187. Science Communication in West Bengal: Role of Mass Media

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The first Bengali essay on science was being published in 1818 in the magazine called Digdarshan with an initiative of the Christian missionaries of Sreerampur. Kolkata Book society also took major initiatives to publish science related journal in the year 1812.But science communication should not be confined within the framework of magazines. It can be asserted that science communication became possible from the day on which people of Bengal could feel the essence of science and Bengali simultaneously. But the main thrust of our paper is the progression of science communication in Bengal during post-independence era.

Before entering into the arena of science communication, let us discuss a little bit about communication. Communication is the process of sending and receiving information. It is the vehicle through which we develop, maintain and improve human relationships. Communication word is drawn from communis (Latin derivation), which means common; the idea of commonality is frequently stressed in dealing about communication. According to National Communication Systems, UNESCO, Communication is part of the very fabric of society. It takes place at all levels between peoples and between institutions, from government to people, from people backs to government and through many channels both inter-personal and mediated. Communication expert Berlo said, “Communication does not consist of the transmission of meaning. Meanings are not transmitted or transferable. Only messages are transmitted and meanings are not in the message, they are in the message users.” Even in MacBride Commission’s report (1978), namely ‘Many Voices, one World’ explain the communication process as the motor and expression of social activity and civilization. According to this report, Communication maintains and animates life; it leads people and peoples from instinct to inspiration,, through variegated processes and systems of enquiry, command and control; it creates a common pool of ideas, strengthens the feeling of togetherness through exchange of messages and translates thought into action, reflecting every emotion and need from the humblest tasks of human survival to supreme manifestations of creativity-or destruction. Communication integrates knowledge, organization and power and runs as a thread linking the earliest memory of man to his noblest aspirations through constant striving for a better life.

Human civilization has been possible due to evolution and revolution in communication process. Science and technology could never be possible without underlying developments in communication. Communication can be formal or informal. Communication of science is a specialization in itself. Science communication is a discipline that has developed rapidly in theory and in practice since 1995 in the whole world. Though science communication initiated in India in early 19th century, but it was remarkably developed in mid of 20th century. In Australia, in 1996, the formation of the Centre for the Public Awareness of Science (CPAS) at the Australian National University (ANU) heralded the start in the science communication movement. The new approach aimed to involve the public more in the processes and culture of science, to create an awareness of what science was attempting to achieve, to cultivate the
‘need to know’ that is the hallmark of good communication.

It has become an important issue of public policy since 1990. It is, however, one of respectable antiquity, dating at least from the origins of the Royal Society in the seventeenth century. For examples of eighteenth and nineteenth century science communication. Indeed, it has been argued that the purpose of the Royal Society was one of communication, to assist in the application of the ‘New Philosophy’ to the defence of the Realm, most particularly by way of the Royal Navy.

It is commonly accepted that there are five general categories under which arguments can be made for the importance of the communication of science. They are (i) the economic argument (the contribution science can make to the national economy and individual wealth), (ii) the utilitarian argument (people owe much of their health and well-being to scientific invention), (iii) the democratic argument (to be fully informed enfranchises people), (iv) The cultural argument (the best science is, in company with the best of other areas endeavour, high art) and (v) the social argument (at every evolutionary stage – stone, bronze, iron, industrial, biological – science underpins the evolution of society).

Communication in science can be at different levels and of different kinds:

- Primary Communication where a scientist communicates to peers, colleagues and fellow scientists. This communication can be seminar presentation, short rapid communication like 'Letter to Nature', research papers and review articles.
- Communicating to students and learners, which include classroom lectures, demonstrations, writing of textbooks and so on.
- Journalists' reporting and news items communicated through press conferences and mass media both in print (newspapers, magazines, periodicals etc) and electronic form, they include science newsletters, news digests newspapers and channels, and in such publications as New Scientist, BBC Science News Channel, and PTI Science etc. Amalgamations of traditional media and modern mass media originate a new kind of communication process especially in third world countries. Interactive media like Internet plays a pivotal role in today's science communication.
- Popular level communications are those, which meant usually for general public. In such communication, communicators may be scientists, writing on their own specializing field as also on other fields. J.B.S. Haldane, Gopal Chandra Bhattacharyya, Abdullah al Muti Sarafuddin etc. are examples who wrote profusely on subjects both of their specialties and beyond their specialties.
- Communication to children and juveniles – is a special breed of science communication and is probably most difficult one. Illustrations are the most supporting factor in such communication.
- Another very important communication modes for science are documentaries and science shows.

Dr. Manoj Patairiya in the portal of UNESCO said that -"one of the reasons for the science reporting to have remained underdeveloped in our country may be due to the fact that except for a few dry and drab articles, technical information or news, and hardly any other modes of science writing were employed. May be this is why common man could not come to terms with science and technology. If science is presented in the form of stories, poems etc. common man not only would be able to read, but also would understand and appreciate science

But country like India is though progressing in fascinating way in the field of science and technology, but far lagging behind in communicating science to the common people. In the arena of space programme, atomic energy production and consumption, oceanography, biotechnology, information technology, electronics, - India is progressing rapidly. Indian society has reached a complex socio-economic and cultural stage. It differs from the western world in which Philip Cambell is experiencing a glut in science communication. The literacy rate in our country is very low, the science literacy is much limited and only a thin section of society is aware of frontiers in science, e.g. the information technology and biotechnology. The public and the leaders in various sectors whether illiterate, literate, educated, professionals or executives live with philosophical conflict of religion and science and cultural conflict of tradition and modernity.

An increase in coverage of science in our media seems to follow the world trend, which is predominantly occupied with the abstracts of the stories of neurobiology, biomedicine, astronomy, and information technology, etc. Cambell agrees that the media stories speak very little about the public understanding of science but he believes that it will automatically grow over the years due to the public interest for science. This view looks oversimplified in the Indian context, which possesses a very heterogeneous public significantly differing in socio-economic, cultural and philosophical levels.

