

JOURNAL OF THE ASIATIC SOCIETY ● Vol. LIX ● No. 4 ● 2017

JOURNAL OF THE ASIATIC SOCIETY

Vol. LIX

No. 4

2017



THE ASIATIC SOCIETY
1 PARK STREET ● KOLKATA 700 016

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JOURNAL
OF
THE ASIATIC SOCIETY

VOLUME LIX No. 4 2017



THE ASIATIC SOCIETY
1 PARK STREET □ KOLKATA

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ISSN 0368-3308

Edited and published by
Dr. Satyabrata Chakrabarti
General Secretary
The Asiatic Society
1 Park Street
Kolkata 700 016

Published in February 2018

Printed at
Desktop Printers
3A, Garstin Place, 4th Floor
Kolkata 700 001

Price : ₹ 400 (Complete vol. of four nos.)

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MAULANA AZAD AS MOHIUDDIN AHMED : THE INTERNATIONAL CONCERNS OF AN INDIAN NATIONALIST RECONSIDERED*

HARI VASUDEVAN

Introduction

This brief discussion paper provides a critical evaluation of the trend in the English literature on Maulana Azad to downplay the formative influence on him of his connections with West Asia - influences that were the result of his early upbringing in the Hijaz and the role played by his father, Muhammed Khairuddin, in his education and adolescent life. Addressing this subject, the paper does not seek to understate the deep involvement of Azad in the processes of the Freedom Movement, but it attempts to throw light on the complex circumstances within which that Movement developed and to highlight its international dimensions.

The paper does not engage with the vast Urdu literature on Azad, and this, together with the lack of archival input is among its many limitations¹.

The paper is based on my reading and discussions as an organizer of Asian Studies programmes at an Institute dedicated to the memory of Maulana Azad (the Maulana Abul Kalam Azad Institute of Asian Studies, Kolkata, under the Ministry of Culture, Government of India), and as a researcher who has dealt with Revolutionary Asia of the early twentieth century and its Soviet dimensions². I have at different times been called upon to engage with aspects of Maulana Azad's thought in such contexts, and to place it in the spectrum of the intellectual trajectories that Indian nationalist leaders took.

The Problem and a Perspective

Until the intervention of Aijaz Ahmad several years ago³, and in a trend that has continued well after Ahmad's publication, treatments of the life and thought of Maulana Azad have normally focused on

* Earlier version of the paper was presented in the Seminar on The Life and Activities of Maulana Abul Kalam Azad held at the Asiatic Society, Kolkata, on February 16, 2015.

his contribution to South Asian Muslim scholarship or his role in the Indian National Movement, with little attention to the complexities of how these phenomena were associated with international engagements, except through general intellectual reference on the part of commentators.⁴ Again, the motley nature of the sources that tell of Azad's early development and the history of his family - which throw light on these engagements - have seldom received attention, beyond a point, leaving impressions of certainty that is often illusionary or a domain of sketchy fact about which anything can be said. This has especially been true of Azad's interest in a broader spectrum of world politics with an eye to its Asian dimensions - an aspect of his intellectual development that has normally been neatly meshed with other themes of his religious and political opinions. That phase of his development, however, clearly throws up problems for any argument for continuity in Azad's ideas over a long term, as Ahmad has clearly suggested.

In the overall trend in literature, while there was no denial of his Asian interest and its significance, it has seldom been thought necessary to bring these and other aspects of his concerns together, accepting a degree of heterogeneity. It has become customary by and large to attribute a degree of general coincidence between these aspects of his life - coincidence that contributed to Azad's evolution as a nationalist and a commentator on Islam from India, albeit following a trajectory that varied from that of other Muslim leaders of the Freedom Movement. Hence, in the standard literature, Azad is seen to have been distinctive in the way he drew on Asian examples to strengthen his call for challenge from Indian Muslims to British Imperialism, using his observations during visits to the Middle East accordingly; and the broader issues thrown up by the Khilafat movement afforded an important and appropriate opportunity for his involvement in nationalist mobilization with a degree of difference. The possibility that these levels of his evolution indicated an alternative vision of India's role in global affairs from that which the Congress would increasingly espouse after the 1920s seldom received comment.

The overall lack of critical awareness has also affected accounts of Azad's understanding of the idiom of Islam - normally attributed to

his family education and his involvement from early life in debate that was stimulated by his father, an outstanding scholar in his own right. His own references to thinkers of international repute - figures such as Abduh - were taken at face value without a sense of how and within what limits the engagements took place. The idiom was seen to have given him the identity that allowed him to think of India from a larger perspective than customary, but essentially a humanist albeit religiously shaped one: and it was suggested that the broad international dimensions to Islam and his knowledge of them acted as a formative force in his development as a nationalist, imbuing his ideas with a special vitality that Islamic content could provide.

The overwhelming consistency of this reading, as Aijaz Ahmad suggested, however, struck a discordant note when the variations in the life were examined. It left a number of questions unanswered that are self-evident. How, for instance, did his early life in the Hijaz, where he was born and grew up and with which he had an intimate association through his Arab mother's family, and whose networks and connections he inherited, affect Azad? How was he to abandon these moorings to orient himself to a nationalist perspective with ease when his engagements with that background travelled with him to Calcutta in the form of the person who had the greatest influence in his early life - the formidable figure of his father Khairuddin, whose life and scholarship had been shaped by life in the Hijaz? Even if such a reorientation took place, what were the terms on which it took place?

The answers provided by Aijaz Ahmad to some of the problems have been striking. In his critical analysis of the literature on the basis of which Azad's life has been written and presented, Ahmad has dismissed his experience of the world outside India and its debate, not merely reinforcing the strand in traditional literature that stresses the local contours of Azad's development in the subcontinent but stripping his image of the traces of the internationalism that he was imbued with by the early literature. From his account, Azad emerges as a brilliant writer and an erudite individual - shaped by Urdu and knowledge of classical texts that came to him through his father. Formidable variations in his "careers" are considered inexplicable simply since there is no material on the basis of which to explain

them. He is found to move across the political landscape in an unusual manner - from Urdu essayist and activist in early life to erudite firebrand during the Al Hilal years and on to the Khilafat period to Congress politician and statesman thereafter. But as he makes decisions in his early life, when he was most open to international ideas and argued with an international idiom, he was strikingly uninformed, changing and, in many ways immature. In Aijaz Ahmad's eyes, he came to maturity with time - and it is his political life after 1923 that is most balanced and well oriented.

In approaching the questions that I have mentioned and that Aijaz Ahmad has answered in his own way, I myself have been struck by possible alternative approaches to reading the early life of Azad that have important implications for the quality of his nationalism. In the course of thinking through these approaches, I have been struck by the possibility of viewing him less as a quintessentially nationalist leader who engaged with international tropes and ideas informed by Islam, referring to them as a means of enhancing his local position as Ahmad and others would have us believe. Rather, I would argue, we have a complex process of identity formation in this unusual figure of India's nationalist movement - in whose mirror much of the global echoes of the nationalist movement may be seen and read, but in a manner quite different from the way in which standard Indian nationalism is conceived and discussed. Here, the "derivative" aspects of Azad's nationalism were not wholly formed by the institutions of British India; they were ordered rather by the way nationalism found opportunities within the framework of a broader Islamic world that, in Azad's case, had a direction that it was given by the practices of the Ottoman Empire.

An alternative to the Nehrus, Gandhis and Patels, an alternative also to the Sayed Ahmed Khans, Azad represents, in such a reading, a nationalist urge, directed towards South Asia but shaped in the framework of an Indo-Arabic continuum. This continuum was framed against the background of the space of the Ottoman Empire over a long term - a continuum that survived the advent of British rule in India, utilized the links and networks that British rule developed between its South Asian possessions and its Middle Eastern interests

and evolved dynamism of its own. The delineation by Seema Alavi of that continuum, and its range, shows the contours of the context within which this figure developed.⁵ The lightning rod that gave that continuum focus and fixed it in Maulana Azad's persona was the redoubtable figure of Khairuddin, who had been deeply involved in the links and connections between South Asian Islam, the Hijaz and the Asian and non-Asian communities that constituted Islam as a religious and social phenomenon.

This orientation however, developed further dimensions in the context of Calcutta - an Imperial city whose ambience breathed cosmopolitanism and European power across the globe. Taking a lead from his father's own positioning of himself in Calcutta Muslim society, the young Azad became better acquainted with Muslim politics that was unstructured and ran against the grain rather than the standard structures that were taking shape in the background of the Swadeshi Movement. These factors came together in shaping Azad's life as a thinker and an activist, leading him inexorably into the popular politics of the Khilafat movement in a way at variance with the Ansaris, the Ali brothers and others, yet apparently in no way to be easily distinguished from them.

It was the collapse of the Indo-Arab continuum in the inter-war years, with the end of the cosmopolitan space of the Ottoman Empire and the rise of Arab nationalism that drew Azad into a crisis that ultimately made him a leader of the Indian National Congress in a political key far different from that in which he had worked.

