

Science and Theatre in Bengal: An Uncertain Investigation

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Abstract

The juxtaposition of science and theatre is not known to generally produce an absorbing exhibition. Hence science has generally been avoided in plays that have sought to entertain. However, theatre is a strong medium for appealing to the masses for bringing in a change in society. Producers and directors of theatre who adopted this medium to bring in revolutionary changes in society have spoken about scientific foundation of theatrical activities. Bengal, a province later divided into two halves by the colonial rulers, remained at the forefront of cultural activities through the contribution of those who were leftists in their political orientation. The area witnessed a spurt in people-centric theatre in the early half of the twentieth century. Leftist ideology dominated in theatre circles and references to dialectical materialism were only common. The dialectics propounded by Marx and Engels lay as the cornerstone of people's theatre and science was an essential part of it. But the theatres that were produced in Bengal hardly contained science in its true glory. Reference to science was frequently made by followers of materialism but science was actually avoided. This paper seeks to discuss the actual existence of science in theatres presented in Bengal and strives to know how science, if any at all, was integrated into the fabric of theatre in Bengal.

Keywords: Science, play, theatre, dialectical materialism, scientific awareness, scientific spirit

Introduction

The Second World War concluded in 1945. But the Allies were already becoming hopeful of victory in 1943 after witnessing a few events that went in their favour. They estimated that the war will come to a close very soon. With the end of the war there will be need for restoration of the essential infrastructure in various places. Roads, bridges and dwelling places will have to be rebuilt and the concerned businesspersons knew that all these apparently developmental workrake in huge profits. It was known that industrialists who had lent support to successful politicians would chalk out the rebuilding plans and thereby ensure

huge earnings for themselves. The modern civilization is typically characterised by such mutual understanding. The politicians, of course, are always in great need of preserving their image and therefore they can't ignore the creation of proper ambience for education of the masses and cultural activities of the citizens. This avenue, again, is not free from commercial interests but this article lacks the scope for dwelling on that aspect. The focus here would rather be on the initiatives by the politicians in the camp of Allies to restructure education and culture in the post-war world.

Steps were being taken on both sides of the Atlantic to build up an international educational organisation. In that very year i.e. 1943, a call was given from China by a British biochemist named Joseph Needham for international collaboration among scientists. This scientist from the Cambridge University had travelled to the East Asian country with government support to increase understanding and collaboration between China and the United Kingdom on scientific issues. Needham had been intrigued about the faraway land and its scientific legacy by listening to the narratives of his Chinese students. He chose to learn the Chinese language. After arriving there he shot a letter to the Foreign Minister of that country. In it he highlighted the fact that science is taking a pivotal role in shaping the course of civilization. But gone are the days when scientists could hope to bring in social change singlehandedly by working in their respective laboratories. The need of the hour was international collaboration.

Meanwhile in Europe, the education ministers of the nations in the Allied powers were meeting in London on several occasions between 1942 and 1945 to finalize their plans about post-war educational initiatives. Suggestions for creating a good number of scientific laboratories figured prominently in their discussions. In March of 1944, the US Secretary of State emphasized the need for expanding scientific research. The war had dealt a heavy blow to the associated infrastructure and had brought about immense hardship for the teachers. Thus, the Secretary stated, there was need for proper rehabilitation. Exactly a month later, the education ministers from the Allied powers met in London and sought to concretize a plan for an international organization. Though mentioned at least four times during the discussion, the word 'science' was finally left out from the nomenclature. The proposed name for the organization was United Nations Organization for Educational and Cultural Reconstruction. When detailed discussions were going on, Needham sent three memorandums for the consideration of the scientists and administrators. He explained that scientists would not be interested in taking part in the reconstruction of war ravaged nations if the upcoming organization failed to ensure a honourable position for them in its hierarchy. He also

expressed surprise over ‘science’ not being included in the name of the organization. The US representative explained that the word ‘culture’ for them includes science. Needham, however, was not satisfied and he kept up his battle for inclusion of ‘science’. The final meeting in this regard was convened in November of 1945 and it was titled ‘United Nations Conference for the Establishment of an Educational and Cultural Organization’. The organizers were still ignoring science but Needham succeeded in influencing the British delegation this time. After prolonged deliberations the name that finally emerged contained ‘science’ in it and the organization came to be known as the ‘United Nations Educational, Scientific and Cultural Organization’ or UNESCO in short. The unwillingness of the global administrators to include ‘science’ in the title was lamentable. Science that had played the most crucial role in the progress of civilization deserved proper mention and the wrangling in the middle of the twentieth century was not just a fight over a single word but an exhibition of poverty of philosophy.¹

