective. The then Governor in council was desirous to obtain the advice of the committee, "that whether the risk attendant upon the single span Arch Bridge even after elimination of the opening span are so

serious to make its adoption unduly hazardous".

- "If it was decided that Government would not be justified in running the risk involved in adoption of the single span Arch Bridge, the committee should consider what other type of Bridge that can be recommended".
- "If it is found that the difficulties connected with single span Arch Bridge are not insuperable, then what technique may be involved to reduce the cost of the bridge, because the cost shall fall directly or indirectly on the people who shall use it".
- The Governor expected a full opinion on the construction of a new bridge not only from professional point of view, but also from the viewpoint of future prosperity and convenience of the public of Calcutta and its surroundings.
- Mr. Bompass, the then Chairman and Mr. Atkins, Chief Engineer of the Calcutta Improvement Trust were invited to the committee to offer their views with respect to the site and approaches of the Bridge on the Calcutta side and traffic related data.

The important aspects regarding determination of the leading dimensions of the proposed bridge was decided by the committee in the most comprehensive fashion.

Headway of the Bridge:

The committee came to the conclusion that the opening span should be eliminated. The first important question was the headway to be provided below the bridge. In this connection Mr. C. Addams Williams, the then Secretary to the Irrigation Department of Bengal Goverment and Mr. J. Mc Glashan, Chief Engineer of Calcutta Port Commissioner, consulted with steamer companies to determine the headway which may be allowed in case of (a) a fixed bridge span, (b) a floating bridge span.

It was found from interaction with the steamer companies that large inland steamers then in use or to be used in near future shall not have height more than 37.5 feet (11.43m). Again with a draft in Hooghly water of 5 feet (1.5m) actually 32.5 feet (9.91m) between underside of Bridge and water surface as required, which meant that from practical consideration a 35 feet (10.67m) clearance is sufficient for the streamers to pass. However, from tidal observations throughout the year even considering highest springtide and draft due to variation of weather, a headway of about 29 feet (8.84m) shall be enough to ensure steamers of 35 feet (10.67m) to pass below the bridge. As for a floating bridge as the headway is fixed and is independent of the state of tide, the headway allowed is at least 35 feet (10.67m).

Types of Bridges:

Single Span Arch Bridge – As per provision of Terms of Reference of the committee, the single span Arch Bridge was considered for discussion. This type of Bridge was recommended by Sir Basil Mott to the then Government of Bengal. The primary observation against the proposal was that it was an impracticable proposal and prohibitive in terms of expenditure. The structural difficulty associated with construction of such a bridge is the huge lateral thrust generated at the abutment from such a large span and heavily loaded structure, constructed

in the deltaic soil of river Hooghly. If there was any lateral movement due to excessive horizontal thrust from Arch or differential movement of foundation, it would cause deformation and sagging of the roadway suspended to the Arch or even collapse of the structure. Thus engineers having the knowledge of constructing structures at Calcutta did not recommend such a structure which is liable to collapse due to lateral movement of abutments. However, with elimination of the open span, the three-hinged arch of the single span arch bridge, fitted with hinged joint at the abutment pier, may be converted into a Bow-string Girder Bridge with the introduction of a tension chord connecting the abutments the lateral thrust can be avoided. However, the Bow-string Girder shall be of considerable proportion and the structure would be uneconomical. Until that time Bow-string Girder bridges of span more than 720 feet (219.45m) was not constructed (Bow-string Girder Bridge was constructed upto 720 feet span over Ohio River at Metropolis, Illinois).

The method of erection of the bridge would also be very costly, requiring erection of 300 feet (91.4m) high towers on both sides, and the whole material of the towers shall be of very little value once it is dismantled. Also temporary anchorages will be required to be provided, which shall extend considerable distance inland. Such interference shall not be allowed in Calcutta except for Government land or land owned by public authority. In addition, the effects of severe cyclonic storms and earthquakes were considered for this bridge superstructure and found that it is more liable to damage. The committee opined that such structures could be safely built only for length spanning upto 1000 feet (304.8m), whereas the Hooghly Bridge would not be constructed of span less than 1400 feet (426.72m).

The committee assessed that the total weight including live load would be approximately 20,000 tons on each abutment and cost of the bridge would be around £3,00,0000 including abutments, approaches, but excluding any compensation for land or property. The committee did not consider it practical to recommend such a structure.

With the rejection of the Single Span Bridge proposal, the other types of bridge examined by the committee included:-

- Suspension Bridge
- Pier and Girder Bridge
- Floating Bridge
- Cantilever Bridge

Suspension Bridge – Most of the disadvantages observed in single span arch bridge is also found in case of Suspension bridge. For Suspension Bridge, the construction of anchorages would also interfere with valuable property. The cables would form permanent obstruction to roadways and buildings mainly on the Calcutta side of the Bridge. The strengthening of the structure in the lateral direction was also a challenge for Suspension Bridges which would be subjected to considerable wind pressure due to tropical cyclones in Bay of Bengal or earthquakes which may affect the bridge structure. The cost of maintenance of suspension bridge is also considerably high. The capital cost for execution of such bridge was roughly estimated at £25,00,000. The committee was not impressed with the

advantages of suspension bridge and did not recommend for adoption of the same for Calcutta.

Pier and Girder Bridge – This type of bridge was given a very careful consideration, as the expert opinion spoke in favour of this type of bridge. However, the greater question was whether piers can safely be constructed in the river Hooghly at or near the site of the proposed bridge. The Commissioners for the Port and conservators of the river Hooghly who are responsible for the maintenance of the waterway had laid down that no piers shall be permitted for any bridge across Hooghly river near the Port. This was as per the considerations of the committee of engineers in 1910, and was a fundamental condition for calling tenders for designs of the bridge. Mr. McGlashan, the then Chief Engineer of Calcutta Port Commissioners reported that there was considerable risk at providing pier on the riverbed of Hooghly as it will affect the regime of the river. It was agreed that as of present the knowledge acquired in this field, by the conservators of the Port was not sufficient for allowing the construction of piers. Again, referring to a decision of Nadia River Committee, it was settled that the tidal flow of the river Hooghly should be preserved by all means, as the existing waterway depends on this tidal flow for eight months, was also taken into consideration.

Sir Francis Spring, a famous Hydraulic Engineer responsible for the development of Madras Port, once opined to the Calcutta Port Commissioners in 1913 that "I am of the opinion that piers of more or less 20 feet thick, founded on wells of a size more or less 60 feet by 37 feet and sunk to a depth of 40 or 50 feet below the bottom level of the deepest hole to be found anywhere in the river within three or four miles of the site, will not be likely to cause currents or swirls situated beyond a mile downstream from the chosen site of the bridge". Therefore it was concluded that the use of pier in the bed of river Hooghly is forbidden near the city of Calcutta. Hence, this type of bridge although economical could not be recommended. The estimated cost of the structure came to £16,00,000, although it was economical, it was not recommended for construction by the Committee.

Floating Bridge – The proposal of construction of a Twin Bridge which was a developed type of Pontoon Bridge, designed by Sir Bradford Leslie (the designer of the existing Pontoon Bridge of Calcutta) was placed before the Committee for consideration. The proposal of Twin Bridge was submitted in the form of a paper called *The Howrah Bridge Problem*, which was deliberated during the formal inauguration of the Institution of Engineers (India) in February, 1921 by Mr. Frederick Robert Bagley, the Consultant Engineer of Gillander Arbuthnot & Company, and was admitted as an evidence before the Committee of Engineers. The design of the bridge was based on the supposition of open span to be provided. The basic principle of the Bridge is that a twin bridge supported on a cluster of pontoons with a 210 feet (64m) open span. The width of the bridge was made twice for accommodation of the increased traffic load.

However, the Committee realized that the floating bridge proposal has some serious difficulties. It was anticipated that

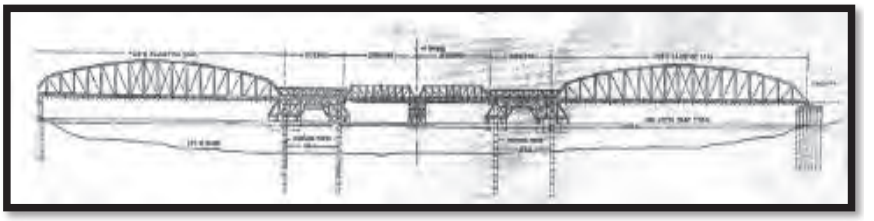


Fig No. 3 : Twin Bridge Proposal as submitted by Sir Bradford Leslie
(Figure adopted from the article *Howrah Bridge Problem* - By F.R. Bagley, the *IEI Journal* Vol.-I, September, 1921, Pg.-53-71)

the traffic volume over the bridge would cause a lot of congestion due to numerous crossing streams of traffic at the junction of the bridge approach with the main road on either side of the river. Moreover, the design submitted by Sir Bradford Leslie would require modification by eliminating the open span and re-design to suit the new conditions. Now 35 feet (10.67m) headway would be required always for the floating bridge at periods of high tide much steeper gradient will be required on the road surface. The change of gradient on the road surface of the bridge due to rising and falling tide would introduce most adverse complication for running tram cars on the bridge. This is however a typical problem observed in case of any floating bridge. The other great disadvantage of a floating bridge is that the permissible loading on a floating bridge shall be much smaller than what was anticipated to come on the floor of a bridge between the twin cities of Calcutta and Howrah considering future development of road transport at that point of time. Another important issue which was discarded in the report was the possibility of collision between a large ocean-going steamer with the bridge. If the bridge was a floating bridge on a cluster of long pontoons, then there is a grave possibility that on collision with a large steamer the whole bridge may be wreaked. While with a fixed bridge, which is much stiffer in design, the chances of damage to the ship is much more than to the bridge structure. There is also another disadvantage, the chances of collision of inland steamers with the floating bridge while negotiating the fairway. Such possibility becomes more pronounced with strong diagonal currents in the water of river Hooghly. The committee also found that the annual Operation and Maintenance cost of a floating bridge is relatively higher than a fixed bridge, as because the steel structure of the fixed bridge would be above the level of water, hence its maintenance is much easier than floating bridge where steel structures are floating on water causing corrosion to them, reducing the life of the structure.

It was estimated that the cost for placing a twin bridge was around £16,50,000 to which however the capitalized value of recurring Operation and Maintenance should be added. The committee opined that the twin bridge is a temporary solution only and may be considered as a second choice and is unworthy for the Great City of Calcutta.

Cantilever Bridge – This type of bridge would not require construction of pier in the riverbed of Hooghly. Such bridges could be constructed of a

large span. It was adopted at Quebec in Canada over the river St. Lawrence for a span of 1800 feet (548.64m). This type of bridge was capable of construction with much ease and elaborate staging was not required, as may be required for an Arch Bridge. The Bridge also allows gradual imposition of load on the foundation during the construction process, while for Arch Bridge the sudden change of pressure distribution takes place when the staging system is removed. A cantilever bridge is of greater rigidity against live loads and wind forces coming on it and it is relatively less affected by strong earthquakes. The bridge also allows easy inspection and maintenance. It is possible to design a cantilever bridge, the anchor areas of which would not much interfere with the traffic in the adjoining streets either during the time of construction or permanently.

It is a fact that the weight on the end abutment will be high but the pressure shall be vertical and there shall be no horizontal component of force such as in case of Arch or Suspension Bridge. An approximate weight on each of the bridge abutment was found to be 30,000 tons. For such huge load on soil of Calcutta large foundation area would be generally required. However, during the progress of investigation by the committee, a valuable experiment was conducted by the Chief Engineer of the Port Commissioners to determine the nature of soil at the site for the proposed bridge. The borings which were taken established the existence of a structure of hard grey clay at a depth of 97 feet (29.1m) below the G.L. at the Calcutta side and 79 feet (23.7m) on the Howrah side. The clay layer could stand a load of $5^{1}/_{2}$ tons/ sq. feet with a settlement of $^{7}/_{16}$ th of an inch (11mm) even after 25 days trial. Thus, if the foundation could be taken to that layer, it shall be of reasonable size. In the opinion of expert bridge builders, the cost of this bridge shall come to £20,00,000 and would take 3 years to complete. The committee under the Presidentship of Sir R.N. Mookerjee recommended for the construction of Cantilever Bridge across the river Hooghly between Howrah and Calcutta.

The Existing Pontoon Bridge- An inspection was done of the existing Pontoon Bridge by the committee. It was found by the members of committee that the existing bridge is in a deteriorated condition. The timber beams as deteriorated and some of span was affected by corrosion and hence it required immediate replacement to prevent the collapse of the existing Pontoon Bridge.