Science communication has been a major concern in the country for several groups of people over the years. Certain government, non-government and voluntary agencies have been experimenting with programmes predominately with the involvement of school children. They have developed many new ways of science communication, e.g. performing and folk arts forms, joy of learning with plays and toys, discussion forums, science clubs, seminars, explaining and exploring miracles and mysteries, children science congress, nature watch and excursions, slide shows, planetarium, exhibitions, science parks, etc.

More seriously planned agenda and policies for science communication in a truly transparent manner are a pre-requisite to organize and speed-up science communication in India for the new millennium and to develop a public consciousness of the issues and the understanding of science in a more strategic manner. We have to be more methodological and institutionalized on one hand, to consolidate, and to go beyond all the institutional and framework boundaries with several innovative ideas to expand, on the other.

In India, historically, the importance and application of modern science and education emerged during the 19th and the first part of 20th century chiefly under the colonial guidance of British rule. The term "popular science" was unfamiliar at that time only because people in general had nothing to do with 'science'. So far as Bengal is

concerned we find only a handful of eminent scientists and writers to be actually inclined to express the content and concept of science in popular form in Bengali language. As a result, Akshay Kumar Dutta, Ramendrasundar Tribedi, Prafulla Chandra Roy, Jagdish Chandra Bose, Jagadananda Roy, Satyendra Nath Bose were in limelight for popular science writing in Bengali. They applied common sense and gave example from every day life to make their science writing more simple, gentle and lively to common mass. I have already said that in the period though some science lovers took their pen to ventilate their scientific thoughts in vernacular language, but the concept of popularization of science among common mass remained absent. After the Independence of India, Prof. Satyen Bose took initiatives to cater scientific thoughts in the mind of general people or getting in people involved in 'popular science activities' in a big way. If we look back in the past then we see in 1948 he founded Bangiya Bigyan Parishad with a mission to encourage regular culture of science in the language of the soil. Actually people's science movements sprang up in different parts of the world during the 19th and 20th century: Eureka in Germany, science clubs in the Baku region of the Czarist Russia etc were some of them. The tidal force of science movement also sprinkled on the seashore of India. The Bangiya Bigyan Parishad in Bengal, the Assam Science Society in Assam, the Bigyan Prachar Sabha in Orissa,initiated by JBS Haldane, Sastra Sahitya Samithy of Kerala etc were some of the early ones. The Kerala Sastra Sahitya Parishad was properly formed in August 1962 with the limited objectives of functioning as a platform for science writers in Malayalam: "A Science Writers Forum". But credit goes to the Kerala Sastra Sahitya parishad for coining the very term 'PSM'- People's Science Movement' in the year 1978 for giving a name to a forth coming workshop involving 'like minded' organizations. During the 50s and the 60s, a movement gradually developed with the initiative of a section of educated class in West Bengal and Kerala, through encouragement in practice of reading and writing science, beyond academic periphery and also through model making, poster displaying, rendering health services to the community, through arranging lectures and debates on various science topics in a more or less amateurish way. Small science clubs were formed at both the urban and suburb areas. Thus a science club movement became quite popular in Bengal at that time. But the basic alienation of science from common people was still prevailing. Because only collecting and presenting information of technological achievements, highlighting fascinating functions of applied sciences and focusing on God-like magical efficacy of high-tech devices could not produce much impact on the consciousness of the mass as a whole. People in general did not get involved spontaneously in science or scientific activity. Not only so, after independence, one major problem that the state of West Bengal had to face was the problem of the rehabilitation of the refugees, who came from East Pakistan (presently Bangladesh). Naturally the priority of the state government was to resolve that problem. So the rehabilitation problem made science movement orphan in West Bengal just after independence. Thus the science movements in West Bengal did not get governmental patronage just after the independence.

Actually in 70s, people of India awakened from dormant condition. The scenario was now changing slowly; popular science now took a new look towards the people science movement. In West Bengal, this change or development was likely to have been related to revolutionary turmoil in radical political activities shaking the social, cultural and ideological frame of the society. We observed that all over India, people science movement simultaneously charged up due to the participation of the people of the different segments of the society. Novelists, artists, literature lovers, - the people belonging other than the world of science activated in several other Indian states and steered by non-political organizations like Kerala Shastra Shahitya Parishad in Kerala, Lokavigyan Sangathan in Maharashtra, Kishore Bharati in Madhya Pradesh. Automatically the science movement got kinetic energy to spread among the different segments of the society. The basic ideas of people science were propagated through some powerful slogans as: Science for the people, of the people, by the people, Science for social changes, science for better living, and science for emancipation. A new wave of movement bonded with science as the instrument, having deep social and political orientation, moving the common people emerged in West Bengal since the 70s.

Linguist Sri Sukumar Sen was curious to know about the use of the word 'Bigyan' in Bengali in the modern sense. Till 1860s the word 'Bigyan' has been used in Bengal in its etymological sense. Both 'Vidya' and 'Bigyan' have been used synonymously in different journals and magazines in Bengal till 60s of 19th century. The first Bengali book on science was published in May of 1817 when BankimChandra published 'Bigyan Rahashya' (the mystery of science). According to eminent scientist Gopal Chandra Bhattyacharya, children learn easily and aptly from practical experiences. Scientific communication enhances the curiosity regarding different things among students in a better way. Most of the developed countries utilize science communication as a mode of education that is almost absent in Indian scenario. Eminent Biologist Prof. J,B.M Halden asserts that science in its true sense is not applied for the development of Indian society.