A leap of about one and a half decades would take us to 1959, the year in which C P Snow delivered his famous Rede lecture. In his lecture he stated that he was a scientist by training and an author by choice. Snow was an influential person in Britain and had occupied important posts in the administration as well as in the government. Snow remarked that the ‘intellectual’ section of Britain was sharply divided into two camps. On one hand there were the academicians who explored disciplines like literature and philosophy and had appropriated the title of ‘intellectual’ for themselves leaving the scientists in the other camp without any such glory. Snow recalled the surprise of Professor G H Hardy over the peculiar use of the word ‘intellectual’ in those days. Scientists like Rutherford, Eddington, Dirac, Adrian or Hardy himself did not figure in the list of intellectuals. Snow thought that the two camps were separated by an unhealthy distance and no channel of communication was left open. Each camp sent out proud proclamations like T S Elliot saying that the verse-drama needs to be brought back to the centre of all activities and Rutherford blurting that the age belonged to science, it was the Elizabethan era! None of the camps cared to know anything about the activities of the other camp. Scientists and engineers were typically ignorant about literature and literary figures had almost no knowledge regarding the basic definitions of science. At one point Snow lamented, ‘There seems then to be no place where the cultures meet.’²

As we proceed to understand the relation between science and theatre in Bengal, we shall keep these instances in mind – the disregard on an international platform for the crucial role

of science and the unbridgeable gap between the camp of scientists and that of the others. We shall seek to know whether the situation and attitude in Bengal was any different. How much importance did science receive from amateur and professional theatre producers? Has science been treated properly or been used just as a label or front-cover to present social issues? Have the playwrights acknowledged the exclusive identity of science or presented it as something hard-to-understand mystical phenomenon? Has people's theatre (*Gananatya*) or new theatre (*Nabanatya*) taken a different stance in this regard? The biggest question of course will be whether theatre in Bengal is ready to tackle these crucial questions.

A play called 'Laboratory'

It would have been most fitting if the timeline of theatre productions in Bengal could have been present with adequate reference to the different steps of evolution. But such a scope is available only in a book. Hence we would opt for highlighting some important productions in the course of time and quite naturally some small and big leaps in time would become necessary. The beginning could be made with a play called 'Laboratory' that was produced by the Indian People's Theatre Association (*IPTA, Gananatya Sangha*), a few years before India became independent.

Inspired by the book 'The People's Theatre' penned by Romain Rolland, the genre of theatre often referred to as people's theatre (*Gananatya*) started in India, in an organized form. It drew sustenance from the expositions of Soviet and Chinese people's theatre. In the very first bulletin of IPTA released in July of 1943 this message was written with prominence - People's Theatre Stars the People. These few words actually capture the ethos of people's theatre worldwide, keeping the toiling masses at the centre of theatre. At the same time taking such theatre to the members of the working class was important. But it was evident that delivering sermons through theatre to the fatigued workers at the end of the day won't really work. Thus Romain Rolland had stipulated some conditions for an effective people's theatre. The first of course was that it must entertain. It remains to be decided whether the IPTA succeeded in fulfilling this condition. 'Nabanna' (*New Harvest*, 1944) or 'Jabanbandi' (*Statement*, 1943), written by Bijan Bhattacharya, the very first plays that were staged by IPTA did carry some slanted remarks but those were thoroughly insufficient to create any fun. It was not the aim of the playwright also to produce laughter among the audience through his dialogues. In trying to depict the lives of the unfed and unclad lesser

humans the playwright had no intention to bring in any amount of fun. However, it might be possible that due to the circumstances prevailing at that time the audience accepted the tragic tone of presentation. But it is not known who were the members of this audience, what number of farm and factory labourers were among them. Historians of people's theatre have possibly failed to give exhaustive accounts and mass media reports of that period do not reveal much in this regard. Hence leaving aside the social position of the audience, let us enter into an analysis of the plays that were staged.