The committee requested that at once the Bengal Government should obtain specifications from the proposed bridge through their consulting engineer and invite tenders for the bridge to the leading dimensions and loads recommended by the technical committee.

The location of the new bridge at the site of existing bridge is unsuitable. Because then it would be necessary to remove the existing Pontoon Bridge to another site causing diversion of the road. This would cause interruption to traffic at least for more than ten days. Therefore, it was prudent to select a site for the new bridge.

The object was to provide a direct link between important centers at the junction of Harrison Road (Mahatma Gandhi Road) and Strand Road on Calcutta side with Howrah Station, again with the

system of roads based on G.T. Road on Howrah side. Careful inspection of the locality was required to avoid any major interference to valuable property and to serve Howrah Station without any detour. It was suggested that a location 630 feet (190m) above the CL (Centerline) of the present bridge between the south end of the Port Commissioners, Jagannath Ghat Shed and Mullick Ghat on Calcutta side and on the Howrah side 580 feet (175m) above the CL (Centerline) of the existing bridge would be suitable for locating the proposed bridge.

It was anticipated that due to proximity of foundation construction at Calcutta side, some parts of the Mullick ghat building and shed could be disturbed (within 100 feet (30m) of foundation construction), for which appropriate precautions were advised by the committee.

The committee indicated that the layout of the road on the Calcutta side would require absorption of the land occupied by the old Calcutta Mint (constructed by William Narian Forbes) located on the Strand road side. For that purpose, negotiation was taken up by the Calcutta Improvement Trust with the then Government of India.

The width of the roadway over the bridge was fixed on the basis of one tramway line in each direction over the bridge and considering high traffic density at least three lines of vehicular, traffic each way with one line of tramways on each side. 12 feet (3.6m) of footpath was provided on each side for pedestrian traffic.

Thus allowing 18 feet (5.4m) for two lines of tramways, 58 feet (17.4m) for six lines of traffic and 24 feet (7.2m) of two footpath a total width of 100 feet (30m) width of roadway is proposed. The footpath shall be provided as cantilever projection beyond the main girder of the bridge.

Loading on the bridge which was assumed for the roadway, was

(a) Tram cars with bogie wheel base of 18 feet (5.4m) and total load of 25 ton

(b) Motor lorries with 4 tons on front and 12 ton on back

(c) Steam rollers weighting 15 ton with 9 ton on front, 6 ton on back axle 11 feet apart

The above loads shall be treated as concentrated load for design of floor beams, secondary trusses etc. For tram cars 40% and for motor lorries 50% of impact load should be considered. For steam rollers, no impact has been considered. Tram cars should be considered as continuous stream on tram tracks.

No particular compensation for land or property affected due to construction of the bridge was recommended in the technical report as it is beyond the province of the technical committee and it was suggested to fix up compensation as per provision of Land Acquisition Act which was in vogue at that point of time. The recommendations of six-member committee headed by Sir R.N. Mookerjee may be summarized below:-

a) We recommend in view of the serious condition of the existing floating bridge and the grave consequences which would result from its failure, that no time be lost in providing a new bridge over river Hooghly.

b) We recommend that the bridge should be built of the cantilever type to the leading dimensions, loading and general description shown in this report.

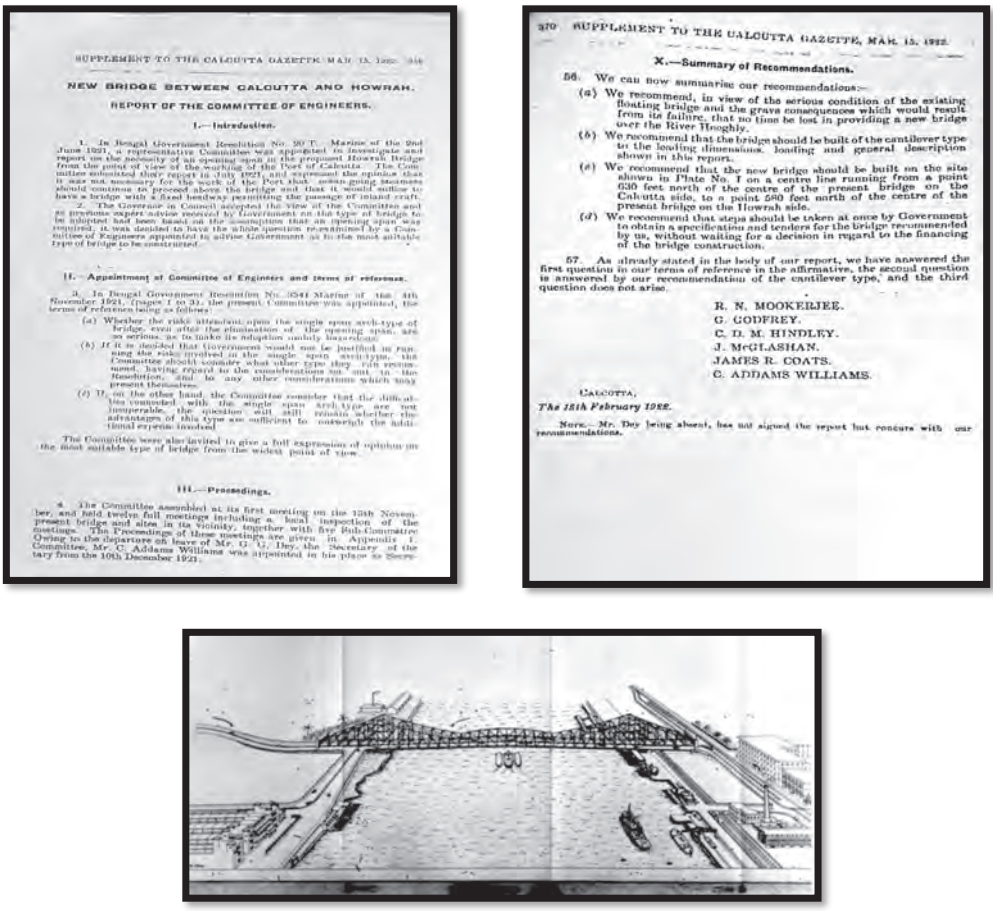
c) We recommend that the new bridge should be built on a centre line running from a point 630 feet north of the centre of the present bridge on the Calcutta side, to a point 580 feet north of the centre of present bridge on the Howrah side.

d) We recommended that steps should be taken at once by the Government to obtain a specification and tender for the bridge without waiting for a decision with regard to the financing of the bridge construction – submitted 15th February, 1922.

Therefore, it may be summarized that the committee recommended in favour of construction of Cantilever Bridge and kept the twin bridge of Sir Bradford Leslie as only the second option. Now, it happens that Sir Leslie was well-known to Sir R.N. Mookerjee as he was the person who at first recommended young Rajendranath as the contractor of Palta Water Works from where Rajendranath's career started flourishing as an entrepreneur. As described in the Biography of Sir Rajendranath Mookerjee by the author K.C. Mahindra, that Sir Leslie at an old age approached 'Sir Rajen', who was then the President of the expert committee of the proposed Howrah Bridge to give due consideration to his Twin Bridge model of the proposed New Howrah Bridge. However, Sir Rajendranath expressed with deep humility his incapacity of recommending the Twin Bridge for the city of Calcutta. Being an astute businessman he envisioned that for all round development of Calcutta a fixed bridge which shall permit continuous and smooth movement of vehicle between Howrah and Calcutta is very essential.

Sir Bradford Leslie became one of the greatest critics of the Cantilever Bridge proposal. We find a report published in *The Times of India* newspaper of 11th May 1923, where an article written by Sir Bradford Leslie is given, entitled, 'Bridging the Hooghly:- Sir Bradford Leslie's comparisons'. In this article, Sir Leslie put a comparative criticism of the Cantilever Design proposed by the expert committee vis-à-vis is the twin bridge proposal submitted by Sir Leslie. He indicated that the traffic congestion has become a prime reason for necessitating the replacement of the existing pontoon bridge which was constructed in 1874. Sir Leslie referred a committee of expert Bridge engineers in 1911 prepared a specification and invited design for the new floating bridge. Sixteen firms attended the competition and some twenty-four designs of great merit was received. The design submitted by the German firm MaschinanFabrick Aushberg et. Nurenburg was adjudged the best. But the competition was cancelled due to some defects in specification. Several attempts were made to decide upon a design but no suitable design was found. In November 1921, the Governor of Bengal appointed an expert committee of engineers, who recommended the adoption of a Cantilever Bridge.

Regarding the choosing of the site, Sir Leslie inferred that the Twin Bridge could be built alongside the present Pontoon Bridge and the object of obtaining a direct link between important office centres at the junction of Harrison Road (Mahatma Gandhi Road), the Strand Road with Howrah Station and the system of roads based on G.T. Road on housed side shall be attained without much interruption to traffic.



SUPPLEMENT TO THE CALCUTTA GAZETTE, MAR. 15, 1922. 369

NEW BRIDGE BETWEEN CALCUTTA AND HOWRAH.

REPORT OF THE COMMITTEE OF ENGINEERS.

I.—Introduction.

1. In Bengal Government Resolution No. 20 T., Marine, of the 2nd June 1921, a representative Committee was appointed to investigate and report on the necessity of an opening span in the proposed Howrah Bridge from the point of view of the working of the Port of Calcutta. The Committee submitted their report in July 1921, and expressed the opinion that it was not necessary for the work of the Port that ocean-going steamers should continue to proceed above the bridge and that it would suffice to have a bridge with a fixed bed-way permitting the passage of inland craft.

2. The Governor in Council accepted the view of the Committee and as previous expert advice received by Government on the type of bridge to be adopted had been based on the assumption that an opening span was required, it was decided to have the whole question re-examined by a Committee of Engineers appointed to advise Government as to the most suitable type of bridge to be constructed.

II.—Appointment of Committee of Engineers and terms of reference.

3. In Bengal Government Resolution No. 3541 Marine, of the 4th November 1921, (pages 1 to 3), the present Committee was appointed, the terms of reference being as follows:

(a) Whether the risks attendant upon the single span arch-type of bridge, even after the elimination of the opening span, are so serious, as to make its adoption unduly hazardous;

(b) If it is decided that Government would not be justified in running the risks involved in the single span arch-type, the Committee should consider what other type they can recommend, having regard to the considerations set out in the Resolution, and to any other considerations which may present themselves;

(c) If, on the other hand, the Committee consider that the difficulties connected with the single span arch-type are insurmountable, the question will still remain whether the advantages of this type are sufficient to outweigh the additional expense involved.

The Committee were also invited to give a full expression of opinion on the most suitable type of bridge from the widest point of view.

III.—Proceedings.

4. The Committee assembled at its first meeting on the 15th November, and held twelve full meetings including a local inspection of the present bridge and sites in its vicinity, together with five Sub-Committee meetings. The Proceedings of these meetings are given in Appendix I. Committee, Mr. C. Addams Williams was appointed in his place as Secretary from the 10th December 1921.

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X.—Summary of Recommendations.

56. We can now summarise our recommendations:—

(a) We recommend, in view of the serious condition of the existing floating bridge and the grave consequences which would result from its failure, that no time be lost in providing a new bridge over the River Hooghly.

(b) We recommend that the bridge should be built of the cantilever type to the leading dimensions, loading and general description shown in this report.

(c) We recommend that the new bridge should be built on the site shown in Plate No. I on a centre line running from a point 630 feet north of the centre of the present bridge on the Calcutta side, to a point 580 feet north of the centre of the present bridge on the Howrah side.

(d) We recommend that steps should be taken at once by Government to obtain a specification and tenders for the bridge recommended by us, without waiting for a decision in regard to the financing of the bridge construction.

57. As already stated in the body of our report, we have answered the first question in our terms of reference in the affirmative, the second question is answered by our recommendation of the cantilever type, and the third question does not arise.

R. N. MOOKERJEE.
G. GODFREY.
C. D. M. HINDLEY.
J. McCLASHAN.
JAMES R. COATS.
C. ADDAMS WILLIAMS.

CALCUTTA,
The 18th February 1922.

NOTE.—Mr. Dey being absent, has not signed the report but concurs with our recommendations.