The ideas are not at variance with much of what we know of Azad's development — though they do not accord with Aijaz Ahmad's reading of him, which, however, I still consider to be one of the most powerful statements on Azad, albeit substantially limited by misconceptions regarding the history of the 1910s and 1920s and slightly tendentious in the reading of Azad's connections with the environment of his birthplace.

The perspective requires re-orientation of standard arguments, however, and greater attention here than is normal, to a broader phenomenon against the background of which Azad must be located if his priorities are to be understood. At this level, space needs to be

given to the phenomenon of identity formation in Islamic communities at an international level and the manner in which national and religious orientations coexist. The phenomenon is certainly acknowledged, but its character is seldom investigated, in contrast to treatment of Christianity and Buddhism.

In Azad's case, to understand this, attention requires to be paid to the range of the father's ideas and the son's early development; attention also requires to be paid to the nature of the Indo-Arab continuum as a formative space that stretched deep into South Asia and beyond. Finally, it calls for a close re-examination of the terms on which Azad engaged with local politics in the 1900s and 1910s, with some attention to him in the 1920s as he changed track. While placing his Islam firmly in a place of importance, the perspective requires not only an interest in its religious discourse in an international sense — and the modern, ecumenical and international character of the Islam that Azad espoused — but also to the political and social quality of that Islam and the structures and milieus that held it together.

These issues, as they take shape when examined from the perspective I have mentioned, are major lacunae in the literature on Azad. They point to two aspects of the identity of this formidable nationalist leader - the persona of Mohiuddin Ahmed, young activist and thinker, and the persona of Maulana Azad, pre-eminent leader of the Indian National Congress. How one blended into the other and with what consequences, I would argue, are questions that the historian of Maulana Azad requires to answer. While Aijaz Ahmad has presented us with one reading, others, I would argue, are possible. Here, a social perspective requires attention rather than a purely intellectual or religious one. The suggestions are put forward not with a profound sense of the sources on Azad, but from some sense of the way in which movements and individuals shaped during this time.

The Making of Mohiuddin Ahmed

The Indo-Arab World of the late 19th century

Maulana Azad was born as Mohiuddin Ahmed in 1888 in the Hijaz to an Arab mother and an Indian father. At the time of his birth, his father, Muhammed Khairuddin, had already spent thirty years in the

Hijaz and had become a respected Islamic scholar who had travelled broadly within the region, engaging with the different religious and political questions that were thrown up in the Ottoman Empire under the Tanzimat and in Egypt at the time of Anglo-French hegemony. But the disputations inspired by the local madrasas were not the only reference point of Khairuddin's work. He himself was an active reference point for South Asian Muslims and the range of major institutions of Islamic learning in India - including Deoband and Nadwa. He was active in interactions with the centres of wealth in and around Bombay that were interested in the Holy Places and their maintenance, and he is known to have been active in raising money for such purposes.

The trade networks and funds that sustained these connections have been partly indicated for western India by Chhaya Goswami in her study of the connections between the western coast of India, Muscat and Zanzibar, as well as by many other scholars who have dealt with India's connections with the Middle East.⁶ The way in which the Hajj pilgrimage lent a regular dimension of trade and administrative practice that involved investment, transport and hospitality, has been outlined by Mushirul Hasan and Rakshanda Jalil in their work on testimonies of the Hajj journey from India.⁷ Again, though not drawn out, this has important implications for Calcutta of this time. From such research, it is possible to gather that there was a specific set of groups and individuals who were "responsible" for South Asia in the Holy Places, and once the pilgrim arrived in Mecca, he/she was required to orient him/herself around these.

The home of Muhammed Khairuddin, Azad's father, clearly fell within this category. The effect on Azad may be seen to vary according to the version of the family's life that is accepted. The standard version establishes a migration to India around the time when Azad was between eight and ten, leaving him a long period in the precincts of the Hijaz. By this reading, it was within this atmosphere of Ottoman Arabia that the young Mohiuddin spent his early life, trained primarily in Arabic but possibly acquainted with Urdu during his growing years. The disputes in the home, and the many problems that required discussion in an Arab milieu in connection with the relations between

the Sharif of Mecca and his Ottoman patrons were the context of these years. Deep connections were formed between the young Mohiuddin and his mother's family during these years, and it was undoubtedly using these links that he would travel in the area later in his life. By this reading, Azad's acquaintance with Urdu must be ascribed to the Indian milieu in the Hijaz that the father belonged to as well as the father's training in Urdu early in life before the family migrated to the Hijaz (c.1858).

An alternative reading of the Azad family's history places the time of Khairuddin's migration to India in 1890, when Azad was an infant. By this reading, however, also, it is possible to discern the impact of the Hijaz on Azad himself since the presence of the figure of Khairuddin and the elder sisters of the family is constant. As Aijaz Ahmad remarks, however, this dating effectively explains Azad's acquaintance with Urdu at a level of sophistication by the end of the 90s.

Significantly, in his later years, as he referred to his personal experiences on occasion, this phase of his life would always be understated. His links with the families of the Hijaz is indisputable and is part of family lore. But, almost in a deliberate act of nationalism once he was in India, he would seldom mention this early life.

Imperial City

It was from this context that the family came to travel, ostensibly for reasons of health, to Calcutta, at that time a remarkably cosmopolitan city and the centre of British interests not only in South Asia but also in South East and East Asia.⁸

Again, in the rare notes on his past, Azad seldom mentions this move. The sea journey was certainly the first he made - but he would never mention it. Nor would he discuss his impressions as a child of the city to which he came. For a young child, the contrast between his new environment and Mecca must have been overwhelming. In the 1890s, Calcutta was the largest and most modern city in India. As the capital of British India, it was the ultimate halt for a range of foreign dignitaries from South East Asia, East Asia, West Asia and Europe. At the time of the family's arrival, it had recently feted the Tsarevich of Russia and the Archduke Franz Ferdinand of Austria, and in a more

distant past, it had been host to the Thai king Chulalongkorn and ambassadors from Japan and China. Representatives of Iran and Afghanistan had been required to journey to this city for important negotiations; and it was from here that Central Asia had been studied for the purposes of the Great Game. In the decade to come, among others, the Fourteenth Dalai Lama would make his maiden visit to India to this city, and the Viceroy would meet the Crown Prince of Germany on the eve of the Second World War.

Calcutta was also one of the most important concentrations of resources in India. Not only major financial institutions concerned with banking and finance had their main offices here, but also the city was home to a vast trade with Burma and the north east of India. A lively trade with the Middle East, Europe and East and South East Asia touched on the city.

Socially, many prominent Hindu zaminadars and traders had their homes in the city, and the educational institutions appealed to the offspring of these, a growing group of service families associated with administration and the professions and to a range of local elites from the Himalayan territories to Bihar, Orissa and North-East India.

But there was also a Muslim world of high society based around the exiled families of Tipoo Sultan and Wajid Ali Shah. The Nawabs of Dhaka had their residences here. Around these families an important religious life took shape - sustained by the Calcutta Madrasa and the Muslim Research Institute. A range of mofussil and metropolitan Muslim groups, clustered around legal families, played a role in urban politics and the Viceroy's administration. Around them were a flotsam and jetsam of artisans, labourers from "up country" and migrants from the eastern districts of the Bengal Presidency. The community was stretched out in a belt that ran from the north east to Park Circus and its neighbourhood, with important pockets in the Chitpur area and the dockland and its larger district. To the east of the settled areas, there were outlying communities in the marsh lands.

More than any other city in British India, as a consequence of all these attributes, Calcutta was a cosmopolitan city that was a node of international intellectual exchange and discussion. The output of its publishing travelled a large distance, and those who participated in

urban discussions came from a varied provenance. Its libraries and educational institutions gave a vigorous fillip to this profile.

Maulana Khairuddin's connections had been primarily with Bombay hajjis and, earlier, his family had been closely linked to the ruling family of the nawabi of Bhopal. His direct links with Calcutta were few - and it was clearly since he expected this to be the best city for medical treatment that he chose to move here rather than to the western coast. He pointedly avoided the major families of the Muslim community, took up residence in the Chitpur area and made himself available as a spiritual figure in the vicinity of the Nakhoda Masjid. His home was reasonably modest, and he moved here with his family of four, a daughter having died earlier in the family's history. His life however did not lose him his acolytes from Mecca, who appear to have been in touch with him. In his discussions at his Calcutta home, moreover, he was able to draw on a large awareness in the locally available Urdu and Arabic literature on issues that affected Muslim debate in places as diverse as Malaysia, Indonesia, the Middle East and the Central Asian territories of the Russian Empire.

Bringing up Mohiuddin

It was in this context that Azad received the thorough education that established his erudition. He states that Khairuddin provided him with tutors - presumably according to the subjects and perspectives that he considered important for him to know, which, in turn, led back into his own life in the Hijaz. Muslim jurisprudence and aspects of Islamic debate are almost certainly part of what was taught and learned, but so also were languages and, again presumably, as sense of politics and the world.

Khairuddin fixed this, the youngest of his offspring, firmly in his own mould. He married Mohiuddin to the daughter of a young murid who came from the Hooghly district. The girl was about seven. The marriage involved the two brothers. Mohiuddin's brother married another sister of Zuleikha Begum, Mohiuddin's wife. Clearly a marriage at this age, when Mohiuddin was in his early teens did not evoke a sense of responsibility with ease. But it set a framework for a personal life in future in a manner that was somewhat binding.