Benoy Ghosh wrote 'Laboratory' to meet the needs of IPTA. The central character of the play Jibananda is a professor of science. He has taken retirement from service and works in his personal laboratory. His two children, son Ranjit and daughter Nandini, are studying science in college. They have an outlook that is different from their father. They believe that scientific research should be directed at the welfare of humans. Jibananda holds that the pursuit of science is all that a scientist should think about. There are many others in the society who can take care of welfare issues. He often gets embroiled in debates with his son over such differences in thoughts. However, at the end of this three act play Jibananda comes to the conclusion that some corrupt people are misusing science and the labours of scientists for their profit. The father understands the reality and then concurs with his son.³

The play Laboratory is influenced by the German play 'Professor Mamlock'. This play, written by Friedrich Wolf, was later made into a film in Soviet Union. The director of the film kept the title of the original play unchanged. Given the attitude of the British towards the Soviet Union, this film was not expected to enter the territories of India. However when Hitler attacked the Soviet Union in the Second World War, the socialists in India termed this international war as people's war. The opportunist British rulers were happy to see such opposition to Hitler and as a return gift they allowed the entry of a few Soviet books and films into India. Thus the film 'Professor Mamlock' gained entry into this land. There Mamlock is a physician and a scientist. He is a Jew by birth, a German citizen and overall a very honest person. He has served his country for four years in the First World War and he also believes in every word that Hitler speaks. He heads the hospital that he has built up himself. Among his colleagues there are supporters of the Nazi party. He lives a happy life with his wife who is also a physician and his colleague, his son who is an engineer and his adolescent daughter. The debate over personal beliefs between the father and the son ensues when Hitler's oppression starts crossing all limits. The hospital also suffers a Nazi attack. Mamlock is humiliated and he loses faith in the Nazi ideal. He realizes that his son had the

correct political vision but unable to adapt to the situation, he commits suicide. Before his death he appeals to his son and his lover to choose the right path and proceed along it. The story concludes with the loud message that Mamlock will be able to reunite with them some day on that path to liberty and free thought. 'Laboratory', written by Benoy Ghosh, was inspired by this play and film but the playwright took care to integrate the social scenario of contemporary Bengal and wartime conditions in his composition.⁴

After being staged in a few places of Bengal this play was invited for a show in the first national convention of IPTA in Mumbai. This might be an indicator of the quality of the play. But the pertinent question that arises in this context is whether this play gives any idea about the methods and the philosophy of science. Would there be any change in the plot if the scientist Mamlock's position were taken by any literary author or any philosopher? Would not it have been sufficient if the central role was given to a dedicated professional who remains unaware about the real social scenario? It is not easy to provide ready answers to such questions. Rather it would be better if we try to understand the philosophical basis for people's theatre. Before that we take a peek into the book 'Marxist Cultural Movement in India' written by Sudhi Pradhan. While narrating the experience of people's theatre in Punjab the author says, 'The Punjab peasant has but a primitive sense of humour which is always taken into consideration by the dramatic companies.' He goes on to add, 'Working class audiences when they are completely cut off from the village prefer short plays, melodramatic plots, exaggerated acting and plenty of songs.' If such is the reality on the ground, would it be wrong to ask, how much acceptance the play 'Laboratory' received from the toiling masses? Bengal, as a province, is definitely different from Punjab but there is ample similarity among the working class members of the two provinces. Sudhi Pradhan has highlighted the excellent features of theatre production in Bengal but has also added that the play 'Laboratory' contained lengthy dialogues that seemed like speeches. However, he had made no mention of its acceptance by the working class.⁵

Dialectics

The world we live in is material in nature and this matter undergoes continuous change. The change sometimes leads to decay and sometimes to growth. Qualitative change also occurs in matter. The philosophy that upholds this concept is known as Dialectical Materialism. It was established through research and writings by Karl Marx and Frederick Engels over a long