During the post independence period in Bengal, students have not opted the science subjects out of love and interest rather as an instrument for academic score. Science education in schools, colleges and universities is limited

within the pages of books rather than practical implementation. In 1985, held a workshop on Science Education in Bangalore where resolutions were initiated by UNESCO. Observation, inter-active session, project making, research, planning, field-work, measurement, using charts, experimental proof, information and communication were different processes mentioned by UNESCO of educating the students from primary level.

In 1957 and 58 in West Bengal, Radhika Baghchi, the science teacher of Scottish Church School engaged the students in practical works of science which was later named as Laboratory. Another science exhibition was organized in the premises of Scottish Church School in 1962. The headmaster of this school set up the institution named Science for Children in 1963.In 1967 amateur astronomers' association was established by St. Xaviers College. Birla museum (1959) had a major role in spreading scientific education beside traditional education.

In mid 60s Indian Radical Humanist Association set up by Manabendra Nath Roy also adopted an important role in popularizing science in Bengal. Several science clubs and institutions motivated the common mass to be more scientific even in their regular chores of life. Among these Howrah Bigyan Parishad (1968), Jadavpur Science Association (1971),Gobordanga Renaissance Institute (1973),Ashoknagar Bigyan Sangostha(1974), Chandannagar Science Club (1971), Paschimbanga Bigyan Karmi Sangostha (1975), The Science Association of Bengal (1977) are noteworthy.

Many people say that, the growths of Science & Technology after independence have increased the growth of Scientific Periodicals. It could not be said that after the independence in 1947 that type of progressive scientific age had come. It was true that the publication of the Jnan O Bijnan was started from 1948. But that was an exception. There was no other prominent science magazine before the sixties or seventies. In 1961, a tri-monthly magazine was published namely, Manabman (Human mind). It was a magazine of psychology, biology and social science. The main aim of this magazine was to develop the idea of a movement for a healthy mind both of the individual and the society. This magazine is continuing even today.

We have pointed out that the last part of 1960s and the whole of 1970s were the period of establishing different science clubs in West Bengal. Many people of the city and urban moffasils attracted to the science club movement. The aim of these science clubs was to make the young generation scientific in their attitude to life. To reach this goal, the science clubs organized some activities like model-making, sky-watching, science exhibition, science quiz, discussion, etc. To spread these ideas, these clubs published periodicals and pamphlets on science. So afterwards, these types of science clubs & different types of voluntary organisation published major science magazines. Now we will discuss about those magazine. The importance of mass media can never be ignored in Science communication. Both print media (Newspaper, Periodicals, Magazines etc.) and audio-visual media like Radio, Television, Internet etc. have major roles to play. The first science magazine after independence of India was 'Gyan O Bigyan' which was published by Bangiyo Bigyan Parishad in 1948. Later 'Manab Monn'(1961), published by Pavlov Institute, 'Swasthya Dipika'(1963), 'Prism'(1979), 'Lok-Bigyan'(1974) were the important science related magazine. In 70s 'Bikhyan' and 'Bigyan O Bigyan Karmi' were published parallelly with 'Manus', which had individual characteristics in science publications. During early and late 80s of 20th century several science magazines were published.

1948

Jnan O Bijnan: A monthly periodical on science, published in January , 1948 under the auspices of 'Bagnio Bijnan Parishad' , Kolkata and the editorship of Prafulla Chandra Mitra. This Periodical has been playing a major role in popularizing science among Bengali knowing people. It is still continuing its publication.

1953

Homsikha: A monthly periodical on agriculture, published from Krishnanagar, Nadia under the editorship of Kaliprasad Basu.

1959

Rogi-Chikitsa: A Bi-monthly periodical on homeopathy, published under the aegis of Sundar Homeo Sadan, Kolkata.

1960

Ayurved Bijnan Patrika: A monthly periodical on Ayurveda, was published from Kolkata under the editorship of Kabiraj Krishna Kanti Roy . Apart from articles on ayurveda, few artices on general medicine and mathematics have also been covered.

1961

Ayurved -Bharati: A multi lingual (Eng-Beng-Hindi-Sanskrit) quarterly journal of ayurveda and Indian culture, published as an organ of the ayurveda Bijnan Parishad, Kolkata under the editorship of Bagala Kumar Majumder.

Manabman: A quarterly periodical, describe in Bengali as 'Manavjivan, Jivijnan o Samajvijnaner Adhunik Dhara Parichayak Trimasik Patrika, published under the aegis of 'Pavlopv Medical Research Centre' , Kolkata and the editorship of Dr. Dhirendranath Ganguly (Founder Editor).The periodical still continuing its publication.

1963

Swasthya Dipika: A monthly periodical on health, published from Kolkata. The contributors in its periodical are mostly doctors by their professon. The periodical is still continuing its publication.

1964

Sar Samachar: A quarterly periodical on agriculture, published under aegis of The Fertilizer Association of India', Eastern Region, Kolkta and the editorship of Sashanka Banerjee. The periodical is still continuing its publication.

1965

Anka Bhavna: A quarterly periodical on mathematics, described in Bengali as 'Anka Bisayok Trimasik Patrika', published from the Kolkata, under the editorship of Kunal Kumar Majumder and Anandamohan Ghosh.

1966

Bijnan Barta: A monthly periodical on Science, published from Kolkata under the editorship of Anjali Chowdhury.

1968

Two periodicals, which are described, bellow have been established in this year:

Nabanna Barta: A monthly periodical on farming, published from Kolkata under the editorship of Jyotirmoy Ghosh.

Sahitya O Vijnan: A quarterly review of literary and scientific writings, published under the auspices of 'Sahitya Ovijhan Parished' Sodepur, 24 pgs (N) and the editorship of Ramprasad Sarkar and Rajkumar Mukhopadhyay.