At the time, certainly, it does not appear to have constrained Mohiuddin's activities. When he was 12, Azad was able to contribute to Makhzan, a literary magazine, and became involved in the production of *Nairang-e-Aalam*⁹, a journal, and another weekly, *Al Misbah*¹⁰, bringing out his own monthly journal, *Lissan-us-Sidq*. At the time, the young Mohiuddin was also teaching in the mosques of the Chitpur area.

Such a trajectory merely took the training received from the father in the direction of literary virtuosity and an appreciation of poetry and music that was closely linked with the literary range that the father had equipped the son with. In contrast to Khairuddin, Azad was developing an artistic sensibility that the deep scholarship of the father precluded by the very rigor of its practice of erudition and learning. Much of this must be associated with the aesthetic concerns of the Imperial City - its draw on a number of books and practices from a diversity of communities that it drew its population from.

Early shaping of an intellectually minded journalist

The departure from the father's priorities and interests developed further. Azad taught himself enough English to read, and, from his place of domicile on the Chitpur Road, came to be acquainted with the broader neighbourhood that ran to College Street and the schools and colleges located on the thoroughfare. It comes as no surprise that the area fronting on Central Avenue should have been the scene of some of his journalistic enterprise. There is no indication though that his involvements as a youth took him further - to Wellesley and the Calcutta Madrasa and the Muslim communities that lived in its neighbourhood, although his later journalism would, as he came to work in the area of Park Street that fronted on to the Lower Circular Road, and the Muslim communities that lived there and in the Park Circus area.

An edge now developed in his general political awareness, and his sense of India beyond the Imperial city. At the time the Swadeshi agitations began to gather in Calcutta, Mohiuddin left the city. He travelled to Lucknow and to Amritsar to contribute to the periodical *Vakil* that had some appeal in the Punjab and its neighbourhood. As

in Calcutta, he would be able, as he participated in these discussions, to draw on arguments founded, in Urdu literature, on the broader domain of the Middle East and its links to world politics.¹¹

There is a tendency to take what was written and conceived at this time with a degree of intense seriousness. And undoubtedly, there is some reason for this since there were encounters in Calcutta that Azad speaks of when he was encouraged to lecture and teach to assist him from his ideas. But these debates must be put down as those of the early mosque disputation rather than a substantial intellectual engagement that deals exhaustively with literatures and religious experiences. His remarkable essay on Sarmad must evoke admiration, but it was the product of a young intellectual still feeling his way forward to independent thought.¹²

These ideas undoubtedly shaped well as Mohiuddin encountered a larger debate that linked what he had learned in Calcutta to a broader sphere of interest as he traveled through India, but where the reading took place and how deep the disputations and discussions were that formed views cannot seriously be established from newspaper articles. Certainly, the standard names of Afghani, Abduh and, more locally, Sayed Ahmad Khan had begun to feature in his reading, where the engagement between Islam and modernity and Islam and liberal and radical institutions and values were at issue. While standard notions associated with Islamic jurisprudence, including the relationship between *fiq*, *hadith* and *shariat*, and ideas of the value of personal discretion were now bread and butter to him, Mohiuddin was frequently in problems that stemmed from their encounters with scientific understanding of the human being and the universe and the political perspectives that should guide their realization and evolution in the modern world. In this he would be like many who learnt of the world through the Ottoman Empire and pursued a life of journalist activity and spiritual encounter, such as the Tatar intellectual and activist Musa Bigiev, who was also to pursue problems linked to Islam and modernity, albeit with less success ultimately following his exile from Bolshevik Russia.¹³

Significantly, it should be pointed out, like such figures as Bigiev, Mohiuddin was not content to travel around the country of his life

and domicile to reach further into the new "self" that was shaping within him, perhaps indicating the social and intellectual framework within which Mohiuddin was orienting his ideas. In 1908, for several months, he traveled in the territories of the Ottoman Empire - certainly covering Iraq, Syria. Whether he entered by Basra or by Jiddah is not certain, nor the range of contacts that he touched. The Ottoman Empire was at the time undergoing a major time of reorganization under the "Young Turk" politics of the post Abdul Hamid order. He is also said to have made a preliminary acquaintance with Louis Massingnon, a French Orientalist, at this time.

In the same year, though, he was forced to return to Calcutta to attend to his father, whose health had severely deteriorated, and who died within a year.

Mohiuddin as an international revolutionary

The young Mohiuddin was now twenty. His passive knowledge of Arab and Persian classics was outstanding - and he had turned it to some active use. His interest in revolutionary politics had schooled him in the stories of world nationalism and world revolution of the time - a time when such stories centred around accounts of European revolutions and the nationalist achievements of terrorists and activists in Europe associated with Germany, Italy and Eastern and South Eastern Europe. He had a sense of Ottoman politics refurbished by his visit to West Asia however brief. Minor contacts emerged, whose value or direction may be uncertain, but that are known to have taken shape.

From this potent but inchoate base, Mohiuddin launched into a new phase of journalism that spanned the period following the Swadeshi Movement and where extremists and moderates were in sharp conflict. The Indian National Congress's relevance was not clear, given the mobilizing power of the Anushilan, revolutionary organizations, the Punjab and Maharashtra revolutionaries and the forerunners of the Gadar Party. Nascent caste organizations and the All India Muslim League all had their own enclaves of interest.

The close restraints of the father's entourage were no longer around Mohiuddin. Though married, the commitments of family were limited to a young wife. His brother had passed away and his sister had

married in Bhopal. He had already established his flair for writing. His ability to articulate himself among a number of people was also established. He had gained confidence in his travels.

How he oriented himself rapidly along a new path appears vague. He was on the fringes of the new world of Calcutta Muslim politics that the Swadeshi movement of 1905-08 had engendered. The Ashraf leaders of Muslim society had had to encounter outrunners such as Fazlul Huq and S. H. Suharawardhy, and the staid politics of the pre-1905 dominated by figures such as Abdul Latif, working with networks in Calcutta city, had been swamped by peasant mobilization that went along with the Swadeshi movement, and attention to the docks and mills during the same era.¹⁴

Azad developed as a public speaker, in this context, covering the communities that did not fall within the purview of the standard Muslim politicians - in the dockside and in the area of the Salt Lake land that extended beyond Park Circus. By 1910, he had moved far beyond his father's ambit and begun to occupy a unique area on the fringes of the orthodox Muslim politics of Bengal of the era. The centre of his activities was not the neighbourhood of his home but the area closer to Park Circus and the Ballygunge Road - where his major enterprise of these years, *Al Hilal*, was born.

From the material available in English, it is clear that the paper was primarily a summons to a struggle for India's independence and for the Muslims to participate in such a struggle. But it also had an outward orientation. Like many Muslim politicians of the era, Mohiuddin took up the defense of the Ottoman Empire of the Young Turks, who had conducted their coup in 1908 and established the Empire on constitutional principles of a sort (restoring the Tanzimat constitution of the mid 1870s and its parliament). With its new factories, shipyards, railways and universities, the Empire stood out as a representative of modernizing Islam, ravaged often by the Balkan states with the support of the major colonial powers of the era, Britain, France and Russia. The Caliphs - whether Abdul Hamid II or Mehemed V - were modern men, normally attired in suits, or the frock coat and trousers rather than the robes of yore. They preferred their Turkish, and knew their Arabic, but they were literate in French or English.

Mohiuddin would stay the new course he now took with panache. His paper would attract official condemnation and ban for its criticism of British policy. But he would recreate it as *Al Balagh*. He would face internment at Ranchi for his aggressive tone and his public activities - finally throwing himself after the end of the First World War - into the Khilafat movement that mobilized the Muslim League and its opponents of the Congress inclined Muslim Association.

Aijaz Ahmad argues that most of Mohiuddin's writing of this era was patchy and contradictory. Touches of fundamentalism rubbed shoulders with touches of religious tolerance. The full idiom of Islam was mobilized, but with little coherence. Aijaz Ahmad also implies that the ambition and self-projection that had somewhere guided him to this point was on full display in his *Tazgirah* - a complex delineation of his family's lineage - and the more narrow account of his life that finally appeared in Abdurrazaq Malihabadi's *Azad ki Kahani*. According to Aijaz Ahmad, both are essentially Mohiuddin's creations: a positioning of himself for leadership and eminence, perhaps as a Caliph of a reformed India-based Caliphate, with his antecedents firmly known and his Arabic and Persian as well as Urdu firmly on display. Although published a little after his years in prison, the volumes were compiled during this time, and speak of a particular state of mind of the time before his more active involvement in Congress politics in the 1920s.

The transition to Maulana Azad

This final transition to Congress organizational politics ultimately came and grew over the 1920s, leading to a relatively lean phase in the literary output of a person who had been continuously at work with his pen since the early 1900s. It is normally explained through coincidence: the fall away of the Khilafat movement, the turn of an old friend, Chittaranjan Das, to institutional activity in the bodies created by the Montague Chelmsford reforms and the growing influence of Gandhi over Azad. This was the time that the Congressman Maulana Azad finally established a public presence far different from the one he had had to date.