period. Removing all confusion they stated that there are only two competitors in the field of philosophy – idealism and materialism. Idealism lays all the stress on the mind and its ideas. It has very little regard for the existence of matter. Materialism takes a diametrically opposite stance to such concept. It says that ideas are a product of material conditions prevailing at any particular moment. Echoing the thoughts of German philosopher Feuerbach, Engels wrote, ‘Matter is not a product of mind, but mind itself is merely the highest product of matter.’ A materialist attaches a lot of value to scientific research as it is the only path which leads to the truth about Nature and its members. The way science upholds the changing nature of the universe has no parallel. But the science of the eighteenth century was such that human beings received only a mechanical idea about the universe. It used to be thought that the whole universe is a huge machine the parts of which can only grow or reduce over time. Scientists even failed to imagine that qualitative change could occur in the living and the non-living. The society seemed to be as unchangeable as Nature was. Consequently, revolution was an unheard concept. Even science with its ever expanding store of knowledge failed to influence the mind exclusively and thus the mind functioned in rhythm with its material ambience. Change or revolution did not cross the minds of people.

Dialectical Materialism is deeply connected with science. The aim of Metaphysics is to present several events independently ignoring the interconnections among them. Dialectical Materialism holds this attitude to be essentially non-scientific. Metaphysics does not take into account the continuous changes taking place in matter. It never accepts that new species of life could emerge as a result of change or evolution. Such metaphysical ideas appear before us through religious utterances. Every religion imagines a creator who made this world in one move and left it to survive for eternity! French philosopher Robinet (1735-1820) said that there is no essential difference between a mature human being with its embryo. The two just differ in size. There is small version of the bigger human in an embryo. This is the metaphysical concept about human beings. Metaphysics has no place for qualitative change and the conflict between two opposing forces in matter. Everything has to be fixed, unchanged. Hence the ruling class has always favoured Metaphysics in order to continue their reign.

The frame of Dialectical Materialism is made up of three laws. The first concerns the unity and struggle of the opposites. This is also referred to as the law of contradiction. All the matter and processes in nature contain such opposites or contradiction. Patron scientists bring forth the laws of science in order to explain this. For example, nuclear fusion is taking place

in the super massive body of the Sun thereby releasing radiation. This radiation has pressure and it strives to expand the Sun, to break it into pieces. On the other hand the force of gravity is trying to squeeze the Sun to a point. The continuous opposition of these two forces keeps the Sun in its present shape. There are other examples where a balance has been struck as a result of such opposition. An atom has a positively charged core called nucleus and negatively charged electrons orbit around it. The net charge of atom is zero, it has electric stability. A similar situation prevails in a magnet with two opposite poles, one south and the other north. We find the same opposition when we shift from science to society. There is an opposition in the capitalist society between the capital that accumulates in the hands of few and the labour of the workers that has produced it. There could be no capital without labour and these two exist in opposition. The second law speaks about a metamorphosis. That the change in quality due to a corresponding change in quantity and vice versa is observed in Nature as well as in society has been stressed in this law. Water, when heated continuously, turns into vapour after a point and similarly turns into ice on cooling. With the change in the amount of heat present in water, a change of state of water occurs which is a qualitative change. It is the same with capital. Capital should accumulate to a considerable point before it can be used to employ labour. A qualitative change in the production process occurs with such employment. This is equally true about a revolution. If only a few take the path of revolution then no noticeable change happens in the society. But when the number of revolutionaries increase by a great margin then it is a different phenomenon altogether. The third law is quite special. At its heart lies the negation of the negation. A new force emerges from the conflict of two opposing forces in the course of evolution. A new system is put in place and the older one is thrown out. However, this new system cannot survive for eternity. Another fresh system comes in to replace it. Thus no system is everlasting. The followers of Marx and Engels seek to spread this message of change. The necessary thought elements for social change are contained in these three laws.⁶

Those artistes who want to fashion their creation after the thoughts of Marx, hold Dialectical Materialism to be infallible. They never fail to mention this philosophy and to mention the need for adopting scientific attitude. It needs to be emphasized here that not science but scientific outlook fills the discussion of Marxist artistes. While writing 'On the Cultural Front' Ritwik Kumar Ghatak stated, '... First of all, the oppressed masses have wrenched from History its scientific world view through the agency of Karl Marx. Second, the establishment on the basis of this body of knowledge, and the state of the oppressed masses

- the result is the Soviet Union.’ In commenting on the propaganda through theatre Ritwik had said, ‘...Scientific approach to art is the pre-requisite upon which we can build a theory and a practice of Drama Production. ...’. This statement is very important in the discussion of the existence of scientific elements in Bengali theatre. It is interesting to note that the inquisitive reader won’t get a clear outline of the scientific approach in this essay. It might of course be possible that the essay is intended for those who are already knowledgeable about the ‘scientific approach’ and therefore the author has not bothered to explain the same. At one place in the composition Ritwik praises Dialectical Materialism in these words - ‘... Dialectical and Historical Materialism is the most comprehensive, most complete, most total outlook that man in his quest for truth has yet discovered. ...’. The message from the author is clear – this philosophy has to be the only guideline for the Marxist artiste.