Fig no.4 (a), (b) and **(c)** : Summary of recommendations and Design of Howrah Bridge proposed by Mookerjee Committee, Presided by Sir R.N. Mookerjee in 1921

But the Cantilever Bridge recommended by the expert committee could be located at the site 200 yards higher up the river. This would require a detour of 400 yards which according to Sir Leslie may be inconvenient to the traffic especially to the prediction traffic which came to the Business Quarter of Calcutta. He further indicated that with a fixed bridge of cantilever type without any opening for ships, will prevent any further development of the port on the Northern side. Sir Leslie further objected that the linear waterway or the clear span of 1400 feet (420m) below the fixed cantilever bridge with monolith block type foundation would obstruct the littoral tidal flow of the stream channel of river Hooghly.

Regarding the width of the roadway, Sir Leslie recorded that he suggested for twin bridge with 70 feet (21m) width for each portion a total of 140 feet (42m) which was 128% wider than the existing bridge shall provide sufficient area for the then present and further traffic

increase. One bridge with width of road as 100 feet (30m) with on 60% allowance increase of width over the existing bridge is insufficient for present traffic.

Regarding the loading considered twin bridge Sir Leslie said that for the bridge he had taken into consideration vehicles of all descriptions which are likely to pass on Calcutta roads including the tram cars plying in London. But he indicated that the load considered for the proposed Howrah Bridge by the committee is much on the higher side. Such excessive vehicle load on Calcutta roads may actually fracture water supply house connection, drain pipes and cause leakage in gas and water mains.

Regarding the time required for completion, of the Bridge Project, the plan, drawing, schedule of quantities for the floating bridge was ready with the Cleveland Bridge company; he said that the project shall be completed in two years. But for the proposed Cantilever Bridge preparation of planning, detailed design, specification, remodeling of streets on both sides of the river will not take less than six years before commencement of the work and hence immediate relief could not be ensured to the population of Calcutta.

The life of the twin bridge as indicated by Sir Leslie is around 150 years. However, for Cantilever Bridge he indicated assuring stability of foundation about 150 year's life of the structure could be achieved. But the width of bridge of 100 feet will be inadequate, within few years after the bridge was put into use, even under present traffic volume of that period.

Tender for the Bridge submitted by the Cleveland Bridge Company in 1921 for the twin bridge amounts to £1,600,000. Whereas Sir Bradford Leslie estimated the cost for Cantilever Bridge, based on similar types of bridges such as Forth Bridge of Scotland, Edinburgh completed in 1890 and another steel bridge called Hardinge Bridge over Padma River in modern day Bangladesh (which was constructed around 1912 by Braithwaite & Kirk Company and named after Lord Hardinge the then Viceroy of India), both are large span steel truss bridge with reinforced concrete abutment and anchorage foundation, and found that estimated cost of the proposed structure would not be less than £5,000,000. He challenged that the estimate put up in the report of the expert committee for £2,000,000 was misleading, neither did they realize the time that would be taken to build the bridge.

Sir Leslie also gave a good idea on the cost of approaches, reconstruction of roads on both side of the bridge, compunction for Port Commissioner's railway and jetty around £1,50,000 for floating twin bridge. For the fixed bridge, he estimated that the cost of approaches would include land acquisition compensation, remodeling streets drainage and water supply lines, cost of site for mint, buying portion of dock occupied by Messers Jessop & Co. etc. amounts to £1,000,000/-.

Interest accrued on outlay during construction work for floating bridge was calculated as £50,000 by Sir Bradford Leslie, whereas the same was calculated as £300,000 for fixed cantilever bridge. Total cost arrived at by Sir Leslie at that point of time for the work of Twin Bridge came to £18,00,000, whereas the total costing for Cantilever Fixed Bridge as per Sir Leslie's estimation at that point

of time was £63,00,000, much above the cost of the floating Twin Bridge. Thus, Sir Leslie justified that the twin bridge was rather an economic proposition and could be readily executed than the Cantilever Bridge as proposed by the expert committee of 1921.

The Howrah Bridge Bill was placed for discussion before the Legislative Council in 1924. The main issue of discussion was the prohibitive cost of the Cantilever Bridge scheme. In a speech before the Legislative Council the then Hon'ble Minister, PWD expressed that the existing Pontoon Bridge was in a deteriorated condition and if the new bridge was not erected immediately then the city of Calcutta might be left without any bridge.

The matter of construction of Howrah Bridge was referred to representative bodies such as the Bengal Chamber of Commerce, who, indicated to the Bengal Government, in 1925, that, "It seems that the opinion against the adoption of the cantilever bridge has sensibly hardened. Indeed the committee believes they are justified in saying that the consensus of opinion, as expressed at a representative conference which was held at the Government House on February 23rd, was that the cost of a cantilever bridge is beyond the financial resources of this Presidency. If as appears to them to be the case, this view is also shared by the public generally it becomes a question, whether any useful purpose will be served by further consideration of the cantilever scheme. It is admitted by all that a new bridge must be built and it would appear to be not impossible to secure more or less unanimous assent to all sections of the community to a less costly project". Finally, in the year 1926 the new Howrah Bridge Act was passed, where construction of the bridge was considered finally.

While speaking at the European Association (Calcutta Branch) Dinner on 12th June 1927, Sir Francis Stanley Jackson the then Governor of Bengal referred about Howrah Bridge when questioned as, "Above all it should be a structure worthy of Calcutta the second city of the Empire. I have nothing to do with the proposed new bridge, and I should have been pleased if those responsible were able after further consultation to recommend a permanent and solid structure—as suggested by the committee presided over by Sir Rajendranath Mookerjee, the most suitable and I believe ultimately the most economic bridge that could be erected of the cantilever type".

In an interview to *The Times of India* newspaper in August 1927, Mr. F.R. Bagley the distinguished bridge engineer opined that the cantilever bridge recommended by the bridge committee is "absolutely unsuitable", he indicated that the total span of the proposed structure was around 2100 feet (630m), covering a river of span of 1400 feet (420m), and 700 feet (210m) extra length of construction of anchor span is to be done. He recommended that the floating Twin Bridge, proposal of Sir Bradford Leslie is a very handsome arched bridge, aesthetically superior to the ugly awkward cantilever bridge proposed by the committee. He went on to opine that unless piers are allowed in the river no cantilever bridge proposal can be economic. He expressed that the technical committee did not include a

single experienced bridge engineer. He also recollected that the bold proposal put by Sir Basil Mott, the single span arch bridge, which was rejected only on the ground that a large open span was allowed in the middle to accommodate passing of ships below the bridge, creating large horizontal thrust on the abutments. However on investigations it was known that there is an excellent bed of hard yellow clay some 100 feet below Calcutta ground which allows for the construction of foundation for heavy bridge structure. Thus all objections which were raised against the single span Arch bridge structure of Sir Basil Mott was then overruled and it could be easily adopted as a worthy bridge structure for Calcutta. The problems of heavy lateral forces coming on the abutment of the Arch, could be mitigated by adopting a Bow-string Arch construction.

It appears from the study of erstwhile documents that in contemporary times the Howrah Bridge issue was a subject of engineering discussion with various opinions in favour and against the suitable type of bridge which could be actually adopted for the bridging of the river Hooghly, without affecting its regime and preserving the port of Calcutta.

Again at the annual dinner, of The Institution of Engineers (India), 13th December 1927, Sir Stanley Jackson, the then Governor of Bengal, again emphasized on the importance of constructing a permanent and solid Howrah Bridge structure against the existing worn out floating pontoon bridge. He spoke "We have a number of engineering projects of vital importance to the health and prosperity of Bengal. At present actually in course of construction there are the Khidderpore Docks, the Bally Bridge, the Damodar Canal and the improvement of roads. The schemes in prospect are the electrification of railways round Kolkata, and this might result in a central railway station for this city, and at last but not least a bridge across the Hooghly, connecting Calcutta with Howrah, of such a character as may be able to cope with the enormous traffic which grows yearly. I can hardly believe there is any Engineer in India who if asked for an opinion, can honestly state that the present bridge, or anything like it, is suitable either structurally or economically for the purpose for which it is required. A permanent and solid structure capable of carrying the burden it must bear, undisturbed by tide or traffic, can surely be the only one worthy of consideration or worthy of Calcutta".

In the year 1929, the consultant firm Messers Rendel, Palmer and Tritton of Westminster submitted a report containing design and drawing of the proposed New Howrah Bridge between Howrah and Calcutta to the Calcutta Port Commissioners. The report was divided into two sections the first portion was concerned with a cantilever bridge while the other portion is for a floating non-opening Bridge.

Once again, after being invited at the annual dinner of the Institution of Engineers, Bengal Centre, on 12th March 1930, the then Governor of Bengal, Sir Francis Stanley Jackson expressed "I remember in one of my first speeches I made in Calcutta when I did not know quiet as much as I do today- I referred with all seriousness to the Bridge across Hooghly and mentioned that the present Bridge appeared to be the same which

I was told was to be replaced by a more suitable structure when I was in India 35 years before. However I do not think I better dwell upon this venerable subject this evening. I have called a meeting of those directly responsible for making recommendations for this weekend. But one prediction I will venture to make. If the trade in this city and its environments upon the Hooghly is to progress, as I think it should in the next 20 or 30 years, it will be necessary to consider not one nor two, but possibly three means of communication, by bridge or tunnel across the river. There is I believe no insuperable Engineering difficulty as regards construction, but you will always be faced with the exceptional difficulties of this tidal river, and as you are aware- stagnant finance. When one thinks of the traffic on the bridge today, and five years ago it was calculated that 15000 vehicles passed over it in 24 hours- figures which now be increased by at least 20 percent one can only stand in amazement that the old structure does its work. As long as it stands up under terrific strain, we can carry on but the results of a possible collapse are too serious to contemplate with complacency. However I can say tonight with safety but with regret that I do not expect to cross the new bridge before I leave Bengal".

Finally we find that around 1935, global tenders were invited for construction of a cantilever bridge. Six companies participated in the tender including Krupps a German firm, Cleveland Bridge Company of Britain and the Indian consortium of 3 firms Braithwait Burn and Jessop (BBJ). The tender submitted by Cleveland Bridge Company, Darlington based on the design prepared by Messers Rendel, Palmer and Tritton of Westminster was recommended for acceptance, on the condition that they agree to purchase the raw materials from Indian market provided it was accepted to the Bridge commissioner.

Finally Cleveland Bridge and Engineering Company Ltd. won the contract with recommendation for using Indian Steel if proper quality could be obtained. The Bridge was of span 1500 feet (457.2 m) across river Hooghly with

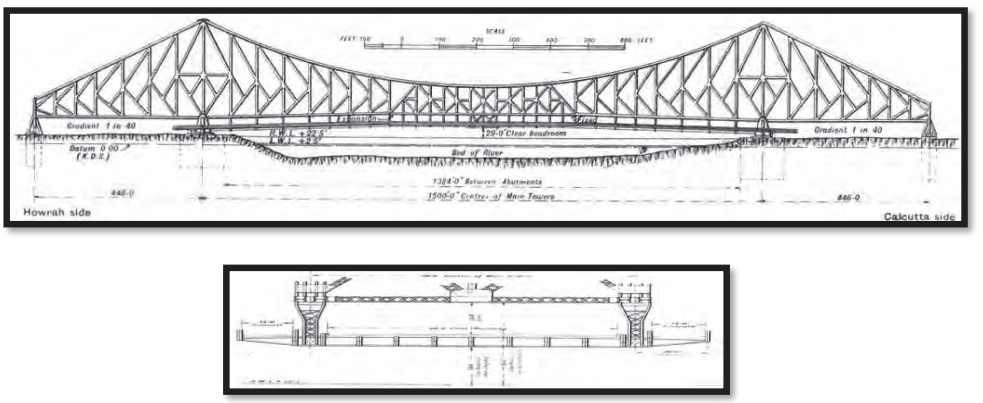

Fig no.5 : Side elevation and cross-section of Balanced cantilever steel truss bridge Howrah Bridge put up by Messrs Rendel Palmer Tritton (picture adopted from *The Engineer*, February 7th, pp. 152, 1930, Graces Guide UK).

width of roadway as 71 feet (21.6 m). Around 1936, a negotiation was achieved between the Cleveland Bridge Company & BBJ. Cleveland Bridge Company would appoint BBJ as sub-contractors. Structural steel called TISCROM which is a low alloy high tensile steel very suitable for structural steel required for Bridge structure was obtained from TATA Iron & Steel Co., Jamshedpur.

The chemical composition of the steel is as follows:-

Carbon (C)		-0.23% to 0.28%
Manganese (Mn)	-	1.0% to 1.3%
Chromium (Cr)	-	0.5% to 0.6%
Copper (Cu)	-	0.3% to 0.6%
Silicon (Si)	-	Not more than 0.2%, Sulpher (S) & Phosphorus (P) not more than 0.05% each.