A group of the coincidences that led to the transformation, though, were symptomatic of a broader transition taking place in the Indo-

Arab continuum - and its overall impact on Azad must be seen as that of a broad ranging phenomenon - varying but continuous - rather than as individual developments. This phenomenon was the disintegration of the space that the Ottomans had occupied and the disappearance of an alternative in world politics and of a network and centre of the Muslim world. At one level it was immediate and sudden - the consequence of the arrangements at Versailles that the Khilafat had fought. These led into the formation of the modern Turkish state and the creation of the mandate territories in the Arab world. What would be more problematic would be the range of the implications. For, feeding on the consequences of war, and the movements that had preceded it, there was a disintegration of space in more than a literal sense. Modern Turkey under figures such as Enver Pasha and Mustafa Kemal looked to a different set of relationships from those that had prevailed before. The new force of Arab nationalism, linked now to dynastic politics and local networks in the areas of Lebanon, Syria and Iraq created new boundaries to practice as well as in the realm of global diplomacy.

A social challenge also took shape of a new and vibrant nature. Following the October Revolution and the Baku Congress of the Toilers of the East (1920), a range of activities began to take shape in Palestine, Syria, Lebanon, Egypt, Iraq and Iran that received stout support from Moscow. Led by various minorities (Azeris, Jews, the Hintchak Party of the Armenians and Turcomans), new institutions grew up at a mass level. Their impact would be growing and inexorable, as new slogans led to new formations under the inspiration of the Comintern.¹⁵

The full impact of this would be felt in the early 1920s, when Azad himself would be deeply involved in the politics of the Non-Cooperation movement in India. The changes in the larger world disoriented him, I would argue, in a deep manner, as he felt much that he had grown up with disappear in a relentless manner. The politics of India, meanwhile, took a different path and required a different scale of engagement from that which he had been used to.

The way forward

Circumstances and compulsions absorbed Azad in this context. He reoriented himself to politics as practice - deeply concerned with

the Indian National Congress - abandoning serious writing even as he sought his personal moorings in a more deep reading of Islam that led him to his interpretation of the Koran in his *Tarjaman ul Quran*. His interest in the development of revolutionary movements as he had known them in the past - oriented to political goals - remained a persisting concern, and he kept in touch with the reading and personalities who would give him fresh food for thought. His relationships were deeply personal and political. They ceased to have the larger resonance with the world of ideas that had occasionally drawn him earlier. His Islam would be his cocoon with time - as he competed only with himself for guidance, even though he was willing to listen to others. In all this, and the basic solitude that his erudition and upbringing had endowed him with, he was rendered profoundly alone though he had followers and companions in plenty. His final major work, penned by himself, his *Gubar-i-Khatir*,¹⁶ consequently, breathed the mood of a sybarite, whose pleasures were his only solace beyond his deeply personal religious reflections and his broad ranging public commitments. His political memoirs, dictated to Humayun Kabir, which clearly bears not a little of Kabir's stamp may be read more as a justification of his political trajectory rather than as an instance of the deep reflection of which he was capable.

A Social Perspective

In taking this route, Azad was comparable to the Gandhis, Nehrus, Patels, Savarkars and many others who strode between worlds. His difference from them was the extraordinary erudition that was the gift of his father and his acquaintance with a different idiom - an idiom born far from the streets of London, and the heated discussions of Europe, whether based in Paris or Berlin. In this idiom, he also had to find different references from those shaped by Islam in South Asia, since his own had had a different timber that was influenced by the complexities of the Ottoman space that had come to him with his upbringing and had drawn him in his early manhood. Little wonder that some of his best friendships were with those who had shared this experience, such as Abdurrazaq Malihabadi, the redoubtable student of West Asian locales who found himself in the Ottoman Empire in the last of the First World War and who became Azad's lifelong collaborator and friend.

It is here, at the level of personal connections, I would argue that there would always be a major overlap between the personalities of Mohiuddin Ahmed and Maulana Azad. The deep moorings within the Indian National Movement would always struggle with this difference that strove towards a cosmopolitanism that varied from that which marked a Nehru with his affections for England and his fascination with Soviet Communism and a Gandhi who attempted to bring Christianity, Radicalism and Hinduism together with a panache dominated by his dexterity with English and English references.

Ultimately to provide independent India with the gift of his own imagination, Azad would found the Indian Council for Cultural Relations, which permitted India engagements beyond the British Commonwealth. But it was a sad gift - culture and cultural engagements heavily institutionalized, bound by rules and practices of government and moved by the will of politicians.

The phenomenon, in fact, mirrored what Azad himself had become, a product of politics that had lost the genuine cosmopolitanism and popular touch that had characterized the young Mohiuddin. What was left of that figure was the intense sensitivity of the prison letters of the 40s: but it was a feature that did not have space for public expression so strongly had it become the prisoner of matters of state.

Endnote

This last phase of Azad's life, his openness to ideas and institutions well beyond India as Minister and statesman in the years following India's independence, were, I would contend, the consequence not of celebrity and duty but the imprint of Mohiuddin Ahmed. In the last solitary years of his life, as he took personal solace in the group around his nephew, Nooruddin Ahmed and the more refined set of Humayun Kabir, the remarkable talent and breadth of vision of a young man with a romantic flair would repeatedly surface. Policy and rhetoric would benefit from a legacy whose contours were difficult to discern, so long had they ceased to receive acknowledgement from the inheritor. That legacy should receive acknowledgement from the historian however - and its neglect will always render any sense of Azad incomplete.

Notes

- ¹ I am grateful to Safoora Razzaq for having corrected many of my misconceptions and mistakes. If many remain it is despite her valuable inputs. Many of my views of the Indo-Arabic space have been developed, perhaps mistakenly, in conversations with Seema Alavi, Rajarshi Ghosh and Soumen Mukherji.
- ² See my "Asiatic Orientations of Early Soviet Socialism. A Perspective on the Life and Times of Maulana Azad" in *Indian Historical Review* 2014.
- ³ "Azad's Careers. Roads Taken and Not Taken" in Aijaz Ahmed, *Lineages of the Present* (Verso, 2000).
- ⁴ See the standard range of books on Azad that are the stock in trade of reference in India. They are led by the excellent volume by Ian Henderson Douglas, *Abul Kalam Azad : An Intellectual and Religious Biography* (OUP Delhi 1988) edited by Gail Minault and C. Troll. Otherwise the standard biography that is used is V. N. Datta, *Maulana Azad* (Vanguard Books, Delhi, 1990), though Rizwan Qaisar, *Resisting Colonialism and Communal Politics, Maulana Azad and the making of the Indian nation*, (Manohar, Delhi, 2011) is an important addition for use of archives. Syeda Sayidain Hameed, *Maulana Azad and the Indian National Movement* (OUP, Delhi, 2014) is the latest book where the author takes a comparable position. All the literature make little room for the changes in personality and understanding that are central to Ahmad's essay on Azad. These changes themselves require attention to a social perspective that Ahmad himself does not provide.
- ⁵ Seema Alavi, *Muslim Cosmopolitanism in the Age of Empire* (Harvard University Press, 2015). See also Ulrike Freitag, *Indian Ocean Migrants and State formation in the Hadramaut. Reforming the Homeland*. (Brill 2003).
- ⁶ Chhaya Goswami, *The Call of the Sea* (Orient Blackswan, Delhi, 2014)
- ⁷ Mushirul Hasan and Rakshanda Jalil, *Journey to the Holy Land* (Oxford University Press, Delhi, 2008). The recent book by David Motadel covers many of these areas in a larger perspective. See David Motadel (ed.), *Islam and the European Empires* (Oxford University Press, Delhi, 2014). Otherwise, Enseng Ho and Omar Khalidi have made respected interventions in this field, focusing on a specific community. Khalidi's more general intervention appears to be his "The Hadrami role in the society and politics of colonial India 1750-1950" in Ulrike Freitag and William Gervase Clarence Smith (ed.) *Hadrami Traders, Scholars and Statesmen in the Indian Ocean, 1750s to 1960s* (Leiden, Brill, 1997). For a different perspective, taking into consideration a different geography, see Robert Crews, *For Prophet and Tsar* (Harvard University Press, Harvard, 2009).
- ⁸ An important reference for the way this space was covered is Sunil S. Amrith, *Crossing the Bay of Bengal* (Harvard University Press, 2013).
- ⁹ A journal of poetry that ran for three or four months. See <https://www.facebook.com/HaqFoundationLucknow/posts/498705970221141>.