Such has remained the presentation of the Marxist scholars who always declare their allegiance to scientific philosophy but does not possibly bother too much about the details of science or its methods. We shall now seek to find how such philosophy has influenced Bengali theatre.

Fighting Superstition

Science strives to find the truth and thus it is the best tool to fight superstition. From such a viewpoint fighting superstition, in effect, means treading the path of science. We can analyse a few plays from this angle.

The play titled ‘Homoeopathy’, written by Manoranjan Bhattacharya, was first staged by the IPTA on the 3rd of January 1944. The venue was the Star Theatre of Kolkata (then Calcutta). This is a one-act play set against the perspective of the Second World War. Cholera has broken out in a village of the eastern part Bengal. The villagers are relatively solvent but are shocked to witness the spread of the disease. Nibaran, the Homoeopath doctor, and his compounder Jagai tries to save lives amidst the epidemic. However some of the villagers repose their faith in supernatural powers than in the power of medicine. A pond in the village, named after a deity, is used by the villagers for all purposes. They fetch water from it for domestic needs and at the same time bath their cattle in it. They don’t heed to the doctor’s appeal of stopping using the water from that pond and think that they would be cured by worshipping the deity. Nibaran repeats his appeal of either not to drink water from that pond or to boil the water before drinking. No one listens to him. Hindus and Muslims congregate in

their respective places to pray according to their beliefs. In the process the two communities create a tense situation that is about to break out into a severe clash. However, the greater fear of bombing during the Second World War decimates them and they run for shelter without caring for their individual communal identity. The temple of the Hindus and the mosque of the Mussalmans are the two only strong buildings in the village and these two act as shelters for people. Nibaran is amused to find some Hindus taking refuge in the mosque and a number of Mussalmans hiding for their lives in the temple. He now raises his voice again and appeals to get united for survival from the bombing. He tells them about the heroic struggle of the Chinese people in this regard. In this way the play proceeds towards conclusion. Many critics disapproved of the way some revolutionary dialogues had been inserted towards the end or some chorus songs weresung with arms in hand. Nonetheless, there could be no doubt that powerful scientific propaganda could be built up against superstition through such plays.⁷

Sambhu Mitra, who had acted in 'Nabanna' staged by the IPTA, had later left the IPTA and its political bastion, the Communist Party of India, for several reasons. He started producing plays according to his own plans and set up his unit named 'Bohurupee'. The genre of plays that he brought before the audience came to be known as 'Nabanatya'. In 1952 he staged a play called 'Dashachakra'. This play was an adaptation by Santi Basu of Henrik Ibsen's play titled 'An Enemy of the People'. The original play of Ibsen was first staged in 1882. It's setting is a city of Norway with the Kirsten Spring occupying the centre of focus. It is not a natural fountain but was built by the municipal authorities who lured the visitors to it by saying that drinking water from it can cure many ailments. A good amount of revenue was thus generated. However, popular physician of the city, Doctor Stockman finds that polluted water containing harmful bacteria from a tannery situated above is leaking down into the water of the fountain. Thus the water was spreading disease among the inhabitants of the city. He collected water from the fountain and secretly tested it and was convinced of the pollution. However, he along with his family was humiliated when he tried to make the citizens aware of this danger. He was identified as an enemy of the people. This story is well known in Bengal as the famous director Satyajit Ray had made a film called 'Ganashatru' based on it. So both Dashachakra and Ganashatru carried Ibsen's message into Bengal. The film Ganashatru is set in a village called Chandigarh. The physician regains his confidence at the conclusion of the film after witnessing support from a section of the people in favour of his struggle. The play Dashachakra however does not have such a happy ending. Whatever the differences in the course of the story, these compositions bring forth the truth-seeking

nature of science. Science appears not merely as a foundational element but does so in its full glory. Such type of theatre have appeared on stage but in an infrequent manner.⁸