1971

In all, three periodicals, which are described bellow, took birth in this year:-

Esana: A quarterly periodical on Science, published under the auspices of Asansol 'Vijnan Parishad', Burduan and the editorship of Biswajit Mukherjee.

Sarir Barta: This quarterly periodical devoted to Physiology and allied subjects was published from Kolkata under the aegis of 'The Physiological Society of India'. The editorial work of this periodical was done by Debajyoti Das and Umasankar Sarkar.

Bijnan Bichitra: An organ of Murshidabad zilla Vijnan Parishad, Murshidabad, published under the editorship of Himangshu Sekhar Ghatak. The periodical used to have articles on popular Science.

1972

The year witnessed the birth of four periodical, which are described, bellow:

Banabani: A quarterly periodical on forest conservation and related fields. Published from Jalpaiguri under the editorship of Rukmini Mohan Bhattacharya

Chas-Bas: A monthly periodical on agriculture, published from Kolkata under the editorship of S. Biswas. The periodical is still continuing its publication.

Dhnadha : A monthly periodical on Scientific Quiz especially on mathematics, published from Kolkata under the editorship of Biswanath Basu.

Gobordanga: A monthly periodical described in Bengali as 'Sambad Sahitya o Bijner Masik Patrika', 24pgs(n) under the editorship of Mani Dasgupta.

1973

Chikitsa Barta : A fortnightly periodical on medicine, published from Kolkata.

1975

Five periodicals, which are described, bellow have been recognized in this year: -

Ganit Parikrama:A semi annual publication on mathematics , published under the aegis of 'Association for improvement of mathematics teaching, Kolkata and the editorship of A.mukherjee.

Homeo Keton: A monthly periodical, published under the auspicious of Homeopathic Medical Association of India, W.B, state branch , Kolkata and the editorship of Prabhat Kumar Bhattacharya. The periodical was renamed later as 'Homio Jyoti'.

Lokvijnan: The monthly periodical devoted to popular science, published under the auspices of 'Howrah Vijnan Parishad' and the editorship of Dr. Sushil Kumar Mukherjee.

Prakriti: A popular illustrated monthly compilation of article on natural history, nature study, life & environmental Science, published in Nov, 1975 from Kolkata under the editorship of Ajoy Home. Probably the periodical changed its title in 1980.

Vijnan Parikrama: The periodical devoted to science, published under the auspices of Konnagar Science Club. It was a half-yearly publication and was published from Konnagar, Hooghly, under the editorship of Nitai Chandra Porel.

1976

Jnan Bichitra: The monthly periodical devoted to popular science, published by 'Jnan Bichitra Prakashani' and the editorship of Debananda Dam.

1977

The year witnessed the birth of two periodical, which are described, bellow: -

Bijnan Manisha: A monthly periodical on science. It was published from Midnapore under the editorship of Jogen Debnath.

Bijnan o Bijnan Karmi: A bi-monthly periodical on Science, published from Kolkata under the editorship of Rabin Majumder . The periodical is still continuing now.

1978

Vijnan Sankriti: A monthly periodical on science & society, published from Kolkata Under the editorship of Soumen Guha.

1979

In all, two periodicals, which are described bellow, took birth in this year: -

Beta: A quarterly Periodical on Science, published under the auspices of 'The Science Association of Bengal', Kolkata under the editorship of Subhabrata Roychoudhury.The periodical used to have both the Bengali and English version.

Gabesana: A quarterly Periodical on Science, published from Kolkata under the editorship of Ashish
Sengupta.

1980.

Six periodicals, which are described, bellow came of in this year:

Homeo Samiksha: A monthly periodical on Homeopathy, published from Kolkata & Dhaka Under the
editorship of Dilip Basu.

Prakri Jnan: A popular illustrated bi-monthly journal on natural history, nature study, life & environment Science, published from Kolkata under the editorship of Ajoy Home.

Utsa Manush: A quarterly Periodical on Science & Society, published from Kolkata under the editorship of Ashok Banerjee.

Bijnani: A monthly periodical on Homeopathy, published from Kolkata & Dhaka Under the editorship of Sukla Ranjan Mrinda.

Bijnan Pradip: A quarterly periodical devoted to Science, published under the aegis of 'The Science Association', Behala and the editorship of Shyamal Kumar Das.

Bijnan Sahitya Manthan: A quarterly Periodical on Scientific literature, published from Kolkata under the editorship of Mukul Kanti Manna.

1981

The year witnessed the birth of four periodical, which are described, bellow:

Bijnan Mela: A monthly periodical on science, described in Bengali as 'Chotoder Jnanya Bangla Bhasay Pratham Masik Bijnan Patrika, published from Kolkata under the auspices of 'The Science Association of Bengal'. In the beginning, the periodical was meant for the use of children and the published the editorship of Amit Chakraborty. Later the scope of periodical was widened to be suited by the readers of all ages.it is encouraging to know that the periodical is still continuing its publication, excepting a gap of eight years during 1984-1991.

Kishor Jnan-Bijnan: A periodical devoted to science, targeted to reach to the yongers, published in april 1981 from Kolkata Under the editorship of Samarjit Kar, Rabin Bal, & Jayanta Dutta,. In the beginning the frequency of the periodical was not regular, but demands came to make it a regular monthly periodical. the periodical is still continuing its publication.

Bijnan Club: A monthly Periodical on Science And Science Movement, published from Khantura Gobardanga, 24pgs(n), under the editorship of Dipak Kr. Dan.

Bijnan Samachar : A fortnightly bi-lingual Science Club Magazine, published from Khantura, 24pgs(n), under the editorship of Dipak Kumar Dan.

1982

In all, three periodicals, which are described bellow, took birth in this year: -:

Amader Bijnan Jagat: A quarterly Periodical on Science, published under the auspices of 'Paschimbanga
Rajya Pustak Parshad', Kolkata & the editorship of Dibyendu Hota.