- ¹⁰ A journal run by a local press owner Muhammed Musa. Azad was persuaded to be the editor. Ibid.
- ¹¹ On Indian Urdu literature, see Ali Javad Zaidi, *A History of Urdu Literature* (Sahitya Academy, Delhi, 1993). See also for an important perspective on the history of the Urdu literary sphere, Francesca Orsini (ed.), *Before the Divide, Hindi and Urdu Literary Culture* (Orient Blackswan, Hyderabad, 2010) and her, *The Hindi Public Sphere, 1920-1940* (OUP, New Delhi, 2002).
- ¹² Syeda Saiyidain Hamid, *The Rubaiyat of Sarmad* (Indian Council of Cultural Relations, Delhi, 1991).
- ¹³ For Musa Bigiev's life, see my *In the Footsteps of Afanasii Nikitin* (Manohar, Delhi, 2014).
- ¹⁴ Kenneth McPherson, *Muslim Microcosm, Calcutta 1918 to 1935* (Steiner, 1998).
- ¹⁵ Taline Ter Minassian, *Les Colporteurs du Komintern* (Editions Sciences Politiques, Paris, 1998).
- ¹⁶ Maulaana Abul Kalam Azad, *Sallies of the Mind* (English translation of Gubar-i-khatir), Shipra, New Delhi, 2003).

MAULANA AZAD IN ALIPUR JAIL : SUBMITTING A
WRITTEN STATEMENT TO JUSTIFY HIS STAND
AGAINST THE BRITISH RULE*

M. FIROZE

Maulana Abul Kalam Azad (1888-1958) was arrested for taking part in the Non-Cooperation Movement in Calcutta on December 10, 1921, and kept in detention in the Presidency Jail, at Alipur. The hearing of his case used to be held within the premises of the jail. He was produced eight times before the magistrate, and it was in the last hearing, held on February 9, 1922, that he was sentenced to one-year imprisonment on the charge of sedition, prompting the Maulana to remark, "The punishment is far below my expectation!"

Though the court proceedings continued for two months, Maulana Azad never pleaded for himself, except in the fourth session of the hearing, on January 11, 1922, when he submitted before the magistrate, inside the Presidency Jail, a long written statement in Urdu containing a number of arguments he had brought to justify his stand against the British rule. The complete text of the statement has been reproduced under the caption "Maulana Abul Kalam Azad kā Tahriri Bayān", in a short book, entitled *Qaul-e Faisal*, which narrates the circumstances that led to the arrest of Maulana Azad, describes the nature of his case, records the proceedings of all the eight sessions of court hearing and reproduces the Urdu translation of the judgment, which was pronounced on February 9, 1922. *Qaul-e Faisal* was first published by the Al-Balagh Press at Calcutta around 1922, followed by its several editions till date, and the statement, referred to above, covers sixty-nine pages of the book.¹

In the present paper, I have analyzed the above-mentioned statement of Maulana Azad to show how he not only openly declares, but also justifies, his stand against the British rule by arguing that it is his obligations, both as an Indian and as a Muslim, to take such a decision

* Earlier version of the paper was presented in the Seminar on The Life and Activities of Maulana Abul Kalam Azad held at the Asiatic Society, Kolkata, on February 16, 2015.

for the sake of his country and its people, who, he says, form, as a whole, the Indian nation.

Azad explaining the reasons for submitting the Statement

Maulana Azad opens his statement with the clarification that though the participants of the non-cooperation movement are prohibited from taking part in the legal proceedings, he is compelled to give a comprehensive statement before the court for the reasons elaborated by him in the following words:

My intention was not to give any statement. But when, on the 6th January [1922], my case was brought up before the court, I noticed that the government is not finding enough materials to get me punished, despite the fact that I am a person who himself desires that he should be given the utmost punishment, and in the first place ...I, therefore, changed my opinion and I felt that in the present circumstances it will not be proper to keep quiet, because those things which the government has not been able to bring forth [against me] should be presented before the court in my own handwriting with open declaration that I admit all the charges.²

Hence, the Maulana presents a detailed account of every thing that he has said or written against the government and then explains why he is doing so.

Azad declaring his stand against the British Rule

In order to impose the charge of sedition on Maulana Abul Kalam Azad, the government had submitted the recorded text of two of his speeches as proofs. Referring to them, the Maulana says that “the prosecution has submitted as proofs only two of my speeches that I had delivered at the Mirza Park [in Calcutta] on the 1st and the 15th July [1921],” but the prosecution, he further says, had not pointed out “which sentences it considered to be objectionable in those two speeches”³ and then he himself presumes that such sentences might have been the following ones:⁴

- A government, which is illegally established, is callous (*zālim*); such a government should either be made to bow before the justice or wiped away from the surface of the earth.
- If you feel grieved for your brothers who have been arrested, then it is your duty to think whether the government which has

arrested them should remain in this subcontinent the way it was at the time of their arrest.

- If you want to liberate your country [from the colonial rule], then its only way is that you don't give your shrewd enemies the opportunity to use their numerous weapons against you, and you do your work with complete peace and forbearance.
- If you want to embarrass the government just for sometime, I have several formulas for it, and if, God forbid, I had wished that the present government remained stable, I would have taught you those formulas. But I want such a battle which does not end in a day, but continues till the last day of judgment, and when the moment of judgment comes, then either this government is routed out or thirty crore people⁵ do not survive.

After quoting the above sentences from his two speeches, which were referred to in the charge sheet, the Maulana adds the following:⁶

I admit that I have spoken such things not only on those two occasions but rather in my numerous speeches that I had delivered during the last two years. I think it is my duty to say so, and I cannot keep myself from carrying out this duty mainly because I would be charged [for sedition] under the section 124-A [of the Indian Penal Code]. I still want to say the same thing, and I shall be saying so as long as I can. If I do not say so, I will be a sinner in the eyes of God and the people.

I have certainly said that the present government is callous. If I don't say so, what else should I say? I do not know why it is expected from me that I do not call a thing by its real name. I refuse to call a white thing black....

I have certainly been saying it all through that there are only two options before us - the government should stop injustice and suppression of rights, and if it does not do so, it deserves to be wiped away. I don't know what else may be said in this regard. The truth of this human belief is as old as the mountain and the sea, that a thing which is bad should either be corrected or stamped out. There is no third option. When I believe in the evil of this government, I can certainly not wish that it is neither corrected nor left to survive.

Azad justifying his stand against the British Rule

After openly declaring that he has been speaking and writing against the government for long, Maulana Azad clarifies why he has taken such a stand. He writes: "Why do I, and my crores of compatriots, have such a belief [that the present government is callous and deserves to be wiped away]?" and then he himself accounts for it in the following words: "I have such a belief because I am an Indian, because I am a Muslim, because I am a human being."⁷

It is from the above three perspectives that Maulana Azad justifies his stand against the British rule, and the arguments that he brings forth in support of his opinion may broadly be classified under two heads: one is how the Maulana justifies his stand as a nationalist and the other is how he justifies it as a Muslim. Both are discussed below separately:

Justifying his stand as an Indian

Maulana Azad, who looks upon the British government as one which has usurped the ruling right of the Indians by establishing its own autocracy in India, brings arguments to prove that such a government which is established illegally is callous and lacks moral authority, and, as such, he, being an Indian, is justified in raising his voice against it. The observations of the Maulana are as follows:

It is my belief that to remain free is the birth-right of every individual and the nation. A person, or a bureaucracy established by a person, has no right to enslave the people. Subjugation and slavery (*mahkumi aur gholami*), however beautiful a name may be given to it, is, after all, slavery, and is against the will of God and His laws. Hence, I do not recognize the present government as a legitimate government and consider it to be my national, religious and human duty to liberate the country and the nation (*mulk o qaum*) from its subjugation.

Such confounding terms as 'Reforms' and 'Gradual Devolution of Power' cannot create any weakness in the clear and absolute belief that I hold. Freedom is a man's birth-right and nobody has the authority to put any restriction on it. If it is said that a nation will be granted freedom *gradually*, it is just like saying to the owner of an estate that his property will be returned to him by bits or saying

to the lender that the loan he has given will be repaid to him in installments. I admit that if the lender is not able to receive back his loan from the borrower in one instance, he will have to accept the repayment of his loan in installments, but it will be a compromise, and his right to get back his loan in one instance will not be forfeited.

With regard to 'reform', I would like to quote the celebrated Russian writer Leo Tolstoy, who says '*If the prisoners are given the right to select their jailor by their votes, it will not mean that they have become free*'.

To me, the question of its (the government's) doing good or bad is a secondary question. The primary question is that of its (the government's) own existence. I consider such an autocratic rule to be illegal (*nājā'ez*) on the ground of its basic nature. Had it (the government) not done all those injustices that we have witnessed so far, even then I would have held the same belief that it is callous, because the greatest evil is its own existence. If it performs good works, it will be appreciated, but its existence will remain illegal. If [for example], a person, who has usurped my property, does good works, his usurpation will not be legalized on the ground that he has done good works.

Evil (*burā'i*) can be classified on the basis of its quantity and quality (*kamm o kaifiyat*), that is, to what extent it is and in what form it is (*woh ketni hai or kaisi hai*). But it cannot be classified as 'good' or 'bad'. We can say 'more bad theft' (*zeyādah buri chori*), and 'less bad theft' (*kam buri chori*), but we cannot say 'good theft' (*achhi chori*), and 'bad theft' (*buri chori*).