The above variety of steel had all the required engineering properties in it such as strength, resistance to impact, corrosion resistance, abrasion resistance, easiness of forming structural sections, satisfactory welding etc. This variety of steel manufactured at TISCO Jamshedpur was in general a popular structural material among bridge engineers for constructing bridges having large span and subjected to heavy traffic loading. The excellent engineering properties were incorporated in the high tensile steel due to inclusion of copper and chromium in small percentage. Development of this variety of high tensile steel was a feat of metallurgical engineering and revolutionized the steel industry of India in contemporary times.

The structural members of the Bridge were fabricated at four workshops of BBJ at Calcutta and were erected at the site, using creeper crane technology which did not require construction of any elaborate staging system. The entire bridge structure consisted of riveted built-up sections. 26500 tonnes of steel mostly manufactured at TISCO, Jamshedpur was used for the construction of Howrah Bridge. The Bridge has no pier in the riverbed. The foundation of the Bridge was of monolith type at the Howrah and Calcutta side, below the two towers and also for the anchorage span which counterbalanced the cantilever span.

The work of construction of the bridge started in 1936 and continued through World War-II. On February 1942, Singapore, which was then a British territory and a British stronghold, fell to imperial Japanese army. Subsequently, in April 1942, Burma, another British territory also fell before progressing Japanese army, exposing Calcutta to the vagaries of air attack by Japanese 'Zero' fighter plane manufactured by Mitshibushi Company. The target of attack was Khidderpore Dock, on the Christmas Eve of 1943. The dock was bombed with at least 70 aerial bombs setting the dock and the porter sheds on fire and resulting into 500 deaths. The deaths were mainly among the coolies and damage also took place to the stationed ships at the Port. The Howrah Bridge which was under construction was protected with balloons filled with Hydrogen gas, by 978 balloon squadron of Royal Air Force. The balloons were attached with steel cables, which prevented the bomber aircrafts from getting low and hitting the targets. The airplane would get entangled in the cables and crash to the ground. Finally, the Bridge was opened to traffic on February 1943, when a solitary tram crossed the bridge.

The leading dimensions and specifications of the existing bridge are tabulated below:-

- The Howrah Bridge is a suspended balanced Cantilever Steel Truss bridge, which is constructed of built up steel riveted sections.
- The Bridge is a through-type bridge, the roadway (deck slab) hangs from the bottom chord of the truss with 39 pairs of suspender members between the two main towers on Calcutta and Howrah side.
- The anchor arm of the bridge is 325 feet (99.06 m) long, the main truss of the Bridge is spaced 76 feet apart (23.16 m) and the total roadway width is 71 feet (21.64 m) between the footpath including 8 lanes of vehicular traffic and 2 nos, 15 feet (45 m) cantilever footways on either side of the bridge for pedestrians.
- The two towers of the bridges are 270 feet (82.3 m) high above road level and 76 feet apart.
- The central span is simply supported suspended span. The cantilever and the suspended span are connected with pin joint connection through a vertical member which carries only axial tension.
- Expansion joints were provided between the cantilever and the suspended span to accommodate changes due to heating and cooling of steel stress by sun rays. The main towers were made flexible to accommodate elastic deformation of the structure.
- The Bridge is founded on giant Monolith type foundation of size 181'6" (55.18 m) long and 81'6" (24.71 m) wide resting on a hard clay bed located about 97 feet (29.56 m) below Calcutta ground level. The foundation has a factor of safety of 2 against worst load combination of vertical and wind loads.

The Howrah Bridge which was commissioned and opened to traffic on 3rd February 1943 has successfully served for more than 80 years. It is one of the busiest of bridges loaded with heavy vehicular traffic. The Bridge between the twin cities of Howrah and Calcutta (Kolkata) is a suspended balanced cantilever bridge, built of special type of structural steel manufactured by TISCO Jamshedpur, supported on highly stable monolith type of foundation, with fully riveted connection is an excellent example of structural engineering and metallurgy which has placed Indian engineering on a world platform, built with a technology and specification much ahead of time. The Bridge is an excellent example of sustainable construction and functional heritage structure.

The steel Behemoth permanently established the legacy and engineering judgment of the astute civil engineer Sir R.N. Mookerjee, whose brainchild is this excellent construction, foundations of which were laid in the expert committee report of 1921, presided by Sir Mookerjee sealed the fate of the future development of the twin cities of Howrah and Calcutta.

A Brief Note on Manuscript Conservation Centre at The Asiatic Society

Keka Adhikari Banerjee
Curator and Co-ordinator (ASKMCC), The Asiatic Society

The Asiatic Society, Kolkata, one of the oldest institutions of the world, possesses a huge collection of manuscripts (51000 approx.), among which few are rare and scarcely available throughout the world. These manuscripts, written in various languages and scripts, are the invaluable sources of knowledge. Different kinds of materials like hand-made paper, palm leaf, birch bark, machine made papers etc. were used in manuscripts. Due to many physical, biological and chemical factors, the condition of these manuscripts deteriorates day by day which require their proper preservation. So, possessing this vast collection of manuscripts is not only a matter of pride but also brings a concern about their preservation years after years.

The Asiatic Society, Kolkata has been engaged in the work of preservation of the manuscripts for the few decades in its own Conservation Section. Many rare and valuable manuscripts have already been conserved and the work is still going on.

Here it should be mentioned that in the field of Conservation of Manuscripts, the role of National Mission for Manuscripts (NMM) is very important and it is needless to say that the Conservation activity of NMM has set new benchmark in this field. As the main areas of concern for the Mission is to protect manuscripts from further decay, damage and destruction, their activities are totally focused on providing basic training and information on preservation, conservation of manuscripts and organising awareness workshop. Through its network of Manuscript Conservation Centres and Manuscript Conservation Partner Centres, the Mission has been organising a number of workshops and training programmes across the country to create a national base of conservation expertise around manuscripts.

The Asiatic Society, Kolkata with a MoU signed with NMM has established a Manuscript Conservation Centre named Asiatic Society Kolkata Manuscript Conservation Centre (ASKMCC), with an aim to expedite the process of conservation of this huge collection. One Senior Conservator (Amit Kumar Saha) and two Conservators (Sourav Manna and Sriparna Nath Chakraborty) were engaged (purely temporary) under ASK-MCC. The Conservators have Master degree in the relevant fields, proper training from reputed organisations like NRLC and also working experience in various esteemed organisations. Under the grant received from NMM, a Conservation laboratory was set up at the Museum adjacent area and all kind of possible laboratory infrastructure

Amit Kumar Saha, Senior Conservator [in the front] is cleaning dust from the Manuscript and Sourav Manna, Conservator [in the rear] is cleaning and shaping the manuscript after lining

and laboratory materials were provided to the Conservators. They are performing both Preventive and Curative Conservation of the manuscripts using modern techniques and methodologies. Initially they started their work under the guidance and training of the Senior Conservators of the Conservation Section of the Society and after that they initiated their work in the newly formed laboratory under ASKMCC. The fine and exquisite works of the Conservators have already restored many damaged and bad-conditioned manuscripts and if this kind of project may be continued for a longer period of time it will help to save the precious manuscripts for the research works of the future generations.

Besides doing in-house conservation works, the Asiatic Society Kolkata Manuscript Conservation Centre, being a Centre of Manuscript Conservation, has planned to work in near future with other institutes/organisations in collaboration with them following the NMM guidelines.

Sriparna Nath Chakraborty, Conservator is doing strip-lining work of the manuscript under Curative Conservation

Contributions of Raja Rammohun Roy to the Promotion of Persian Studies in India

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Raja Rammohun Roy (1772–1833) was one of the renowned scholars and reformers to whom India and the world are indebted for their role in bringing out reforms in the fields of education, religion, society, culture, politics, language, literature, etc. He also made laudable and remarkable contributions to India's socio-religious and educational reforms during the 18th and 19th centuries. Besides these, he had played a remarkable role in the promotion of Persian studies in India as well through his unforgettable works such as *Tuḥfat-al-Muwaḥḥidīn*, Persian newspaper *Mirat-ul-Akhbar,* and *Munazaratul Adyan*.

It is known that Persian language holds the status of the court language since the foundation of the Delhi Sultanate in the early 13th century CE until the decline of Mughal rule in the 19th century, i.e., for more than six hundred years. Besides Muslim poets, scholars and nobles, a large number of Indian natives were associated with courts of Muslim rulers and their nobles. They hold high ranks and position at their court too. They always felt proud to read, write, and speak this Persian language and literature. They had also contributed a lot to the promotion of Persian Studies in India through their creative, critical, and translated works. Rammohun Roy's family was associated with the royal courts too and they greatly served for many generations. His great grandfather Krishna Chandra Banerjee, was associated with the court of Nawab Ali Vardi Khan (1740–1766), during Aurangzeb's reign. He was conferred the title 'Roy' for his great service. [1] From that time, his family was known as Roy instead of Banerjee. His grandfather, Raja Vinod Roy, served under different Nawabs such as Nawab Ali Vardi Khan, Mirza Abdullah Ali Shah Thani (second), and Nawab Seraj-ud-Daula.[2] Vinod Roy rendered useful service to Shah Alam II during the latter's eastern campaigns as well**.** Rama Kanta Roy, father of Rammohun, was also attached to the court of Nawab Seraj-ud-Daula.[3] Rammohun Roy was too associated with the court of Mughal Emperor Akbar II.

Rammohun followed his family traditions. He learnt Persian from a Maulvi of Dharmapur, along with his early customary religious education from Munshi-Chala of Ram Narayan Sarbadhikari.[4] Dharmapur was the centre of Muslim education at that time, which was the neighborhood village of Rammohun's native place, Radhanagar. At the age of 9, he went to Azimabad (now Patna) to learn Persian language and literature at the incitement of his father, Rama Kanta Roy. Azimabad was one of the main centres of Islamic studies and science at that time. He stayed there for three years. During his stay, he learned Arabic to read the Holy Quran in its original form, along with Persian, from a Maulvi. He

learned philosophy and mathematics there as well.[5] At an early age, he got mastery over the Persian language and literature. He always uses the Persian couplets of the renowned Persian poets (such as Hafiz Shirazi, Maulana Rumi, Sa'di Shirazi, and others) and phrases and quotes of the Sufis and others in his speeches, conversations, and writings in support of his thought and arguments. His intimate connection with the Chief Qazi of Sadar Diwani Adalat and the maulvis of Fort William College must have played an additional role in the growth of his knowledge of Arabic and Persian.[6] Due to his extensive knowledge and command over Persian language and literature, he was called 'Mouluvee Ram Mohuna Raya'.[7] On the other hand, his contemporaries called him 'Zabardast Maulvi' for having great proficiency in both Persian and Arabic languages and their literature and linguistics as well. [8]

After getting a traditional education, he worked as a Munshi (Clerk) and Dewan in the East India Company from 1803 A.D. to 1816 A.D. After serving the East India Company, he came to Calcutta in 1816 A.D. and settled down here permanently. In Calcutta, he was engaged in bringing about the reform in the field of politics, economics, and education through his writings and lectures. In 1831 A.D., the Mughal Emperor Akbar II bestowed the title 'Raja' on him when he visited England as an ambassador and legal representative of the Mughal Emperor to submit a representation to the King of England to increase the allowances granted by the British to the Mughal Emperor. He died on September 27, 1833, in Bristol (Britain) because of meningitis.

As we know, Roy had a great command over Persian language, literature and Islamic Studies like his ancestors. He left many remarkable works in Persian such as *Tuḥfat-al-Muwaḥḥidīn*, *Mirat-ul-Akhbar* and *Munazaratul Adyan*. The study of his renowned Persian works will be discussed in this respect.