Ganit Charcha: A quarterly Periodical on mathematics, published under the auspices of 'Paschimbanga Rajya Pustak Parshad', Kolkata & the editorship of Sibnath Chatterjee.

LokBijnan: This quarterly periodical devoted to Science, society & culture, published from Kolkata under the aegis of 'Lokvijnan Prasar Samiti', Kashinagar ,24pgs(s) and the editorship of Asit Halder

1983

Three periodicals, which are described, bellow have been established in this year:

Bislesan: A quarterly Periodical on Science published under the auspices of 'National Institute of Science & Culture', 24pgs(n), and the editorship of Manibhusan Bhattacharya & Bankim Dutta.

Machh: A monthly periodical on fishing published from Kolkata Under the editorship of S.K.Koner.

BijnanEsana: A monthly Periodical on Science, published under the auspices of 'Saktigarh Vidyapith',
Siliguri,Jalpaiguri, and the editorship of Torun Chakraborty.

1984

The year witnessed the birth of eight periodicals, which are described below:

Anwesa: A monthly Periodical on Science, published by 'Vijnan Chetana' ,Kolkata under the editorship of Abhijit Lahiri.

Aryabhatya: A Periodical on Science, Society & Culture, under the auspices of 'Balichak Science Forum', Midnapore, under the editorship of Somnath Roy.

Health Home: A monthly Periodical on health, published under the auspices of 'Students Health Home', Kolkata, under the editorship of Lutful Alam.

Kanad: A monthly Periodical on Science, Society & culture, published from Kolkata under the editorship of Swapan Kumar Chakraborty.

Nabolok: A weekly Periodical on Science, published from Malda under the editorship of Arun Chakraborty.

Samaj o Bijnan : A monthly Periodical on Science movement, published under the aegis of 'Bangio Vijnan Parishad', kolkataand the editorship of Shyamsundar Dey.

Bijnan Niriksha: A monthly Periodical on Science, published from Siliguri, Jalpaiguri under the editorship of Jagadish Ghosh.

Yuga Bikshan: A quarterly Periodical on Science, Society & culture, published from 24pgs(n) under the
editorship of Pradip Bose & Tapan Bose.

1985

Two periodicals, which are described, bellow have been recognized in this year:

Nutan Photon : A monthly Periodical on Photography& electronics, published from Kolkata under the
editorship of Soumya Mitra & Debasish Banerjee.

Swasthya o Manush: A quarterly Periodical on health, published from Burdwan under the auspices of Sahid Sibsankar Sava Samity.

1986

In all, three periodicals, which are described bellow, took birth in this year: -

EJuger Elektronics: A monthly Periodical on electronics, published from Kolkata under the editorship of
Debasish Banerjee.

Jana Bijnaner Isthahar: A bi-monthly Periodical on Science movement, published under the aegis of Paschim Banga Vijnan Mancha', Kolkata.

Ropan: A quarterly Periodical on Science& Literature, published from Kolkata under the editorship of Soumitra Ghosh.

1987

The year witnessed the birth of two periodicals, which are described below:

Adhunik Electronics: A monthly Periodical on electronics, published from Kolkata under the editorship of Debasish Banerjee.

Bijnan Manas: A quarterly Periodical on Science, published from Konnagar , hooghly under the editorship of Durjay Das & Dipak Bhattachrya.

1988

In all, three periodicals, which are described below, took birth in this year: -

Mukhapatra Ganadarpan: A monthly Periodical on Scientific Awareness & Science movement, published from Kolkata under the editorship of Tripti Choudhuri.

Prism: A quarterly Periodical on Science, published under the aegis of 'Gobordanga Yuba Bijnan Sanstha',Khantura, 24pgs(n) and the editorship of Atanu Kumar Dey

Swasthya O Paribesh: A bi-monthly Periodical on health & environment, published under the editorship of Khetra Prashad Sen Sharma.

1989

The year witnessed the birth of four periodicals, which are described below:

Jana Swasthya: The periodical devoted to Helth, published as an organ of 'Jana swasthya Raksha Kendra', Ranaghat, Nadia under the editorship of Subhash Chatterjee.

Kishor Bijnani: A quarterly Periodical on Science, published under the aegis of Paschim Banga Bijnan Mancha',Kolkata, and the editorship of Shyamal Chakrabortty. The Periodical was Renamed in 1993 as Ejuger Kishor Bijnani'.

Neurabi: A quarterly Periodical on Science& Literature, published from Kolkata under the editorship of Kanailal Banerjee.

Bijnan o Samaj: A monthly Periodical on Science & Society, published under the aegis of 'Haldia Bijnan Parishad', Midnapore and the editorship of Debdash Mukherjee.

1990

Two periodicals, which are described, bellow have been established in this year:

Bijnan o Prajukta Mela: An annual publication featuring different events of scienc& technology fair, organized by Gobordanga Renaissance institute, Khantura, 24pgs(N).

Bijnan Prajukta o Pragati: A quarterly Periodical on Science & technology published under the support of 'Dept. of Science & Technology,Govt. of West Bengal, Bikash Bhavan, Kolkata'and the editorship of Sdabyasachi Guha & Sankar Chakaborty.

1991

Yuktibadi: A quarterly Periodical on Science& Rationalism, published from Kolkata.

1992

The year witnessed the birth of two periodicals, which are described below:

Arogya: A periodical devoted to Health & Medicine, published under the auspices of 'Social Health & Science Forum, Durgapore and the editorship of Bimal Das.

Quark: It is a bi-monthly periodical on Science, started publication under the editorship of Bijan Sarangi. The Perodical is Published from jhargram, Midnapore. The new series under the title 'Top Quark' appeared in February-March, 95. apart from Popular Science articles, essays an Socio-political and Socio-economic issues have also been covered in this periodical.