Hence, in no way, I can think of a bureaucracy as being good as well as illegal, because it is *per se* an illegal establishment, no matter its evil is of a greater degree or lesser. But the bureaucracy in India could not make itself content even with its innate evil (*kholqi burā'i*). Now, when it has been regularly adding numerous evil actions to its innate evil, how can it be expected from me that I will not openly call such a government callous.⁸

Justifying his stand as a Muslim

If, on the one hand, Maulana Azad, as we have seen in the above sub-section, argues that he, being an Indian, has every right to oppose

a government which has subjugated the people of India by establishing its own autocracy by illegal means, he, on the other, justifies his stand against the colonial rule in India on the ground that Islam does not recognize an autocracy and, as such, he as a Muslim, is bound to raise his voice against the British government.

He boldly says: "I am a Muslim, and as a Muslim it is my religious duty [to oppose the British rule in India], and then explains in greater details what Islam has taught him in this regard. He says:

Islam does not recognize a power (*eqtedār*) which is autocratic (*shakhsi*). Islam is a complete charter of freedom and democracy (*āzādi aur jamhuriyat kā mokammal nezām*) and it had come to give back to the people the liberty they had been debarred of. Their freedom had been usurped by the kings, alien rulers, selfish religious leaders and the powerful sections of the society. But Islam emerged with the declaration that no individual had the right to enslave the people

Such a declaration of human rights, which was made eleven hundred years before the French Revolution, was not merely a declaration (e'lān) but rather a practical system ('amali nezām), which, in the words of the historian Gibbon, 'had no parallel in history'. The government established by the Prophet of Islam and his successors was a complete democracy (mokammal jamhuriyat) elected by the people....

When Islam enjoins upon the Muslims that they should not recognize an Islamic government which has been established without the consent of the people and not elected by them, then it is clear what should be their attitude towards an alien bureaucracy [that Britain has brought in India]. Suppose that a purely Islamic government is established in India, but its system is governed by a single person or by a bureaucracy of a few officials, even then it will be my duty that I call such a government callous and demand for its replacement. The righteous *ulema* of Islam have always raised their voice against the tyrant Muslim rulers and demanded their removal.⁹

After the above observations, the Maulana discusses in details how Islam has laid stress on speaking out against oppression and injustice committed by the rulers and brings several examples to this effect

from the history to show that if he is openly calling the British government callous and demanding the end of its rule in India, he is justified in doing so as a true Muslim. He opens his discussion with the following words:

To expect from a Muslim that he will not proclaim the truth (*haq*) and will not call what is callousness (*zulm*) as callousness, is just like telling him to get rid of the Islamic way of life. If you cannot demand from a person that he renounces his religion, then you certainly cannot demand from a Muslim that he does not call what is callousness as callousness, because both mean the same.¹⁰

The Maulana quotes from the Qur'ān and Hadith to prove his point. He says that the Qur'ān describes the Muslims as "the best nation" on the ground that they ask others to do what is moral and prohibit them from doing what is immoral, and that they proclaim the truth without any fear or favour. He then quotes a saying of the Prophet instructing the Muslims: "Propagate the good and prevent the evil. If you do not prevent the evil, corrupt persons will prevail over you." "But how can such a duty be performed?" — the Maulana asks himself, and then answers that it can be performed in three ways, as described by the Prophet in the following words: "If anybody from among you finds something improper being done, he should rectify it with his own hands. If he does not have the power to do so, he should condemn it openly. If he does not have even such a power [as to condemn the evil openly], he should at least condemn it in the depth of his heart. But this last one amounts to the weakness of belief." Continuing in this context, the Maulana says: "In India, we do not have the capacity to remove the evils of the government by our own hands, and, as such, we have adopted the second option [of openly declaring that the government is callous]."¹¹

The Maulana admits that a person, who raises his or her voice against the government, is bound to be treated harshly by the ruling authority and he or she has to bear it all even at the cost of death. To this effect, he again quotes the Prophet who has said: "The best death is that of the person who proclaims the truth in front of a tyrant ruler and is given death penalty for doing so." That is why, the history of Islam, the Maulana further says, is replete with examples of persons making all sorts of sacrifice for speaking out the truth in the face of despotic rulers.¹²

Before citing the examples of sacrifices made for the sake of the truth, the Maulana says that the history of Islam may be divided into two epochs. The first epoch was that of the Prophet and his four caliphs. In this epoch, the Islamic republic was in its original form and its democratic set up was not influenced by the Iranian monarchy and Roman aristocracy. The caliph used to live like an ordinary individual among the people. The second epoch was that of the kingship, which started with the Umayyads. In this epoch, the democratic set up of Islam was shattered and the election of the ruler was replaced by dictatorship. But, in both the epochs, the Muslim inhabitants of the state continued to raise their voices against the callousness of the rulers¹³ and the Maulana brings examples from both the epochs to prove his point.

From the first epoch of Islam, the Maulana cites two incidents, of which one is as follows. When, on the occasion of Friday prayer, the caliph starts his address to the congregation with the words 'Listen and obey', a person immediately stands up and says 'I will neither listen nor obey, because the cloak you are wearing is made of cloth which is more than what you have received as your share, and it is defalcation.' At this, the caliph calls his son as a witness, who clarifies that he has given his own share of the cloth to his father for the cloak the latter is wearing.¹⁴

From the second epoch, the Maulana brings about a dozen incidents to show how even in those days, when the Muslim rulers were doing everything to suppress human rights in their territory, the people did not hesitate from openly condemning their rule as that of injustice and callousness. From such incidents described by the Maulana, I cite a few below:¹⁵

- When a person, Taus bin Yamani, came into the presence of caliph, Hisham bin Abdul Malik, he addressed the latter by his name and not by his designation 'Amir-ul Mu'minin'. When asked to explain its reason, Taus replied "The people are not happy with your rule, and, as such, it will be a lie to call you their ruler". Taus then admonished the caliph: "Fear God, because your oppression has filled the earth."
- A person, Abu Hazim, had the courage to speak the truth in the face of such a strict and hard-hearted caliph as Sulaiman bin

Abdul Malik, in the following words: "Your forefathers had enslaved the people with the power of their swords and imposed themselves as their rulers without their consent." The caliph then asked him what its solution is now, and got the reply "Give back to the people the rights which are due to them."

- When the famous Abbasid ruler, Harun ar-Rashid, spent a lot to celebrate his accession to the throne, Sufyan Thauri wrote a letter condemning him for squandering the public money on his coronation without having any right to do so.
- In the time of Mamun ar-Rashid, there were Muslims who addressing him in the court used to proclaim openly, "O cruel! I will be cruel to myself if I don't call you cruel."
- Even during the Mongol period, which was one of the most brutal periods in the history of Islam, the Muslim inhabitants of the state could not restrain themselves from speaking out against the tyrant rulers. Sheikh Sa'di called Halagu Khan cruel in front of him. Shamsuddin Niazi prayed for the death of Manku Khan in his court. The Shaykh-ul Islam, Ahmad ibn Taimia, condemned Aba Khan openly inside the court.

After citing the above and some other similar instances from the history of Islam, Maulana Azad says:

"When we, the Muslims, had adopted such an attitude towards our own national (Islamic) governments, which we were bound to obey from the *shar'i* point of view, what else can be expected from us towards an alien (British) government?"¹⁶

Maulana Azad sums up his attitude as a Muslim towards the British rule in India in the following words:

The Islamic teaching never permits the Muslims to survive after losing freedom. They should either die or live free; there is not third option in Islam. That is why, twelve years ago, I had, through [my newspaper] the *Al-Hilāl*, reminded the Muslims that to make sacrifices and lay their lives in the way of freedom had been their old tradition, and that it had been their Islamic duty to go ahead of other communities in this struggle. My voice had not gone in vain, and the Muslims have now made the final decision that they, being united with their Hindu, Sikh, Christians and Parsi brethren, will liberate their country from the slavery.¹⁷

Conclusion

The analysis of Maulana Abul Kalam Azad's written statement on his stand against the British rule in India, that I have presented in the foregoing pages, shows how he makes use of his scholarly abilities to prove it in the court that he is justified in speaking out against the government both from the nationalistic and from the Islamic points of view and that he is not afraid of its consequences, whatever they may be, because he is ready to bear all sorts of hardships for the freedom of his country.

Notes

¹ Maulana Abul Kalam Azad, "Tahriri Bayān", *Qaul-e Faisal*, New Delhi, 2003. pp. 81-149.

² *Ibid*, p. 85.

³ *Ibid*, p. 98

⁴ *Ibid*, pp. 98-100.

⁵ A reference to the population of India as it was at that time.

⁶ *Qaul-e Faisal*, pp. 100-102.

⁷ *Ibid*, p. 102.

⁸ *Ibid*, pp. 102-104.

⁹ *Ibid*, pp. 105-107.

¹⁰ *Ibid*, p. 108.

¹¹ *Ibid*, pp. 110-112.

¹² *Ibid*, p. 113.

¹³ *Ibid*, pp. 114-115.

¹⁴ *Ibid*, p. 115. The caliph referred to here by Maulana Azad is actually Hazrat Umar and the background of the incident is as follows: Once in the time of Hazrat Umar, a large piece of cloth was brought to the treasury and it was ordered to be distributed among those who had taken part in the war. Accordingly, one small piece was given to Hazrat Umar and another one to his son. Since Hazrat Umar was a tall person, his son had given him his own share of cloth so that he could make his cloak by joining both the pieces.