1. Tuḥfat-al-Muwaḥḥidīn

Tuḥfat-al-Muwaḥḥidīn considered as one of the earliest and remarkable works on monotheism. Rammohun Roy wrote this outstanding work in Indian Classical Persian in 1790 A.D. with a preface in Arabic language. In this short treatise, he tried to deal with the basic problems of principal religions of the world from the Unitarian point of view. He wrote this work in a difficult style by using Arabic and Quranic terms and Persian couplets of the renowned poets, vocabularies, idioms, and phrases to express his thought on Universalism. In this work, he discussed the different theories of the earlier writers and scholars on "Tawheed" analytically and comprehensively as well.[9] Besides these, he criticised policy of religious groups, orthodox customs and idol worship too in a harsh manner.[10] Through this work, he was trying to encourage and bring out the awareness among the Indian masses through his central ideas such as :

1. All human beings are equal in the Creator's eye
2. Follow the Truth and don't look to the Numbers.

It is interesting to note that he classified the human beings into four categories in this work. First are those deceivers who will fully invent doctrines. Second are those who are unwittingly deceived. The third category is both deceivers and deceived. Lastly, there are those who are neither deceived nor who deceive.[11]

A group of scholars opined that a

Persian book named *Dabistan-e Mazahib* (School of Religions) written in 1645 A.D. as the main source of Rammohun Roy's remarkable work *Tuḥfat-al-Muwaḥḥidīn*.[12]

We have found different editions of this remarkable short treatise of Rammohun Roy which were published from the different places. The details of such editions are as follows:

1. Murshidabad Edition, 1803 or 1804 A.D. It is considered as the first edition of the *Tuḥfat-al-Muwaḥḥidīn*.
2. Second Edition, 1859, Oriental Department, British Museum (MSS. No. 4738).
3. Patna Edition, 1898, pp. 38 (litho), Azimabad.
4. Calcutta Edition, 1884, Adi Brahmo Samaj, Kolkata.
5. According to editorial note, *Indo-Iranica*, another edition had been published in 1918. But unfortunately no other information regarding its publication has been found.[13]

Later on the above editions, the text of *Tuḥfat-al-Muwaḥḥidīn* again had been published in the journal *Indo-Iranica*, Vol. IV, No. I, July 1950 with the corrections of printing mistakes of the earlier editions.

On the celebration of 50th Anniversary of Rammohun Roy, *Tuḥfat-al-Muwaḥḥidīn* was edited and translated into English first time by Maulvi Obaidullah El-Obaide in 1883, on the request of Raj Narain Bose, the President of Adi Brahmo Samaj.[14] It was published in August 1884 from Calcutta.[15] After him (Obaide), Kishori Chand Mitter translated it into English and published it from Calcutta in 1975. A good number of Bengali translations of this renowned work have been done also.

2. *Munazaratul Adyan* (Discussion on various religions)

It is another lost important Persian work of Raja Rammohun Roy which deals with the discourses of different religions. It has been written in 1814 A.D. in the form of dialogues in which two or more persons have discussed on a given special subject.[16] After its composition, Rammohun Roy printed out some pages of his book *Munazaratul Adyan* to avoid any mistakes done by copyist and any further changes in future as well.[17] Later on, no one knows what happened with its copy and no copy of its composition is found in any library of the world. Mention may be made in this regard of a booklet in the British Museum entitled *Jawab-i-Tuḥfat-al-Muwaḥḥidīn* which sought to defend it against the criticism of the Zoroastrians, is falsely attributed to Rammohun.[18]

3. *Mirat-ul-Akhbar* (the Mirror of News)

Rammohun Roy always advocated for free speech and expression. He fought for the rights of vernacular press. He protested against the control and suppression of the British Government on freedom of speech and expression. He always tried to bring out the socio-political, economical and educational awareness among his countrymen through his writings. He brought out many journals and newspapers in different languages (i.e. English, Hindi, Persian and Bengali) for this purpose. He brought out a weekly newspaper in Persian language i.e. *Mirat-ul-Akhbar* (the Mirror of News) which is considered as the first Persian newspaper of India. It was published every Friday of the week. Its first issue was published on 12th April 1822. It was continued for a year and was folded on 4th April 1823. He brought this Persian newspaper to convey his socio-

political and religious opinions and other useful information to the elite classes of India. Persian was still recognised in courts, and other administrative institutions, and was the medium of the communication and expression of the elite classes of the country as well. Through this Persian newspaper, he always openly criticised the British government and their policies. His remarks and observations were always considered as highly offensive and condemnable by British officials and government. This paper got more attention of the British government after the editorial comments on such events like judicial death of Pratap Narayan Das, a zamindar of Tipperah,[19] reception of Persian prince by Marquis of Hastings, the story of Padshah Begum of Oudh, and controversy over Sati etc.[20] Out of fear of public criticism under the free press, the British East India Company issued an ordinance i.e. Press Ordinance on 14th March 1823 to suppress and curtail the liberty of press and publication of journals. It became a law on 4th April 1823. The Press Ordinance made it compulsory for the author of the newspaper and journal to obtain a licence from the Governor General in Council, signed by the Chief Secretary. After the enactment of the Press Ordinance, Rammohun Roy closed down this Persian newspaper *Mirat-ul-Akhbar* on 4th April 1823 as a mark of protest.[21]

From the very beginning, *Mirat-ul-Akhbar* possessed a high standard intellectual gravity of journalism. Its critical editorials and extensive information regarding socio-political, economical and international affairs set indeed a very high standard for other journals and newspapers. It was very famous too in Persian speaking countries for its language, contents, editorial notes and high standard of journalism. It was sent to Kabul, Tehran, Samarqand and Bukhara.[22] Unfortunately not a single copy of its original issues has survived. Till now whatever is known about its history and contents, is entirely from James Silk Buckingham's *Calcutta Journal*, official documents and other contemporary journals. James Silk Buckingham, a great friend of Rammohun Roy and the editor of *Calcutta Journal* translated the Roy's editorial notes and articles of "Miratul-Akhbar" into English language and published them in his renowned journal entitled *Calcutta Journal*.[23] The first twenty-six summarised issues of the *Mirat-ul-Akhbar* had been published in journal *Calcutta Journal*,[24] which provides us an excellent documentary pictures of its importance and role to keep his countrymen enlighten from the national and international news and government policies too.

The contents of the different issues of the *Mirat-ul-Akhbar*, based on translation appearing in *Calcutta Journal* are as follows:

The first issue of *Mirat-ul-Akhbar* dated 12th April, 1822 deals with the contents such as: [25] (i) Editorial Note, (ii) Government Regulation for Medical Leave for Company Servants, (iii) Difference with China, (iv) Trial of John Hayes, Judge of Tipparah, (v) Release of Prisoners on the Kings Birthday (23rd April), (vi) Cause of enmity between Russia and the subline port, (vii) Exploits of Ranjit Singh, (viii) Shipping intelligence, (ix) Reports of Crops in Hindustan, (x) Pair of elephants for Sale, (xi) Price of indigo and opium, (xii) Proposal of an English School in Delhi.

The other important contents of the different issues of the *Mirat-ul-Akhbar* are as follows:

1. English Constitution (second issue)
2. Observations of Rammohun Roy

on the Doctrines of Trinity (August 1822)
3. Ireland—The causes of its Distress and Discontent (October 11, 1822)
4. Greek War of Independence.
5. English Constitution (April 1822)
6. Judicial death of Pratap Narayan
7. Story of the Persian Prince by Marquis of Hastings
8. Story of the Padshah Begum of Oudh (4th October 1822)

Conclusion

Raja Rammohun Roy had extensive knowledge of Persian language literature and Islamic Studies. He had written such works *Tuḥfat-al-Muwaḥḥidīn*, *Munazaratul Adyan* and *Mirat-ul-Akhbar* in Persian language. The style in which the Persian works have been written and technical terminologies and vocabularies used in it, shows his mastery and command over the Persian language and literature. His Persian works considered as important and authentic sources for the study of the contemporary Indian society of the 19th and 20th century as well. Through his works, he tried to bring out the socio-political, religious and educational awareness among the Indian masses. His Persian works made him an unrivalled and unparalleled personality in the Persian literary arena.

Notes

1 Alimuddin, Md., *The Contributions of the Hindus to Persian Literature in Bengal*, Kolkata, 2014, pp: 101.
2 *Ibid*
3 Sarkar, Jagadish Narayan, *On Understanding the Universalism of Raja Rammohun Roy, Indo-Iranica*, Vol. xxv, No. 2, 1972, pp: 13
4 *Ibid*, pp: 11
5 Alimuddin, Md., *The Contributions of the Hindus to Persian Literature in Bengal*, Kolkata, 2014, pp: 101.
6 Sarkar, Jagadish Narayan, *On Understanding the Universalism of Raja Rammohun Roy, Indo-Iranica*, Vol. xxv, No. 2, 1972, pp: 12
7 *Ibid*
8 Khalilur Rahman, *Homage to Raja Rammohun Roy, Indo-Iranica,* Vol. xxv, No. 2, 1972, Kolkata, pp: 42
9 Sarkar, Jagadish Narayan, *On Understanding the Universalism of Raja Rammohun Roy, Indo-Iranica*, Vol. xxv, No. 2, 1972, pp: 12
10 *Ibid*, pp: 20
11 Alimuddin, Md., *The Contributions of the Hindus to Persian Literature in Bengal*, Kolkata, 2014, pp: 102.
12 Cromwell, S. Crawford, *Rammohun Roy, His Era and Ethics*, Arnold Heinemann Publishers, New Delhi, 1984 pp: 11.
13 *Indo-Iranica*, Vol- IV, No. I, July 1950, pp: I (Editorial Note on the Tuhfat-ul-Muwahhidin)
14 Nag, Dr. Kali, *Raja Rammohan Roy, Indo-Iranica*, Vol: IV, No. 1, July 1950, pp: 4
15 *Ibid*
16 EI-Obaide, Obaidullah, *Tuhfahtul Muwahhidin*, K. P. Bagchi & Co., Calcutta 1975, pp:25
17 *Ibid*
18 Sarkar, Jagadish Narayan, *On Understanding the Universalism of Raja Rammohun Roy, Indo-Iranica*, Vol. xxv, No. 2, 1972, pp: 20
19 Nair, P.T, *Persian Printing and Press in Calcutta, Indo-Iranica*, Vol- LVI, No. I, Mar-Dec 2003, pp: 44
20 *Ibid*, pp: 45
21 Tagore, Saumyendranath, *Rammohun: His Role in Indian Renaissance*, The Asiatic Society, Kolkata, pp: 69
22 Alimuddin, Md., *The Contributions of the Hindus to Persian Literature in Bengal*, Kolkata, 2014, pp: 103.
23 Tagore, Saumyendranath, *Rammohun: His Role in Indian Renaissance*, The Asiatic Society, Kolkata, pp: 73
24 *Ibid*
25 Ahan, Akhlaque Ahmed, *Hindustan mein Frasi Sahafat ki Tareekh*, Educational Publishing House, Delhi, 2008, pp: 55

Sukumar Ray and his *Abol Tabol*, Rhymes without Reason as Remembered in The Asiatic Society

Mahidas Bhattacharya
Member, The Asiatic Society

On 14th June 2024, a daylong memorable seminar 'Sukumar Ray: Sristichara Niyamhara Asambhaber Jadukar' was organised by The Asiatic Society, to commemorate the Death Centenary of Sukumar Ray and the 100 years of *Abol Tabol* (AT) publication. The Vidyasagar Hall of Heritage Building of The Asiatic Society was full of the then Council Members, General Members, Research Scholars, Students from Universities, administrative and other officials of The Asiatic Society.

Inaugural Session

Dr. Shakti Mukherjee, Research Officer-in-charge of the Society, invited the dignitaries of the inaugural session to occupy the chairs. Professor Swapan Kumar Pramanick, the then President of the Asiatic Society garlanded the image of Vidyasagar, and Mr. Amit Ghosh, a Senior Official of the Society, sang the first poem of The *AT* as inaugural song with an elevated voice. The session was released. Professor Pramanick chaired the session.

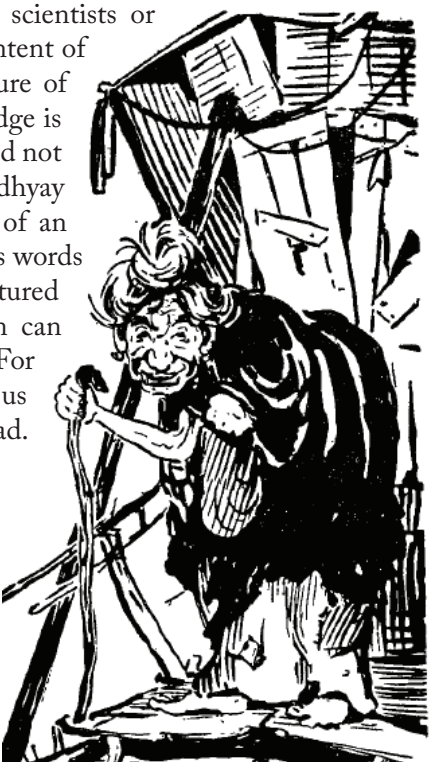
Welcome Address by the then General Secretary

Dr. Satyabrata Chakrabarti, the then General Secretary of The Asiatic Society, welcomed the gathering. The innovativeness of the programme was appreciated by him to cover the contribution of Sukumar Ray's multidimensional genius and captivating creative faculty for Bengali Language and Literature. By using a few words, Dr. Chakrabarti, described how the Ray's 'Kheyal Ras' of *Abol Tabol*, gradually attracted the heart of common Bengalees, though it happened after his unfortunate early demise at the age of 36. Initially his *Abol Tabol* was not appreciated by the Bengalees, but after the publication of Signet Press in 1945 the space of Ray's poetic genius was placed in the heart of all sections of Bengali Speakers.