Galileo

For some reason or the other, a good number of people seem to feel a shock at the mention of presenting science on the theatre stage. It is not only the litterateurs or the artistes who do so but common folks who have been taught in the colleges and universities do the same. Even the lion's share of scientists prefer to leave science in their laboratories when they come to the theatre. What could be the reason underlying this attitude? Most of the theatre critics hold that the combination of science and theatre do not lead to a good presentable content. It is true that not all critics have a fair idea of both the fields but their opinion does have some value. Very few plays based on scientific facts have tasted success. In most of the cases what emerges is a boring narrative of science on the stage or a typical melodrama that utilizes the name of science to give some additional dimension. The director either gets totally lost in the maze of scientific laws and formula or simply bypasses science allowing only a cursory attention to it. There are of course notable exceptions to this unwritten rule and to give an idea about the same let us quote from a review by Richard Zare of the Stanford University. In the course of reviewing the play titled 'Oxygen' written by two professional scientists, Carl Djerassi and Roald Hoffman, the latter being a nobel laureate, Zare states, 'Science in theater is emerging as an exciting new art form. It can be seen in such plays as Tom Stoppard's *Arcadia*, which revolves around a 13-year-old math prodigy, Thomasina Coverly, who baffles her tutor by asking if God is a Newtonian, and Michael Frayn's *Copenhagen*, which is based on the uncertainties surrounding the 1941 meeting between the physicists Niels Bohr and Werner Heisenberg in German-occupied Copenhagen.' The play 'Oxygen' that he reviews had its world premiere on April 2, 2001 at the San Diego Repertory Theater. Zare's review underlines the fact that the play contains enough dramatic elements as he states, 'Djerassi and Hoffmann capture and amplify the moral dilemma of whether Lavoisier gave sufficient credit to those whose work he used to overthrow the theory of phlogiston.'⁹ Apart from these successes another two plays written by German authors could be mentioned here. One is 'The Physicists' written by Friedrich Durrenmatt¹⁰ and the other is 'The Life of Galileo' by Bertolt Brecht. Various Bengali translations of Brecht's play have been staged in Kolkata and in Bangladesh several times. One of those translations was done by the well

known playwright Mohit Chattopadhyay and was titled 'Galileor Jiban'. Different theatre groups of Kolkata came together to form 'Kolkata Natyakendra' and they staged the play under the direction of Fritz Bennewitz, the German director, the first exhibition taking place on 18 November 1980. The whole of the play is filled with conflicts between traditional, conservative thinking and scientific reasoning. Brecht takes ample care to present the dynamics of planetary motion in a rather slow but well-paced manner. He does not completely omit long dialogues involving definitions of science but Galileo in his play is in no hurry to spell out the laws of physics and then heave a sigh of relief just like a school or college student. Brecht skilfully blends historical facts, the prevailing social conditions, Galileo's own stand and creates an opportunity so that the audience could easily accept the facts of science. Critics who are well versed in Brechtian manner, knows his epic style or his stress on empathy are in a position to dwell on those important theatrical elements. What we are interested in is to underline the technique that Brecht adopted to make critical scientific laws acceptable for the lay audience. Brecht had placed science on the stage as an integral part of human life, of society and such inclusive style enabled the audience to appreciate the true merit of science.¹¹

Treading on this path we reach another milestone in Bengali theatre. The name of the play is 'Suryashikar' and the playwright is Utpal Dutta. 'People's Little Theatre' (PLT) first staged this play on 13 August 1971 at Rabindrasadan, centre of artistic activities since it was set up. Galileo and his science could be found in this play but in a different perspective and with a different identity. The Buddhist monk Kalhan, a resident of the empire of Samudragupta, takes on the role of Galileo in this play. He attracts the ire of the administrators of the empire in trying to spread the truth about the universe that he had discovered through his research. He is arrested by the Army General Hayagrib who falls in love with his adopted daughter Indrani. Ultimately, however, the cunning ruler Samudragupta kills both Hayagrib and Indrani by putting them under the feet of a mad elephant. He chops off the tongue of Kalhan so that he cannot utter the truth about the universe in front of the assembled people. Moving away from the basic storyline we concentrate on an interesting fact. Kalhan is shown to use a telescope for his studies. It is difficult to understand how he came to acquire such an instrument because Samudragupta belonged to the fourth century and telescope was yet to be invented then. This however could be a trick used to make the play effective in delivering the intended message. The dramatist has situated scientific facts in a mesh of politics, hatred, love, hatred, war techniques and made the whole combination enjoyable. 'Suryashikar'

clearly does not remain true to historical timeline and facts but Dutt, as in all his plays and often as Brecht did, uses the composition to achieve a political goal. He emphasizes the role of science in effecting social change.¹²