1993

In all, two periodicals, which are described bellow, took birth in this year: -

Prakritik Chikitsa: A quarterly Periodical on natural medicine, published under the support of 'Gobordanga Prakritik Chikitsa Mission', Khantura, 24pgs(N) and the editorship of Nirendralal Guha.

Swasthyer Sandhane: A forthnight periodical devoted to Health, published from Kolkata, under the editorship of Sristidhar Debnath..

1994

The year witnessed the birth of three periodicals, which are described bellow:

Prakriti: A quarterly Periodical on Science, nature & environment, published in Aug-Oct, 1994 under the aegis of 'Midnapore Science center' Midnapore under the editorship of Saibal Roy.

Prakriti: A bi-monthly Periodical on Science & Society, published under the editorship of Soumitra Banerjee.

Swasthya: A monthly Periodical on health, published from Kolkata.

1995

In all, two periodicals, which are described below, took birth in this year: -

Swasthya Bikash: A quarterly Periodical on health, published by 'Medical Service Service Centre', Kolkata.

Prakriti: A monthly Periodical on Science, published under the guidance'Break Throu Science Society' and the editorship of Subhasish Maity.

1996

Six periodicals, which are described, bellow have been established in this year:

Ebong Ki o Keno: A quarterly Periodical on popular Science, published under the aegis of 'Murshidabad Zila Bijnan Parishad', Murshidabad.

Ganit Anwesa: A quarterly bi-lingual (Beng-Eng) Periodical on Mathamatics, published from Baruipur,
24pgs(s) under the editorship of Abdul Halim Sekh.

Krishi Barta: A quarterly Periodical on Agriculture, published under the aegis of Vidhan Chandra Krishi
Viswabidyalaya,Kalyani, Nadia, and the editorship of Dibyendu Sen.

Prayukti: A monthly Periodical on engiaring & technology, published by Ramkrishna Mission Shilpa Mandir', Kolkata & sponsored by Ministry of Human resource Development, Govt. of India, under the editorship of Binod B. Pal.

Prakriti O Bishwa: A quarterly Periodical on Science, nature & environment, published under the aegis of ' Science center Gol Kuachak' ,Midnapore under the editorship of Saibal Roy.

Sabuj Barta: A quarterly Periodical on Science & Nature, published under the aegis of 'Jadavpur Vibek Nagar Nature Lovers Association', Kolkata and the editorship of Tarak Nath Bhattacharya.

1997

The year witnessed the birth of six periodicals, which are described, bellow:

Computer: Thatya o Prayukti- A monthly Periodical on Computer Science & information technology, published from Kolkata the editorship of Indira Bhattacharya.

Ekush Sataker Yuktibadi: A bi-monthly Periodical on Science, published under the support of 'Bharatiya Bijnan o Juktibadi Samity' , Kolkata and the editorship of Debasish Bhattachrya

Gana Bijnan Barta: The monthly periodical devoted to Science movement 'published from Kolkata under the editorship of Subhash Chatterjee.

Gana Vijnan Charcha: A Popular Science magazine(5 issues in a year) published under the aegis of 'Jhargram bijnan Parishad', Midnapore .

Masik Computer o Electronic Jagat: A monthly Periodical on Computer Science, electronics & information technology, published from Kolkata under the editorship of Debasish Banerjee.

Prani Palaner Darkari Katha: A monthly Periodical on Vetenary Science, published from Kolkata under the editorship of PradipKumar Das.

Chaser Katha: A quarterly Periodical on Agriculture, published under the aegis of development Research Communication & Services Centre', Kolkata and the editorship of Subrata Kundu.

1998

In all, six periodicals, which are described below, took birth in this year: -

Computer & Telecon: Today & Tomorrow: A multi-lingual(Beng-Eng-Hindi) Periodical on Computer Science & information technology, published from Kolkata under the editorship of S.K.Pandey.

Ekuush Sataker Bijnan: A Periodical on Science, published under the aegis of 'Bjnan o Sanskriti Gabeshana Kendra, Kolkata under the editorship of Amitava Dey.

Kishor Yuktubadi: A bi-monthly Periodical on Science & science Awareness, published by 'Bharatiya Bijnan o Yuktibadi Samity, Kolkata, under the editorship of Rajesh Dutta & Debkumar Halder.

Medical World: A weekly Periodical on Medical Science, published fromKolkata, under the editorship of Jayanta Chatterjee.

Sustha: A monthly Periodical on Health, published by Aajkal, Kolkata, under the editorship of Ashok Dasgupta.

Swasthya O Chikitsa: An annual (1st july, every year) Periodical on Health, published by Ganashaktil, Kolkata, under the editorship of Anil Biswas.

1999

Two periodicals, which are described, bellow have been established in this year:

Spandan: A half yearlyPeriodical on Science, published from Raiganj, under the editorship of Utpal Dutta & Kaushik Dutta.

Tabe Ki Khabo: A Periodical on Science, published under the aegis of 'Bijnan Mansikata Vikash Kendra,
Kalyan garh, 24pgs(N), and the editorship of Bankim Chakrabortty.

2000

The year witnessed the birth of three periodicals, which are described below:

Batayan: A Periodical on Science,society, & culture, published from Kolkata under the editorship of Subhash Chandra Sarkhel..

Chayan: A Periodical on folk and traditional science& technology, published under the aegis of Nodal Research Centre, Kolkata, and the editorship of Amitava Sen.

Prithibir Disha: A monthly Periodical on Science for Children, published from Kolkata, under the editorship of Malabi Gupta.