Inaugural Speech

Professor Samik Bandyopadhyay, eminent film & theatre critic and author,

in his inaugural speech elaborated how this priceless *Abol Tabol,* became a unique creation reflecting the poet's scientific bent of mind. Comparing with the *Raktakarabi* of Tagore, composed in 1923-24, Professor Bandyopadhyay was trying to mention how scientific thoughts were taking new turn during the World War and post-war period in the second decade of 20th Century which was exposed in literature. *Raktakarabi* of Tagore recorded one and another aspect is available in *Abol Tabol.* The science appeals the man to cross all boundaries, boundaries of physical ability, social convention, natural world etc. It asks the man to establish himself, appeals to be skeptic to raise questions to break all obstacles and inertia. But where are those men? They are within the conventional inertia, long away from this appeal of Science. Sukumar wanted to break that limitation of man in his *Abol Tabol*. In 'Khichuri', each of the characters raised questions or tried to break the convention, having curiosity around himself, the life of Science. Behind the 'Kheyal Ras' of 'Khuror Kal', Sukumar attempted to make the innovativeness active adding the emotion for basic needs. Human's unbounded desire is available in 'Kimbhut'. A number of poems like 'Andha Bichar', 'Bijnan Siksa', 'Abujh' etc. possess such evidences of science. A distance emerges within the society between common men and scientists or learned men in early Twentieth Century. The content of 'জীবনের হিসাব' (Accounts of Life) depicts a picture of it. Simultaneously it also tells about that knowledge is not for knowledge's sake, knowledge is relative and not enough without application. Professor Bandyopadhyay selected a particular poem 'বুড়ির বাড়ী' (Cottage of an Old Woman) from the same text. Sukumar in his words and corresponding pictorial illustration, here, captured a real-time content. In no way this illustration can be compared with any other picture of *AT*. For comparison the set of ink-lines of it reminds us only the sketches of 'Manvantar' by Chittaprasad. Dr. Bandyopadhyay emotionally placed the lines



"ছাদগুলো ঝুলে পড়ে বাদলায় ভিজে,
একা বুড়ী কাঠি গুঁজে ঠেকা দেয় নিজে।
মেরামত দিনরাত কেরামত ভারি
থুরথুরে বুড়ী তার ঝুরঝুরে বাড়ী।"

Parts of roof hang from above, getting wet with rain / The old lady uses a stick as leaned to

that alone / Resetting day and night, skill is great / Old trembling lady and her worn out feeble cottage.

These lines have an open-ended appeal to all even today in one hand, raises questions surrounding us on the other. Probably *AT* has same appeal as a whole. The time has passed away but not the situation. This lesson from Sukumar ought to be carried out to commemorate Ray and his *AT* properly.

Theme by Co-ordinator

Professor Mahidas Bhattacharya, co-ordinator of this seminar, introduced the theme and purposes of this seminar in brief. According to him this seminar was a part of revisiting 19th and early 20th Century through a series of institutional programmes since 2019. One purpose of these programmes was to revisit and re-evaluate the contribution of pioneering personalities and scholarships of the said period. i.e the period of 'Nabajagriti in Bengal' and to unfold and rearrange the epistemic world with unknown or little-known historical facts and events, if present there. A combined proposal of this seminar was placed to take an account of two great Bengali poets Michael Madhusudan Dutta and Sukumar Ray, on the occasion of BiCentenary of Dutta's Birth followed by the Death Centenary of Ray, separately but simultaneously, in the continuation of similar programmes on Rammohun, Vidyasagar, Rajendralala, Akshay Kumar Dutta and several others. How these two poetic geniuses and scholarships can be placed on the developmental axis of language and literature was the primary objective. The programme on Madhusudan has already taken place.

Sukumar was pictured as 'Asambhaber Jadukar' in literature, in the title of the seminar, within a few decades of 19th Century, other than the Science, social reformation and social philosophy, the structure of the Bengali Language changed rapidly in phases. Since the beginning of Fort William College to the late fifties of 19th Century, the prose structure took new turn. By the middle of the 50s i.e. prior to Madhusudan, the founding stone for the Bengali structural pattern got a shape. He proved the literary efficiency of the language. By the process of vernacularisation within the first part of 19th Century the Bengali syntactic pattern for prose became matured enough to carry out any content which was in doubt during the period of Rammohun Ray. But how does Sukumar only come here? Language has two planes - content and expression. Rammohun was talking about the shortcomings of the expression level, though in principle both levels flourish simultaneously. After Madhusudan, the great literary contributors came in the history of Bengali Literature, but Sukumar's contribution is unique, in respect of the manipulation of expression level where the presence of 'Sense i.e. content' was less prominent by the pattern of 'nonsense' expression, producing another level of meaning as if the expression levels have developed a type of autonomy to produce literary aesthetics, keeping away the convention of sense. Such foregrounding in expression attracts the readers' attention, emotion, whether they are child or adult, does not matter. By using his innovative effort and unique power of creative mind he influenced to break the inertia in literary form. His power of creation was not

ready to obey the prescriptive direction of grammar - 'ব্যাকরণ মানি না' 'I do not agree with the rule of grammar'. By rejecting the traditional Sandhi process he developed a new way to form words like 'bak' 'বক' + 'kacchap' 'কচ্ছপ' > 'bakacchap', 'morag' 'মোরগ' + 'garu' 'গরু' > 'moragaru', like that 'hansjaru', 'হাঁসজারু' 'girgitiya' 'গিরগিটিয়া', 'bichagal' 'বিছাগল' etc. Sukumar wanted to break the everlastingness of word–meaning relation. According to him such relation is the poisonous teeth of meaning. Probably this notion on semantics made him to produce 'Kheyal Ras' utilising the constituent elements of expression. *Abol Tabol* is the product of his 'Kheyal Ras' and individual mental discourse, derived from the family experience other than society education etc. Unique combination of lexical items makes, 'impossible', 'as possible one', like, "ঝাপসা গলায় ফার্সি কবে, হুঁকোর জলে আলতা গুলে, ছেঁচকি শাকের ঘণ্ট মেখে মাথায় মলম মাখে, আড়াই বিঘা সমুদ্রতে কাঁঠাল কত ফলে" etc. A man with unique literary creation - "গাধাটার বুদ্ধি দেখো - চাঁট মেরে সে নিজের গালে কে মেরেছে দেখবে বলে চড়তে গেছে ঘরের চালে।" *Look at the poor ass, slapping on his own cheek by himself, climbed up on the roof of the cottage to look at - who has slapped him.*

Sometimes it seems to us that Sukumar Ray is equivalent to *AT* or *Hy-Ya-Ba-Ra-La* or *Pagla Dashu*. But Sukumar has contributed in several knowledge areas like biography, animal world, superstition and society, science, art, music, religious and political understanding, music and painting, and illustration of literature, printing, printing technology and photography, appreciation of scholarship, power of organisation etc. These are also the part of today's programme. The speakers of the day will elaborate these to enrich our research scholars, beloved students and others by hammering their intellect and power of creativity.

Presidential Address

Professor Swapan Kumar Pramanik, the then President of the Society placed Sukumar as the creator of 'Kheyal Rasa' and powerful painter, his 'Monday Club' is another unique power of Sukumar. It is true that he had a family tradition. His father Upendrakishore and other members of his family created a path for Children Literature in Bengal. Within the short span of his life, only thirty six years, a span of 9 years 1915-1923, of which last two years were in bed, whatever he had done is unique, excellent in Bengali Language and other areas. He had a deep and respectful interactive relation with contemporary scholarships like Rabindranath Tagore, Prashantachandra Mahalanabish, Kalidas Nag, Suniti Kumar Chattopadhyay and number of others, enlisted his 'Monday Club'. Professor Pramanik expected that the participant in the seminar will bring out Sukumar Ray as a whole and his time to the audience. The inaugural session of an hour was concluded by the proposed Vote of Thanks to the speakers, audience, staffs and other participants by Dr. Sujit Kumar Das, the then Treasurer of The Asiatic Society.

A group photo of 'Monday Club' founded by Sukumar Ray; First row sitting from left: Subinoy Ray, Prasanta Chandra Mahalanobis, Atul Prasad Sen, Shishir Kumar Datta, Sukumar Ray; Middle row from left: Jatindranath Mukhopadhyay, Amal Home, Suniti Kumar Chattopadhyay, Jibanmoy Roy; Standing from left: Hiran Sanyal, Ajit Kumar Chakrabarty, Kalidas Nag, Pravat Chandra Gangopadhyay, Dr. Dwijendranath Maitra, Satish Chandra Chattopadhyay, Shrish Chandra Sen, Girija Shankar Roy Choudhury.

Sandesh o Sukumar

The Academic Sessions were full of captivating events and source of unfolded Sukumar and unknown world of *Abol Tabol* and his composer. Dr. Parthajit Gangopadhyay, an eminent author, vividly elaborated the relation of Sumkumar Ray with *Sandesh,* an unforgettable periodical for the children in Twentieth Century. This topic of discussion was '*সন্দেশ* ও সুকুমার' *'Sandesh* and Sukumar'. Within a half an hour elaboration, Dr. Gangopadhyay described the history of the periodicals for the children since 1883, by the publication of *Sakha* till the modern time and the emergence of Great Raychowdhury family in the 100A Garpar Road of Calcutta, who were involved with it since beginning. Upendrakishore, coming from Masuya village of Maymansingha, met Pramadaranjan Sen, the editor of *Sakha*. This relationship was an entrance of Upendra into the activities of *Sakha* as well as writing texts. Unfortunately Sen could not carry out the struggle of personal life and passed away at very early age. Upendrakishore filled up the space of Children Literature and continued till his untimely death on 20th December 1915. Upendrakishore with his versatile creative ability in the field of arts, music, drawing and creative literature as well as in the field of half-tone Printing Technology, drew the attention of, not only the contemporary Bengali Scholarship, the Europeans also. Involving Pramadaranjan, Kuldaranjan, his brothers and then Sukhalata, Punyalata, Sukumar, Subinay, all most all young generation of his family made the Garpar Road an epic centre

of Children Literature. Upendrakishore was not satisfied with the publication of *Sakha,* as well as *Sathi, Mukul, Balak* from Tagore's family etc; all these are periodicals for the children, but something was absent according to his dream. Then he decided to Publish *Sandesh* in 1913, when Sukumar was in London for his education on Photography and Printing Technology. Gradually in course of time Upendrakishore, as a pioneer in the field, created a different literary heritage for the children. But in 1915, like Sen, Upendrakishore left. Sukumar picked up his father's dream on his own shoulder, took the editorship of *Sandesh,* and carried out the lamp of Children Literature, the family tradition continued under the guidance of beloved Tata, the eldest son of Ray family. He not only involved his own brothers and sisters, but also had received the contribution of eminent contemporary writers, and Rabindranath too extended his creative support. *Abol Tabol* and other memorable captivating literary creation of Sukumar, amazing pictorial illustration against the content of literature, came one after another till a similar untimely death on 1923. Most of the poems of *AT* were published in *Sandesh,* sometimes in the title of *Abol Tabol*, which was renamed when he made all such creations under a cover which was published just after ten days of death.

After Gangopadhyay a performing programme of Autistic Students was staged. The young students from the Autism Society West Bengal (ASWB) staged poetic drama from Sukumar's Poem. Dr. Shakti Mukherjee, Research Officer-in-charge of The Asiatic Society, was the anchor of the programme. The audience enjoyed their performance eagerly having a chance to see the illustrated pictorial character of 'Bombagarer Raja', of *Abol Tabol*. Ms. Samparani Sau and Swati Dasgupta directed the programme on behalf of Autism Society. It was an excellent programme, everybody enjoyed in the audience. At the end the then

General Secretary of The Asiatic Society awarded a copy of *Abol Tabol* to each of the students.