¹⁵ *Qaul-e Faisal*, pp. 117-121.

¹⁶ *Ibid*, p. 121.

¹⁷ *Ibid*, p. 125.

JAGADIS CHUNDER BOSE AND HIS SPONTANEOUS MACHINES : DEVICES, DEMONSTRATIONS, AND DISCOURSES OF LIFE

PRIYANKAR DEY

Introduction

The fairly long historiography on Jagadis Chunder Bose, with its primary focus on the philosophical content and “alternative” genesis of his scientific theories,¹ has largely ignored the *actual* material practices which Bose had to engage with while *doing* science. Foregrounding these practices, this article wishes to understand the material culture of Bose’s experimentalist science which standard histories of ideas often tend to obscure.² Unlike the narratives which deal with Bose’s *theories* and hypotheses, this article focuses on the practico-infrastructural cluster which made Bose an experimenter. The instruments designed by Bose, especially those for plant-researches, thus constitute one of the main subjects of this paper. The primary task of this paper is to situate those machines within the contemporary global tradition of scientific instrument-making. Secondly, our discussion on the discourses on Bose’s instruments tries to show that the instruments were “dense with meaning”.³ They embodied particular “strategies of demonstration”. The history of their *making* hinted at the “work relationships in the laboratory” and outside. We will also try to point out that the instruments could have a life outside the immediate concerns of the experiment in the “material and symbolic connections to the outside cultures in which these machines have roots”.⁴ Bringing forth the instruments in our studies, as Peter Galison believed, would help us to better understand Bose’s “life associated with experimentation” and “not the life affixed to theorizing”.⁵

Another type of machines constitutes the subject of our discussion: “machine” as an analogical model.⁶ In calling Bose’s instruments “spontaneous machines”, I wish to refer to John Tresch’s impactful

study of the “romantic machines” of early nineteenth-century Paris. Like the steam engines, voltaic batteries, sensitive electrical devices discussed by Tresch, Bose’s instruments too were understood as “flexible, active, and inextricably woven into circuits of both living and inanimate elements”.⁷ In the cosmology of Bosean science, the scientific instruments were alive with the same energy which was throbbing inside living bodies in nature. With the border between the animate and the inanimate collapsing in case of the scientific apparatuses, we also have the plant-bodies appearing more and more machine-like in Bose’s discourse. Translations of different kinds happen frequently. Organic life itself seemed to be more and more machinic. However, the imagination of an equivalence between the machine and the living-body, as this paper argues, was productive in nature. It held promise for unlimited improvement of organic life, modification of nature to that end through artificial intervention. This mutual reconfiguration of the living and the machinic, I contend, opens up the traditional vitalistic imagination of the nation-form⁸ to further enquiries.

I. Doing Science: Demonstration in Action

Trained in the science classes of Father Eugene Lafont at St. Xavier’s College, Calcutta during 1875-77 and then at the universities of Cambridge and London between 1881 to 1884, Jagadis Chunder Bose had little doubt that the true duty of a scientist was not merely observing the nature from the isolation of his laboratory, but also making nature demonstrate itself through his army of instruments.⁹ The scientific-minded Calcutta literati of the late nineteenth century, well before the rise of Bose to eminence, was no less aware of the necessity of “public” demonstrations of scientific experiments in the diffusion of scientific knowledge and temperament. With Father Lafont’s St. Xavier’s lectures and the establishment of Mahendra Lal Sircar’s Indian Association for the Cultivation of Science in 1876, a culture of public lectures aided with demonstrations of experiments and instruments had emerged in Calcutta.¹⁰ Many of the Bengali science-enthusiasts of the early twentieth century repeatedly emphasized the importance of sophisticated scientific instruments and physical laboratories in science education.¹¹ There was no substantial

indigenous production of scientific instruments before the Second World War, most of the apparatuses and devices were imported from Europe and America.¹² The event of Bose emerged within this twofold practice of science which had visual demonstration on one hand and instrumentation on the other. Starting with his lecture on the self-made microwave transmitter and receiver at the Calcutta Town Hall in 1894-95 until his death in 1937, Bose gave numerous public demonstrations in Calcutta and several other cities in Europe, Japan, and the United States. Unlike Lafont or the early lectures at IACS, however, Bose's demonstrations were meant to present before the Calcutta public original experiments. The instruments involved in those demonstrations were also new and therefore vulnerable to doubt and extra scrutiny.

Staging Demonstration

Bose was aware of the fact that "nothing short of visual demonstration" would convince the scientific community of west about his theories and remove the "blank incredulity that stood in the way of their wide acceptance".¹³ The contemporary Indian press enthusiastically covered Bose's long scientific trips to Europe, United States where he exhibited his "inventions" and "discoveries" before the scientific community of the West. The frequent long-distance trips had one significant consequence for the design of the instruments: they demanded portability of the apparatuses. Patrick Geddes, the famous biologist and city-planner, and also a biographer of Bose, was particularly full of praise about the microwave receiver, completed during 1894-95, for it was "a small and compact set of appliances, which stands conveniently upon one end of a writing-table, and may be packed into a suit-case, and thus carried and exhibited to any audience".¹⁴ The truth-claim of a scientific experiment, the legitimacy of the involved instruments depended on successful repetitions of the experiment.¹⁵ Repetition, on the other hand, demanded portability of the instruments. When Bose had communicated his discoveries regarding the unity of life, which "were incredible and opposed to accepted theories", he was challenged by his opponents to come to London and demonstrate the instruments at work.¹⁶ During his travel to London, the porter entrusted with his instruments "carried the instrument box upside down, with the result that the heavy base

crushed the delicate recording portion [of the ordinary Crescograph] beyond recognition". Bose complained, "so the costly visit to Europe was for that time complete failure".¹⁷ This incident inspired him to make the next instrument he designed, the Magnetic Crescograph, small enough to carry on his own.¹⁸

Theatrics of Science: Staging Instruments in Action

At Bose Institute, public demonstrations of scientific experiments involving Bose's instruments took place on the dais over the stage inside the grand lecture hall.¹⁹ The instruments were kept in a small chamber below the stage during the demonstration. Abaninath Mitra, the architect of the Institute building, recounted that this small instrument-chamber was built as Bose wanted the instruments to be supplied upstage one by one instead of all of them crowding the stage together since that would confuse the focus of the spectators.²⁰ During live demonstrations, "whenever a particular instrument appeared on stage", Mitra informs us,

a powerful spotlight from the gallery was focused on it and an image of that instrument was reflected on the screen behind the stage. Everybody in the audience could then watch that image.²¹

Bose's public demonstrations were often pre-rehearsed. On the day of his Royal Institution lecture on "plant-autographs" in 1914, Bose took his assistants, Basiswar Sen and Jyotiprakash Sircar to the Institution early in the morning to arrange the whole experiment "in the preparation room on a table the top of which could be transferred to the Hall immediately before the lecture". He made the two go through the whole sequence in strict order, considered the possibilities of accidents and took precautions.²²

The public demonstrations of his experiments, with the carefully designed lighting arrangements, studied display techniques, scripted projections and timed entry and exit of the instruments into the stage, entailed a certain amount of theatricality to the practice of doing science. It was here that modern science could accommodate the performative of the premodern magic and entertainment shows alongside the disciplinary rigor of its dry, putatively objective regime of laboratory-practice.²³ Though he was "never a natural orator",²⁴ in his public demonstrations of scientific experiments Bose consciously

used a particular style of elocution full of anecdotes and witty comments. Like all theatrical performances, Bose's demonstrations too demanded a space for impromptu improvisations on stage and were always circumstantially contingent. Sometimes not the success, but failure of the aiding instruments could come to crucial help during a live demonstration. Or so happened with Bose during his lecture at the Botanical Lecture Hall of the Cambridge University on 2 June 1914. Due to the cold and mist of Cambridge weather, the *Desmodium* plant to be used in the experiment became paralyzed. In a desperate attempt to save the day, Bose injected it with a stimulant. Meanwhile the optical lantern tasked to project photographic slides explaining parts and functions of Bose's instrument began to malfunction. This bought him enough time for the stimulant to take effect while he kept the awaiting spectators engaged with passionate, impromptu, and inspired elocution.²⁵

Instruments at Rest: Displayed

Bose realised the necessity of live demonstrations of his experiments early in his career. However, in order to be accepted as legitimate scientific instruments by the global scientific community, it was not sufficient to just demonstrate Bose's instruments *at work*, that is, to only repeat his experiments before different audiences and in different sites. The truth-claim of his live demonstrations, however, demanded more than successful repetition of the instrument's performance. Even successful demonstrations generated skeptical responses among the spectators where they doubted the scientificity of the instrument and considered the performance on stage to be magic-like, beyond rationalities.²⁶ The "pulsations" of the plant life recorded by Bose's devices were declared the results of faulty, "imperfectly adjusted instruments". Some scientists in Europe and America alleged that the duplicates of Bose's instruments of plant researches made in their laboratories failed to provide the desired results. There was an allegation that the electric probe and the sphygmograph did not work when the apparatuses were properly insulated from vibrations and electrical disturbances.²⁷ Therefore, alongside the demonstration of their performance, Bose's instruments were often exhibited *at rest* so that any doubt over their constructional integrity could be quashed. During his visit to Vienna, Bose invited the leading men of science

and specialists of medicine to explore his instrument closely, to “take the instrument to pieces, reassemble them and repeat the experiments themselves” so that no one could doubt “that none but its inventor could work the extra-ordinarily sensitive instruments”.²⁸ Along with other scientists, “[t]he head of the department for construction of high-class precision instruments for research of the Vienna University was also present to take notes and sketches of the different part of the apparatus[.]” During his public demonstrations, detailed images of the instrument used in the experiment were projected through slide-shows to explain the construction and the function of the device to the present audience.