During the span of the time the periodicals appeared mostly under the sponsorship of Science Clubs & Association of Local & state levels. Few have been under the government and Individual initiatives. From the Available information it has been found that the periodicals are of weekly, fortnightly, monthly, bi-monthly, quarterly, semi annual, half yearly, annual frequencies. But mostly they are of either monthly or quarterly besides the short-lived periodicals; long lived-periodicals have also been identified in this era. Though, some of these periodicals have ceased their publications, some are still being published. For example Jnan O Bijnan, Manabman, Sarsamachar, Chas Bas, Swasthya Dipika,Vijnan o Vijnan Karmi, Vijnan Mela, Kishor Jnan Bijnan etc. are still living and have been published more than two decades. Again, most of the periodicals have been published exclusively in Bengali, Some Are bi

–lingual or multi-lingual. One more striking feature is that through some of the periodicals have been operated under the same title –their frequency, place 7 year of publication, publishers, editor etc are quite different., Lokbijnan(monthly) reported in 1975, was published by Howrah Bijnan Parishad under the editorship of Sushil Kumar Mukherjee and Lokbijnan (quarterly) reported in 1982, was published by Lokbijnan Bijnan Parsar Samity under editorship of Asit Halder are relevant to be mentioned here. Again Prakriti (quarterly) reported in 1994 was published by Midnapore Science Centre under the editorship of Shaibal Roy & Prakriti (bi-monthly) reported in 1994 was published Kolkata under the editorship of Soumitra Banerjeeare also worthy to be mentioned here.

Radio is not only the source of entertainment but also a medium for non-formal education. Talking about radio in Bengal essentially refers to Akashbani, Kolkata. The science section of All India Radio, Kolkata ushered its day in mid 1976.Dr. Amit Chakroborty was designated as the Science Officer with two assistants namely, Dr. Ashok Bandyopadhyay and Krishna Ghosal. On the occasion of Scientist Satyendranath Bose's Birthday the science section announced different programmes on science. Kolkata station of All India Radio started a regular programme on science every Thursday at 8p.m.Programmes like Bijyan Jigyasa,Anwesha used to be broadcast in this particular segment.It is noteworthy that Anwesha is broadcast on Saturday instead of Thursday on Kolkata 'A' channel from 8.00 to 8.30 p.m.In the mid 80s India Government took initiatives to communicate science in a better way and thus formed Jatiya Bijyan O Projukti Prachar Parishad. This parishad produced a series of science programmes, beginning in 1989 where inter-personal communication and science communication were simultaneously emphasized. The FM section of All India Radio,Kolkata broadcast science programmes on every first, third and fifth Friday of Every month from

10 to 12 o'clock since 1994.

Among the Bengali newspapers there are three, which regularly publish a weekly special page on Science. 'Kalantar', which was previously known as 'Swadhinata', publishes 'Prokiti O Manus' every Monday; 'Bartaman' publishes the science page titled 'Bigyan Bichitra' on Tuesday regularly. 'Bigyaner Khabor" –of 'Ganashakti' which comes out on each Monday definitely flags the theme of science popularization. Besides 'Dainik Statesman' affords half-page on every Thursday named 'Anubikhyan' for science news. Other newspapers though not having a special page on science have importance in science communication.

As an electronic media Doordarshan and other private TV channels serve a little bit for science communication in comparison with radio. Programmes like 'Bigyan Prosonge','Swasthya Jigyasa','Bigyan Quiz', and agricultural issues used to be telecast on Doordarshan. Programmes related to health and hygiene is also telecast on Doordarshan

for e.g. 'Hallo Doctor'. Other private Television channels telecast a very little bit science based programmes; rather they have been interested to telecast programmes on occult, astrology and also serials instead of any science programme due to TRP factor.

After the independence, new born India government felt that science is necessary for the over all development of the common people and this thinking was recognized by framing the directive principles of our constitution. Article 51(A) (h) says that it is the duty of all citizens "to develop scientific temper, humanism and the spirit of inquiry and reform." To fulfill this duty the scientific knowledge should be disseminated. More over, the Right to information Act which is enacted on June15, 2005, speaks of the citizens right to get information which has been defined as material in any form, including records, documents, memos, e-mails, opinions, advices, press releases, circulars, orders, logbooks, contracts, reports, papers, samples, models, data material held in any electronic form and information relating to any private body which can be accessed by a public authority under any other law for the time being in force. So science news is easily access able for the common people who interested in science. To grow awareness in the mind of the people the schools are the starting point. Mere cramming of facts and theories without laboratory work was a dull affair and the students could not develop a genuine interest for the subject. The Government of West Bengal accepted the truth in its official publication that science is being taught but the students cannot grasp it. To attract the common people about the science and technology a science museum is to be needed- this fact was realized by the chief minister of West Bengal of that time, Dr. Bidhan Chandra Roy. A science museum, the first of its kind in India was set up in nowhere else but West Bengal in the year of 1959. Both the Union and the State governments took up this project under the initiative of the Chief Minister Bidhan Chandra Roy. Ultimately, on 2nd May, 1959 the museum was inaugurated by Humayun Kabir, the Union minister for scientific research and cultural affairs. Name of the museum was given the Birla Industrial and Technological Museum that is popularly known as B.I.T.M. It had brought up a new mode of science education for the common mass. It was non-formal in character but immensely effective in function. After its emergence, B.I.T.M played a major role in the multi-faceted working domain of science movement. It showed that science could be popularized as a way of info-tainment. It had asked the common people and the students to enjoy and explore the fun and excitement of the world of science.