Sukumar Sahitye Autism

Do we consider the presence of Autism within the characters of *Abol Tabol, Pagla Dashu, Ha-Ya-Ba-Ra-La* etc? Dr. Sankar Kumar Nath, the then Medical Science Secretary of The Asiatic Society, at the beginning explained 'What is Autism' and what is the difference between autism and madness. He did as a medical person. The audience learned from him a lot - how the children become autistic, what will be remedy, what should be the role of non-autistic world surrounding them. A short history of autistic study also got a space in his brief elaboration. The objective of his topic 'সুকুমার সাহিত্যে অটিজম' 'Autism in Sukumar's Literature', was attempting to map the autistic features, with the characters pictured in the creation of Ray's literature. Autism in the word of Medical Science, is known as ASD, Autism Spectrum Disorder. Symptoms of such a patient are important to note. Absence of eye-contact between speaker and hearer, disliking to mingle with others, desire for staying lonely, absence of speaking power in the early days, non-responding habit to a call standing in front of caller by looking another direction, repetition of same work and its continuity, becoming puzzled (হড়বড় করা) in work etc. are the major features. Such characteristic features can be traced out in the dialogue of 'Galpa Bala', 'Abujh', 'Bujhiye Bala', 'Rajar Asukh' etc. Dashu in *Pagla Dashu* has autistic syndrome. He talks as his own, works as his own, his unique role in the performance of drama etc., can easily be mapped with the autistic character. According to Dr. Nath around 31 to 32% character in the literature of Sukumar Ray reflects the autistic habit. Finally, he named some of the great personalities from the globe like Einstein, Darwin, Bobby Fischer, Michelangelo, Leonardo da Vinci, Van Gogh, Alva Edison, Graham Bell, Messy and several others who were autistic in their childhood.

Bijnanbhabnar Uttaradhikar o Sukumar Ray

It was unfortunate that Sukumar Ray is known to us only as a creator of 'Kheyal Ras' in *Abol Tabol,* ignoring his scientific bent of mind, contribution to the printing technology etc. which was enriched with the scientific heritage of his family and the time. That was the founding resources of his literary creations. We should not forget his contact with the West, another encouraging source. Professor Syamal Chakrabarti, the then Publication Secretary of The Asiatic Society, addressed the audience in his talk on 'বিজ্ঞান ভাবনার উত্তরাধিকার ও সুকুমার রায়', 'Heritage of Scientific Thought and Sukumar Ray'. Why does the Asiatic Society will pay their attention to Ray Chowdhury family? Professor Chakrabarti answered by remembering the names of Rays like Upendrakishore, Pramadaranjan, Kuladaranjan, Subimal, Subinay,

Sukhalata, Punaylata, Madhabilata, Lila, and of course Sukumar. Whatever the name mentioned here committed to draw pictures, created different literary forms, produced music etc. for the children. Same was continued in the later period of Satyajit and others.

'Familisim' in a way is dangerous, in our time, but when Bengal, in 19th and 20th Century was shaping for her own identity, two families, the family of 'Jorasanko', and 'Garpar' have historic and enormous contribution in the field of Language, Literature, Science and Technology, Culture etc. In the list of family Contribution Professor Chakrabarti placed the family names of Huxley, Darwin, Currie, etc. from the global scenario also. Other than the Tagore and Ray family there was another Sarbbadhikari family in Hooghly, also played the similar role. Again within the family a single individual played the key role and laid the founding stone for his later generation. Prince Dwarakanath was in the Tagore family and Upendrakishore on the other i.e. in the Ray or Ray Chowdhury family. Sukumar had that family heritage from his father and other relatives like from the family of Kadambini Ganguli. Upendrakishore did not have that opportunity to be a student of Science but his work on Science and Technology is historical. During that time the need of Science and Technology had a priority in our society and Upendrakishore felt that. His article on Halftone Printing Technology in the *Journal of England* was highly appreciated by the colonial men. This appreciation also developed a pathway for Sukumar's education in London County Council School. In the creation of discourse behind Upendrakishore's stories, presence of logic gave a scientific notion. Probably that was passed into Sukumar, a brilliant student of Science in Presidency College. From a record of Calcutta University Professor Chakrabarti informed that Sukumar went to England having the Guruprasanna Ghosh Award, but that is not all, he received also the Amritanath Mitra Bahadur Purashkar over his excellence in the Honours result of Physics and Sanskrit at a time simultaneously. This was one of the prestigious awards, received by personality like Panchanan Niyogi, Dipendra Mohan Basu before him. Sukumar was a Man of Science. Prasadranjan Ray, a family member of later generation, wrote - if we forget the contribution of Sukumar Ray in the field of Science, that will be a mistake. Due to the family tradition Sukumar had great attraction in Science and Technology. The renowned representative of 19th Century, Kadambini Ganguli, his grandmother was a doctor who had impact on the family. If we take an account of his 121 articles, 92 are on Science and Technology, which is enough to establish his love for Science other than the 'Kheyal Ras'. His imaginary world of Science was so advanced in 1913, he predicted that "হয়তো তোমরা দেখতে পাবে মানুষ চাঁদের দেশে যাচ্ছে", *the man is going to the land of moon*, which happened after 50 years that is in 1969.

Sukumar wrote in several literary pieces about the need of Science in the early days of children for the development of the scientific mind. "পড় বিজ্ঞান, হবে দিকজ্ঞান, ঘুচিবে পথের ধাঁধা। দেখিবে গুণিয়া, এদিন দুনিয়া নিয়ম নিগড়ে বাঁধা"। *Read Science and you have the scientific knowledge, the obstacles in front of you will be resolved*; *you will find by accounting this world of everything controlled by the laws of nature*. Upendrakishore had also the same thing

when he was writing on *Prabasi Pakhi* refuting the devine illusion of common man on Manas Sarowar of Kailas. For Sukumar's understanding on Science Professor Chakrabarti suggested the audience to read a serious write-up on Daibena Deyam. From this article he read a part "ভারতের অধ্যাত্ম-সম্পদ কিছু অবাস্তব কল্পনা নয়, কিন্তু সাত্ত্বিকতা ও আধ্যাত্মিকতা বাহুল্য বর্ণনায় মন যে অকারণ সম্ভ্রমে ভরিয়া ওঠে তাহা অনেক স্থলেই নিছক জুজুতন্ত্রের নিদর্শন মাত্র।" Indian theological property is not an immaterial imagination, but if the mind is only filled up with redundant or illogical description of such matter, spiritualism, dispassionately purity, our modesty, awe and submission to that, in most of the cases, is nothing but a Bugbearism, *Jujutantra.* For an example from *Abol Tabol* Professor Chakrabarti mentioned by referring 'Nanda Gosani', in the context of 'Hat Ganana'. He was one of the main characters, who was a peaceful, happy old man, but after the 'Hat Ganana', all the happiness of his life disappeared due to the effect of *Jujutantra*, without any scientific reason - "বুড়ো আছে নেইকো হাসি, হাতে তাঁর নেইকো হুঁকো"। *Old man is there but his joyful smiling face and hand with smoking appartaus disappeared.*

Pratibader Swar o Ekti Paribarer Sahityacharcha

The study of literary content gives a picture of socio-cultural and political essence of the time, nature of suppression and explitation, desire of the intellect, voice of suppressed etc. The contribution of the Ray family also recorded such phenomena in their Literature for the children in a unique manner. Dr. Chandramalli Sengupta, the then Member of the Academic Committee, The Asiatic Society, and Associate Professor of Bengali, Asutosh College, attempted to place some of the above points referring literary evidences from Upendrakishore and Sukumar's *Abol Tabol* in the afternoon session. Dr. Sengupta's title of talk was 'প্রতিবাদের স্বর ও একটি পরিবারের সাহিত্যচর্চা: *আবোল তাবোল* এবং...', 'The Voice of Protest in the Literary Cultivation of a Family: *Abol Tabol* and...'.

The defendant voice under the pen of Ray family which continued for three generations since the time of Upendrakishore against the suppressive and tyrannical role of colonial rulers may be comparable even today. The amazing stories of Tuntuni, a small tailor bird symbolises the power of suppressed, even though she is very small. In spite of the presence of big animal, Upendrakishore selected a too small, but able to cut the noses of seven queens - "এক টুনিতে টুনটুনাল, সাত রানির নাক কাটালো", *one small Tuni played a tricky game, who made the king to cut the noses of his seven queens*. The story was composed in 1911, after longtime his grandson Satyajit did the same in 'Hirak Rajar Deshe', when a small pathshala boy of Udayan pandit, cut the noses of the huge statue of the King. The stories are not for the sake of story but for a teachings for the suppressed, marginalised. Similarly how the story of 'Gupi Gain o Bagha Bain' of Upendrakishore (In *Sandesh* it was Gupi Gain) in the hand of Satyajit exposed three important desires of Bengalees, when the Bhuter Raja, the King of Ghosts offered three boons - to have the power of food, to move anywhere to maintain the dynamic nature of life and to offer happiness to others which was disappeared from Bengali life. She elaborated the tyranny of King Hirak and ultimately he was forced to decline by

holding the hands of supressed, common men. A Number of socio-political messages is available in the creation of grandfather and grandson.

Sukumar was in-between created a world of new sense i.e. known as 'nonsense', for his readers to decipher that sense, other than the captivating unique 'Ras' for childhood. His Barobabu, Kumropatash etc. and in *Abol Tabol* had the sense of intellect. Dr. Sengupta selected Kumropatash and Gonphchuri, in one part and another part covers 'Narad Narad' and 'Ekushe Ain'. Kumropatash is nothing but a series of orders of angry power-centre. In six paras, six functions of Kumropatash are equivalent to six different types of punishments. At the end it was mentioned, "তুচ্ছ ভেবে এসব কথা করছে যারা হেলা, কুমড়োপটাশ জানতে পেলে বুঝবে তখন ঠেলা"। *Those who are ignoring as small matter, they would get a lesson if Kumropatash knew*. The 'Barobabu' in 'Gonphchuri' seems a peaceful man, but he is a very clever administrator or ruler. He had the 'Gonph', the mustache, everybody is looking at that, but the Babu is shouting by blaming each and everybody with an authoritarian voice. The poem 'Narad Narad' is nothing but a reflection of a conflict between two important political forces in the year of 1916. There was a political conflict between two groups, followers of Lal-Bal-Pal, and Gokhale separately. In 1916 they have understanding also. In 1919 the Rowlett Act was passed by the colonial ruler. Then it was imposed to control the political leaders, workers, common people of India. Indefinite detention, imprisonment without any trial, no protest, no procession against the ruler etc. were the part of this act. The Act was imposed on 21st March of 1919. Each and every line of 'Ekushe Ain' was the replica of indirect protest, under the nonsense creation. Sukumar was shocked looking at the conflict between older and reformist Brahma followers. He took a path of protest with the new generation and took his pen for that by writing 'ব্রাহ্ম ও হিন্দু' প্রবন্ধের প্রতিবাদ, 'ব্রাহ্মহিন্দু সমস্যা-১' , 'ব্রাহ্মহিন্দু সমস্যা-২' . According to Sengupta, the arrest of Nazrul in 1922 for his 'Agamanir Agamane' influenced Sukumar to write 'Ekushe' poem - 'poets are in the cage'. The Ray family was in this path of protest as child for three successive generations, the lines are now also highly relevant from different angles.

Kathay Sure o Smarane Sukumar

Mr. Debasish Mukhopadhyay, journalist and editor, and his team, consist of three more musicians, Debjani Ghosh, Samyadip Ray and Kuntal Dey, introduced 'কথায়, সুরে ও স্মরণে সুকুমার' 'Sukumar in Word, Music and in Memory'. The musical brilliance of Sukumar Ray was less known to the Bengalees.

Like Literature, Science, Painting and Printing Technology, Photography, Music was also another heritage of Ray family, Sukumar inherited that power of music as another heritage. His father Upendrakishore was expert in music and played several musical instruments, out of which violin was most favourite one to him, though he knew to play the flute. He also wrote booklet on music like 'Behala Darpan', 'Harmonium o Behala Shiksha' etc. In the Brahmo Samaj he was playing violin. When Rabindranath came to sing a song Upendrakishore was present. At home they had musical gathering frequently.

When Sukumar composed small rhymes, the lyrics of sound for his drama he himself set the musical note for those songs. Punyalata, Sukumar's sister, wrote that during the performance of elder brother's drama music was that much excellent like the song. Most of the songs are composed for drama. Two Brahma Sangeet and two more patriotic songs were composed also. The musical tone for patriotic song was sent at the age of 18. His first music was "টুটিল কি ঘুমের ঘোর", *whether the sleepy state was broken* and another patriotic song was "আমরা দেশি পাগলের দল..." *We are a group of mad of our own land*...The family had the musical environment. In the childhood when Tata, i.e. Sukumar was singing a song all other children raised chorus with him and they were roaming around every corner of the house.