Plays that Portray Devastation

One of the path breaking plays in Bengali theatre is Tringsha Shatabdi. It was written by Badal Sircar and dwells on the nuclear holocaust. According to the statement in the Foreword section of the play, Sircar informs us that it was adapted from a play titled ‘Formula for Death: $E=MC^2$ ’ written by a French journalist. It was first staged on 06 August 1974 on the anniversary of the dropping of atom bomb on Hiroshima in Japan. As is widely known, the term Third Theatre has become synonymous with Sircar and he enriched both proscenium and later open air theatre in Bengal with his innovative presentations. Tringsha Shatabdi possibly appeared in both formats. It vividly portrays the sufferings of the people of Hiroshima after the atom bomb was dropped there . It also narrates the sequence of concerned events before and after the explosion. The idea was to create awareness about nuclear holocaust but in doing so a lot of scientific elements have been integrated into the texture of the play. The basic dynamics of chain reactions in a nucleus that releases unimaginable amount of heat and deadly radiation is described by the play. It adequately explains the devastating power of nuclear explosives and the long term effect that such explosions could have on the future generations. But such is the tempo of the play that the audience is not likely to be put off by the use of scientific facts.¹³

The development of science has spawned new technologies and those have not always been used in a judicious manner. Consequently weapons of mass destruction have been designed and perfected, giving science a bad name. But these weapons are not the only products of science that has harmed our civilization beyond recovery. There are other items of technology that propel the chariot of so called development, clearing green and rich forests, digging up minerals from beneath the soil, manufacturing oil guzzling vehicles, constructing towers of dizzying heights and producing unmanageable amounts of toxic garbage. Needless to mention, all these processes are dangerous for the environment and therefore for the continuation of healthy life on this planet. Creating awareness about this danger is best achieved through theatre where the audience gets to witness characters enacting a story. ‘BitataBitangsa’, a play whose name literally means a spread-out capture-net, showcases the

danger of stashing away nuclear waste in remote corners of underdeveloped countries. It shows a young woman, a government administrative officer in West Bengal, singlehandedly taking on a large multinational corporation that wants to dump nuclear waste in the name of starting a copper mine. The play was written by Supriti Mukhopadhyay and was first staged by 'PanchamBaidik' in 1996.^{14,15} It was definitely an exceptional display of environmental awareness through conventional theatre in Bengal. But, not many play followed the trail left by 'BitataBitangsha' and theatre in Kolkata and other parts of Bengal continues to wallow in the squalor of petty thoughts, paying lip service to science and environmental conservation.

Technology to the Aid

Science produces technology but once it leaves the lap of the originator, technology has no strings attached to it. It doesn't have any principle to adhere to. The buyer decides the course of technology, it could be used either for creative or destructive purposes. Thus technology, though displaying the capability of science, is hardly a tool to create awareness about the methods of science. Theatre, however, remains tied to the use of technology in various ways. Once theatre realized the crucial importance of stagecraft, light and sound in the shaping of a play, it started showing eagerness to use technology. In the first decade and a half after India became independent, there was very little use of innovative technology that could enliven the play and bring out it's real meaning. In Bengal, the hub of progressive theatre, the emphasis was mainly on script and individual acting. Then came a few young innovators who changed the dimension of technology that was applied to theatre. One of them, of course, was Tapas Sen who used simple tools combined with waste materials to weave magic of lights on the stage. Playwright, actor and critic Utpal Dutt was deeply impressed by Sen's contributions. He went on to say that the light projection by Sen, '...is more than a medium of visibility. It affects the appearance of all elements of the stage and by this power becomes a determining element in the composition of a stage picture. ...'. In the same essay he underlines the fact that 'science' has entered the portals of theatre along with the beginning of the use of light projection and electricity. He holds that in order to understand the dimension of such uses some mathematical calculation would also be necessary. Thereafter he mentions a couple of standard formula related to optics. There is further mention of Sen's charisma with light projection in plays 'Ferari Fouj' etc. However, Dutt has missed the basic point here. What he has dwelt upon is technology and not science. Even erudite people like him cannot

differentiate between science and technology and thus lesser mortals can hardly be accused of confusing the two.