Meanwhile, in the year of 1958, an important policy decision was announced on the part of the Union Government. That was the Scientific Policy Resolution, declared in the Loksabha on 4th March 1958, which was emphasized on the development of scientific temper through the use of scientific approach and scientific methods for achieving the goal of prosperity. In 1956 the Union Government had taken the matter seriously and it was first seen that Scientific Advisory Committee to the Cabinet (SACC) was formed under the leadership of Dr. Homi Jahangir Bhaba. After working ten years, the committee was renamed as the Committee on Science and Technology (COST). In 1971 it was transformed further into the National Committee on Science and Technology (N.C.S.T) and it was again reformed in 1975. The scientific organizations in India could be divided into two parts – Task coordinator body and Task implementation body. The National Council for Science and Technology communication (N.C.S.T.C) or Rastriya Vigyan Evam Prodyogiki Sanchar Parishad under the department of Science and Technology, Government of India being came into existence in 1982, to communicate scientific knowledge and to inculcate scientific and technological temper among masses. In 1990, India Government was taken a new programme, namely- Mass Action for National Regeneration (MANAR). It was said that Bharat Jan Gyan Vigyan Jatha (B.J.G.V.J) would be a nation wide mobilization leading to MANAR as its ultimate goal. Apart from N.C.S.T.C in 1989, as an autonomous registered society, the department of science and technology to take up large-scale science popularization projects established another governmental organization- Vigyan Prasar.

Laterally the Government of West Bengal took initiatives to popularization science in the mid of 70s. On

14th October 1974 Satyendranath Basu Bijyan Sangrahashala O Hate-Kalame Kendra (Satyendranath Basu Science Museum and Experiment Centre) was established in Bangiya Bigyan Parishad. Later the change of political ambience in West Bengal some how affected the science movement. At that time, there was no science department in West Bengal. As a neglected sector, West Bengal Science and Technology Committee under the Development and Planning Department had monitored scientific works. Finally in March 1988, after the amendment of the Rules of Business of the state government, the Science and Technology Department was created and in June 1988 the department was started it's functioning. Two months later, an advisory council was formed as the State Council for Science and Technology under the scheme ("Assistance for development of State Council fir Science and Technology") of the Sixth five-year plan. The main objective behind the formation of this state council was to set a focal point for the formulation, planning, coordination and enhancement of science and technology activities within their respective states. But problem was that though it was an advisory body without any autonomous character or executive power, it had no option to make any financial decisions to execute the scientific and technological schemes. Both the science

and technology department and council had very much depended on outsourcing of money. Even they did not disburse the funds offering by the government of India. Under this circumstances the state council of science and technology in its 5th general meeting held on 10th December1990 under the chairman ship of the chief minister, took the decision to boost up the council by granting some sort of financial autonomy for effective execution of the time-bounded schemes. Accordingly, following the guidelines of the West Bengal Societies Registration Act a draft memorandum for the West Bengal State Council for Science and Technology had been prepared and finally, the council was registered on 14th October1993. Then a new dimension came into the field of science and technology popularization in West Bengal. The very next year the state council arranged the West Bengal State science and technology congress, which was very important for the science movements. In this congress, scholars got the opportunity to present their research work in the vernacular. The work of the science department also reflected the eagerness of the state government to do the work of science popularization with the various active organizations of the state in a collaborative manner. So in

1990, West Bengal Science and Technology department observed the National Science Day jointly with the eighty-six science clubs of West Bengal. In the budding condition, Paschimbanga Bijnan Mancha arranged its first state conference on 19th and 20th March, where in the presidential address Mr. Shankar Chakraborty said that the role of Science and Technology Department of Government of West Bengal was very praiseworthy in its endeavor to solve the scientific and technological problems of the rural community. Another remarkable step of the Government of West Bengal is starting the two science related award. One is the Meghnad award and another is Satyendra award. Since 1995 Meghnad award had given to recognize the role of science organizations in directing the scientific activities for the people. On the other hand Satyendra award is exclusively for the writer who had written a particular book on science for the adolescent. Thus the both union and state Government had given patronage and had started to play the role of a collaborator in the field of science popularization in West Bengal.

Science is written records of man's understanding of nature and that is why to make science, technology and society synchronize, we have to make science more meaningful and technology more human-oriented. Science popularization means the transmission of scientific knowledge from scientists to the lay public for purposes of rational thinking. India Government has already declared year 2004 as the 'Year of Science Awareness', when the importance of science communication cannot be ignored. It is regretting that simultaneously occult, astrology is getting importance. Religious education and astrology are sometimes included within the syllabus. But people who are really progressive definitely intend to teach the present generation utilizing the scientific methodology of communication. Science is the only one, which can remove all the barriers logically and practically.

But unfortunately we still find in the state like West Bengal various types of superstitions, pseudoscience and deep-rooted religious dogma still prevailing in the society. So Pulse Polio campaign was not successful in various parts of the state due to lack of science awareness. Illiteracy, poverty and lack of science awareness campaign according to need are the main hindrance of science movements in Bengal. Science has developed while scientific bend of mind lags far behind. Science therefore has only a limited influence on the society. Though science communication has developed but this is not enough according to big population. Finally the science popularization movement has taken acceleration in the mid of 70s in West Bengal. So we lost many times after independence. But better late than never. During '80 onwards several pro-people science groups came up in action in different districts of Bengal. It is observed that the science movement is mainly concentrating in urban areas, more specifically in Kolkata. Though many science groups (like Drug Action Forum, Bigyan O Bigyankarmi, Manas, Ganabigyan Samanyay Kendra, Ganadarpan, Norman Bethune Janasasthya Andolan, Bharatiyo Bigyan O Juktibadi Samity, Canning Juktibadi Sangskritik Sangstha, Paschimbanga Vigyan Mancha etc.) came into existence to penetrate in the villages and gaining lot of supports from the local mass. Impact of science movement, science communication on society might be low at present but the dream is high. In the context of present darkness in social justice, awareness and equality, one can find the glimmer of dawn- a new hope ahead through this People Science Movement in West Bengal.

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