Sukumar was very affectionate to Tagore. In 1911 when Sukumar went to England Rabindranath was there. He made Rabindranath known to the European writers by delivering a lecture in the East West Society Club. There he sang a song of Tagore. He also translated several poems for the audience. In several occasions Sukumar joined Tagore, sometimes on his birthday in 1911, in the Brahmo Samaj etc. During the marriage ceremony of one of his friends he wrote :

'প্রেমেরও মন্দিরে...', 'নিখিলের আনন্দ...' etc. In some songs Sukumar followed the musical note of Tagore.

Mr. Mukhopadhyay gave a list of all songs from his drama, 'ঝালাপালা', 'লক্ষ্মণের শক্তিশেল', 'চলচিত্তচঞ্চরী', 'ভাবুক সভা', 'শ্রী শ্রী শব্দকল্পদ্রুম'. Totally 34 songs are composed. These were sung during the performance of drama, but the musical note was not recorded in any form. The pattern of musical note of the songs belong to the folk songs *Kirtan* and *Panchali*. Sukumar himself set the musical note. During the collection of songs, it was noted in later period. Only Subimal, younger brother had experience with some of these songs. With the help of him Nandini Kumar Dastidar and Bijoy Roy saved the musical notes. In the honour of Suprabha Ray some musical notes were also prepared. Out of five dramas the music of 'Jhalapala' and 'Lakshmaner Shakti Shel' was preserved. In 'Jhalapala' out of 6, 2 are 'Jurir Gan', other four were in simple musical form.

One of the songs was "হায়রে সোনার ভারত দুর্দশাগ্রস্ত হইল"...*Alas! Golden India is now distressed*... The musical team sang several songs. One of these was very interesting from the 'Jhalapala', "শখের প্রাণ গড়ের মাঠ/ ছাত্র দু'টি করে পাঠ...."

In the music of 'লক্ষ্মণের শক্তিশেল' Sukumar developed a mixed musical pattern of traditional melody with the European element. Mr. Subhash Choudhary—elaborated the pattern of rhythm of the song, "আসিছে রাবণ বাজা ঢাক ঢোল...". His excellence in music was revelled in his poems. Lila Majumdar wrote - Sukumar's thought itself was in musical tone.

Mr. Mukhopadhyay gave a brief idea on the work of Sukumar's song in the post-Sukumar period. The most important matter is the music composition of 'গানের গুঁতো'. In 1935 at Shantiniketan Rabindranath himself in the month of August set the music for this song and asked Santosh Kumar Bandyo-Chaudhuri to prepare the musical note. Then Nalini Kanta Sarkar and Gyan Prakash Ghosh and others sang the song. This song was sung in the Aakashvani by

Gyan Prakash Ghosh in Ramya Diti. Once the 'একুশে আইন', was sung in Gana Natya Sangha on the basis of pop-musical note by Abhijit Bandyopadhyay. Antara Chowdhury recorded the same following the musical note of Salil Chowdhury. After 1942 Sukumar's song was recorded where Kamal Dasgupta set the musical note for 'bhalo re bhalo' and that was sung by Asita Basu. The musical form of 'বাবুরাম সাপুড়ে' was the most popular one, sung by Sanat Kumar Singha. It was recorded in 1959 according to the music of Arun Basu. Subhanallah musician prepared the musical note and sang the poems of Sukumar. The poem 'খোকা ঘুমায়' was composed by Sukumar following a painting of 'Madonna in the Street' of Italy . This was different from *Abol Tabol*. Debangshu Sengupta set musical note and Indrani Sen sang this song. This was completely different from all others. The performance of 'Chalachitrachanchari' was not heard about and whether any musical note was set is not known. In 1950-51, it was heard, that in Basushree Cinema Hall this was staged by Rupakar Natyagosthi. But 1956 Anandam Group performed in the Maharashtra Nivas to felicitate Satyajit and his other artists after the world victory of 'Pather Panchali'. It is known that being impressed by the performance of Santosh Dutta in that drama, Satyajit selected him for his film 'Parash Pathar'. After a long time in 2014 on 26th March this drama was staged at Academy of Fine Arts. Kabir Mukhopadhyay had a roll for the musical note there. Sukumar's whole life was like a song. The words of his poetry was the expression of his melodious mind which he expressed in the last lines of his last poem :

"ঘনিয়ে এলো ঘুমের ঘোর
গানের পালা সাঙ্গ মোর"

In tense drowsiness came near to me Musical turn (of life)/ Of mine came to an end.

The programme ended with a music of reception after the detailed journey on Sukumar's musical contribution. Professor Basudeb Barman, the then Vice-President of The Asiatic Society, honoured Debasish Mukhopadhyay and his three accompanies on behalf of The Asiatic Society. Professor

Bhattacharya proposed the Vote of Thanks to all.

A standing exhibition prepared on Sukumar Ray was placed in the corridor, outside of the Vidyasagar Hall.

All the members of the Academic Section of The Asiatic Society took the responsibility of logistic and management of the programme taking help from others. On behalf of the Society they were thanked separately.

Professor Ashin Dasgupta Memorial Lecture

The Asiatic Society in collaboration with Paschimbanga Itihas Samsad had organised Professor Ashin Dasgupta Memorial Lecture on 22nd July 2024 at 04:00 p.m. at the Vidyasagar Hall of The Asiatic Society. The inauguration of the programme began with the garlanding of the bust of Pandit Ishwar Chandra Vidyasagar by Dr. Satyabrata Chakrabarti, the then General Secretary of the Society. Professor Arun Bandopadhyay, the then Historical and Archaeological Secretary of the Society and President of Paschimbanga Itihas Samsad garlanded the portrait of the late Professor Ashin Dasgupta paying homage to one of the most esteemed Historians of Modern India widely revered for his pioneering work on the role of Indian merchants in world Commerce. Welcome Address was delivered by the then General Secretary of the Society whereas the then Historical and Archaeological Secretary of the Society delivered his Presidential Address to the audience. Professor Bhaskar Jyoti Basu, Department of History, Visva-Bharati University delivered his lecture on the topic 'অধ্যাপক অশীন দাশগুপ্ত ও শান্তিনিকেতনে ইতিহাসচর্চা (১৯৭৩ - ১৯৮৩)'. The programme concluded with the Vote of Thanks given by Dr. Mahitosh Gayen, Joint Secretary of Paschimbanga Itihas Samsad.

L to R : Professor Bhaskar Jyoti Basu and Professor Arun Bandopadhyay

Dr. Panchanan Mitra Memorial Lecture

The Asiatic Society organised Dr. Panchanan Mitra Memorial Lecture for the year 2023 on 31st July 2024 at 03:00 p.m. at the Humayun Kabir Hall of The Asiatic Society. The inauguration of the programme began with the felicitation of Professor Prasanta Kumar Chattopadhyay, former President of Indo-Pacific Association of Law, Medicine and Science and former Professor of Forensic Anthropology, Punjabi University, Patiala, with a garden plant by Professor Basudeb Barman, the then Vice-President of the Society. On behalf of the Society, Dr. Satyabrata Chakrabarti, the then General Secretary of the Society presented the prestigious Certificate for Dr. Panchanan Mitra Memorial Lectureship for the year 2023 to Professor P.K. Chattopadhyay as a gesture of appreciation following which he

also delivered Welcome Address to the audience. Professor P.K. Chattopadhyay delivered his lecture on the topic 'Role of Anthropology in Personal Identification' to the audience. The programme concluded with the Vote of Thanks given by Professor Ranjana Ray, the then Anthropological Secretary of the Society.

L to R : Professor Basudeb Barman, Professor P.K. Chattopadhyay, Dr. Satyabrata Chakrabarti and Professor Ranjana Ray

Celebration of the 225th Birthday of James Prinsep

The Asiatic Society observed 225th Birthday of James Prinsep, former Secretary of The Asiatic Society of Bengal on 20th August 2024 at 02:00 p.m. to celebrate his immutable legacy in India. Prinsep was a capable British Administrator; a polymath who excelled himself in the fields of Architecture, Numismatics, Metallurgy, Meteorology, Epigraphy, Archaeology, Philology and Oriental Studies and a paragon of excellence widely acknowledged for becoming the first European Scholar to successfully decipher the Brahmi and Kharosthi Scripts of ancient India and bringing in the coinage reforms in the Indian system of weights and measures. The programme commenced with an engrossing Inaugural Address by Dr. Shakti Mukherji, Research Officer-in-Charge of the Academic Section of the Society. Lieutenant Colonel Anant Sinha, Administrator of the Society paid sincere tribute to the British erudite as he garlanded the bust of James Prinsep and shared his thoughts on the priceless contributions by James Prinsep to *Karmabhoomi* India. Ms. Anuja Bose, Research Fellow of the Society presently engaged under the 'James Prinsep Fellowship in Epigraphy & Numismatics' spoke eloquently on the life and works of James Prinsep. The programme ended with the concluding remarks given by Dr. Shakti Mukherji.

Lieutenant Colonel Anant Sinha, Administrator, The Asiatic Society garlanding the bust of James Prinsep on the occasion.

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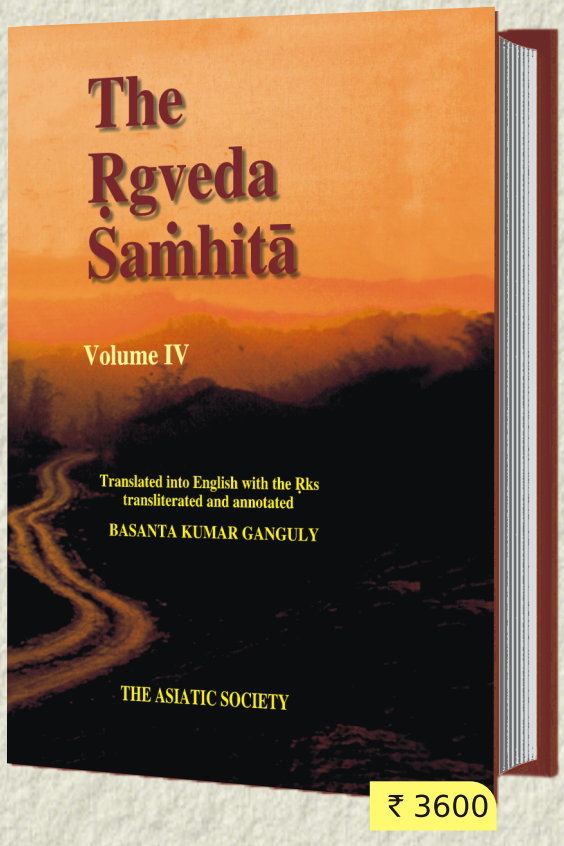

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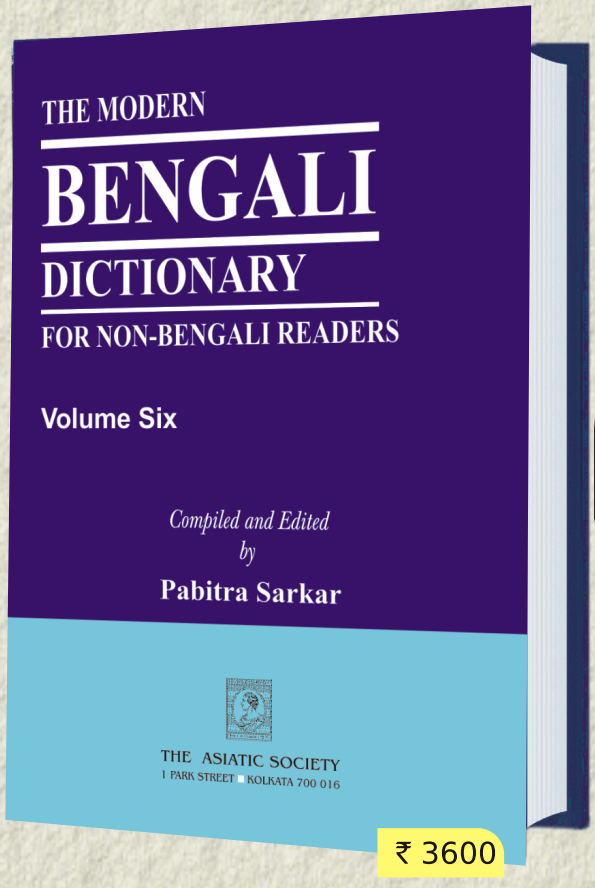

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