Technological advances, best used by the British, German and Soviet drama units in the twentieth century, inspired theatre directors in Bengal and Dutt was one of them. In writing the Preface of Dutt's book ShamikBandopadhyay narrates the story in brief and also highlights the concerned brainstorming discussions in those countries that were also available in print. Bandopadhyay brings forth the concept of 'Total Theatre' as initiated by Sisir Kumar Bhaduri in Bengal and later accepted by Dutt as well as his comrade and competitor Sambhu Mitra. However, science does not even find a backseat in such euphoria over the use of technology.¹⁶

Changing the Viewpoint

It is not easy to do justice to the title of this paper and thus the insertion of the word 'uncertain' became necessary. A lot of substantive research needs to be conducted to find out how many plays in Bengali starting from the first one titled 'KalponikSangbadal' was based on science or how much time was allotted to discussing science in its true form. Since science largely remains a shunned discipline in the field of artistic expressions, the effort to find its existence in these fields would have to be a herculean one. It is true that support from some quarters do appear all of a sudden. Personal interactions with actors or directors spring a relevant fact or two. Thus while talking to the editor of the theatre related periodical 'Gananatya' it was gathered that the West Bengal branch of IPTA had produced plays in the recent past that had something to do with science. 'Bhesaja', a play written by Sasanka Gangopadhyay, sought to highlight the loss of herbal wealth due to destruction of greenery caused to ensure development. Another play titled 'Virus', penned by Tapan Halder, portrayed a different crisis. The list, however, is very limited. Street theatre can lend some support to this weak list but that would not amount to much.

Hence, as mentioned earlier, it would be better to completely change the viewpoint while trying to find science in Bengali theatre. Let us satisfy the thirst with 'scientific philosophy' rather than science itself. Then we would have something at least on our hands. We might congratulate ourselves that we have found these words in the writings of UtpalDutt, '... Just as human beings once knew nothing about Nature but have been able to employ natural forces to his ends due to the discoveries of the scientists, similarly he is able to direct the

several forces effecting social revolution due to the discovery by Karl Marx. He has to appreciate this newly discovered theory. Humans must be imbued with scientific spirit. That is the aim of Proletariat Theatre. Thus the theatre of Brecht was bound to challenge Aristotle's rules of theatre simply because humans stunted by fear and favour cannot acquire scientific spirit. The audience will have to be pacified instead of agitating them, they have to be given the scope of thought and analysis.'¹⁷ (*Translated by this author*)

In this way we return to the driving philosophy. Commercial theatre has not found a place in this discussion for valid reasons. In fact, it is difficult to identify science in commercial theatre even if it finds some place there. Science is not known for providing entertainment to one and all. Science can only be spotted in plays that speak about social change. The general indifference of society to the spirit of science has been mentioned in the beginning and the last sentence is written keeping that perspective in mind. If we accept what Dutt has commented then many a play in alternative theatre could be identified as scientific. It is difficult to say with certainty whether something called 'scientific awareness' could be spread through these plays but, for the least, some eagerness to deliver a blow to the age-old, stubborn institutions could be generated. It's not only the script that accomplishes the job but the combination of acting, light projection, sound and stagecraft produces the desired effect. It would be fitting to conclude the discussion with one more reference to the scientific foundation of theatre. Here we shall quote again from RitwikKumar Ghatak's 'On the Cultural Front'. At one point in the thesis he says, 'In this anarchy of thought, this 'democracy' the primary task is to restore the scientific attitude, to bring back the forms of our art, the accepted notions. But actually, there are differences, there is more to it than banter, there is food for thought in many a school. We will have to tackle them someday, this is absolutely certain. Not today. Today, we have to declare some fundamental, broad points on which a basic scientific attitude may be restored.'¹⁸

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