Access to the instruments had always been an issue in the claims of credibility of Bose’s machines. One can recount here the famous Waller-Bose controversy, a well-narrated account in the traditional historiography, in this context.²⁹ Following the debate between Augustus Waller, the British physiologist who produced the first echocardiogram, and Bose in 1902 regarding the claim of discovery of vegetable electricity, an expert committee was formed by the Royal Society of London which examined his instruments and certified their legitimacy.³⁰ During the controversy many physiologists alleged that not “all the controls necessary” for working the machine were made public.³¹

Instruments as Models of National Political Economy

Since the early days of the Bose Institute, the instruments of Bose’s own designs were exhibited within glass-cases in the entrance lobby adjoining the lecture hall, arranged in order of their increasing perfection in observation and recording capacities.³² By 1917 Calcutta had already developed a wide network of scientific displays in terms of taxonomic museums, public collections and zoological garden.³³ The showcasing of Bose’s instruments can be read in context of that. But a simple analytic of the pedagogical display culture does not exhaust the particular form of Bose’s scientific practices, nor does it help us understand the function and status of his instruments in his discourse of science. Demonstrations of Bose’s instruments served not only as the revelations of indisputable scientific facts but also as expressions of the creative potential of the politically subjugated nation. The political economic agenda of swadeshi was to free the sphere of

production from the clutches of foreign capital. The success of Bose's public demonstrations with his army of instruments lay in the fact that they promised to bring together the two spaces of the laboratory - which was a site of production - and the space of scientific display - which was concerned about spectatorship and its pedagogical imports. On the occasion of the inauguration of the Institute, referring to the instruments in the glass-cases the entrance hall, Bose reminded the visitors, "They [the instruments] will tell you of the protracted struggle [...] of the continuous toil and persistence and of ingenuity called forth for overcoming human limitations".³⁴ For Bose, the instruments not only embodied the skill of the scientific investigator in exact experimentations, or specialised scientific knowledge, but also a more general "practical skill" that could be useful for other areas of practical utility beyond the immediate domains of laboratory sciences. The instruments embodied the practical skills whose indigenous origin was repeatedly emphasized in the popular discourse around Bose's instruments. Taraknath Das claimed that the expert of instrumentation at Vienna University confided that "how direct and simple the principle involved" in the construction of the instrument might seem, "the perfection of the apparatus" could only be achieved "due to the extra ordinary skill of men trained in the Bose Institute".³⁵ The claims of particularity of Bose's instruments in these occasions depended on the citations of the "indigenous" workmanship and labour embodied in their constructions.

Instruments between Construction and Invention

The local artisans whom Bose employed to build his instruments were so crucial in making them that sometimes construction of a new machine would be halted temporarily in absence of a particular artisan.³⁶ His notebooks suggest that he had to consult a professional clock-maker from time to time while designing and building his instruments.³⁷ The actual making of the different parts of the instruments was entrusted to Bose's assistants and the mechanics he employed.³⁸ However, those mechanics and assistants who supplied the "local" skills failed to generate any significant attention in the popular press. In most of the cases even their names do not survive. The popular narratives insinuate that all theoretical knowledge emanated from the scientist-innovator, who directed the mechanic's

hands towards the end of creating his machine. As an obituary of Bose in *Prabasi* recounted:

He [Bose] found a skilled Bengali mechanic who was capable of making those instruments under his commands. He trained him in his own hands. Another scientist managed to lure him away from Bose by promising him extra wages. But this incident could not prevent Mr. Bose from continuing his research. He immediately trained other mechanics and recruited them.³⁹

The story could not be clearer in its emphasis on the hierarchical relationship: it was the scientist-innovator and not the native mechanic that the Western-educated *bhadraloks* sought to celebrate as the ultimate source or the symbol of the creative genius. The indigenous mechanic appears in this narrative only to perform a particular task: they illustrate the *limits* of the material condition in which those machines were made and thereby highlight the transcending genius of the scientist-innovator. What the narrative of the designer-innovator does is to blackbox the equally important history of labour entangled in the construction of the instruments. Making of Bose's instruments involved several skills and trades. Construction of the bases of the instruments required a carpenter, the automatic movements of the machines needed a clock-maker, and screws, clamps, scales and other accessories needed nickelling and gilding. Bose's instruments connected different sites of production, many of them were far from the controlled laboratory space.

The account of the lone genius-inventor where the mechanics are "absent" disseminated a particular concept of creativity that reflected a strong bias for the idea or the plan over the actual object. When asked in an interview whether he himself built all the different parts of one of his instruments, Bose replied that he built them with insufficient local help at Calcutta, but on arriving in London he made duplicates by the best instrument-making firms there. Those firms supposedly expressed wish for producing more copies of the same so that they could be supplied to the laboratories in Europe and America.⁴⁰ If the celebration of the swadeshi production of Bose's instruments invoked a particular materiality of those machines, the above statement hinted at something else. Even if they were made in foreign workshops with the help of foreign labour, Bose's machines could claim to be

indigenous machines. In this narrative, the instruments could become a two-dimensional reality only - a pure design detached from its material body and the dexterity of craftsmanship. It is this particular "reality" of the Instruments which further upheld the supreme position of the scientist-innovator in the popular discourse.

However, one must note the peculiarities of a colonial situation which inherently constrained this narrative of the autonomy of the designer-inventor vis-à-vis the traditional artisan or the assistant-mechanic. In the anti-colonial agenda of highlighting the colonial difference, the superiority of the Indian craftsman provided a significant and popular rhetoric. References to the supreme dexterity of the manufacturing *hand*, therefore, keep reappearing in the popular discourse of "invention". A story which circulated in the contemporary press is symptomatic of this. It was said that after the successful demonstration with his instruments of electrical wave research at the Royal Institution of London in 1897, Hiram Maxim, the American-born British inventor, who was in the audience, asked to feel the hands of Bose "to realise for himself that tactile sensibility which could so unerringly feel the pulse of Nature".⁴¹ The high sensitiveness and the perfection attained by the instruments were thought to be the results of not only good design but also of the "tactile sensibility" possessed by the Hindu craftsman/mechanic, which for Bose and his many contemporaries was a racial quality,⁴² and therefore was never to be found in any other nation.⁴³ The instruments were therefore like extensions of the body of the emblematic Hindu craftsman. In this context, they were not quite *universally repeatable* as scientific instruments needed to be. Bose and his contemporaries celebrated the fact that despite the instruments being simple in construction, and its design being made public, they were so delicate that they became virtually irreproducible outside India.⁴⁴

Very much like the Indian artisan of ornamental crafts in the Victorian discourse,⁴⁵ his counterpart in traditional mechanical trades too was believed to be in possession of a superior instinct but lacking the universal scientific knowledge necessary for modern design and invention.⁴⁶ To Bose, Nankuram of the Presidency College physics laboratory illustrated a similar case.⁴⁷ Bose was impressed by Nankuram, who was originally appointed as a menial servant in charge

of cleaning bottles and such, after some years of experience could “arrange [...] the most difficult experiments” or work the dynamo-electric machines and engines with considerable skill. For Bose, Nankuram’s progress was made possible by a process that was nothing but instinctive, acquired through a close living with the machines.⁴⁸ Apprenticeship in the laboratory was therefore considered to be a legitimate practice of learning science. Gopalchandra Bhattacharya, the amateur scientist and popular science-writer, began his research-career at the Bose Institute in 1921 as an assistant to the scholars and also to the draughtsman responsible for making scientific drawings for the *Transactions of the Bose Institute* and other publications. He was soon to be trained as an electrician and entrusted with the task of regular maintenance of Bose’s instruments.⁴⁹

In the political economic imagination of *swadeshi*, a mere skill of turning the machine - a practical know-how - although very much coveted and celebrated,⁵⁰ was never thought to be sufficient without proper dissemination of the theoretical knowledge of science. It was never deemed as an end in itself. In concluding this account, Bose almost sighed in despair that Nankuram, the washer of bottles, was likely to remain so till the end of his life and could never become Faraday whose beginning had been similar.⁵¹ Nankuram’s story provided a template for Bose’s main argument in that particular article : it was the lack of an appropriate combination of this traditional artisanal instinct and the knowledge of science that hampered the growth of scientific researches in India. However this combination was not without any hierarchy: the hand, in the last instance, must be subordinated to the eye or the mind.⁵²

II. Instruments in Action: How and What did They Perform?

What did Bose’s instruments actually perform? What were they supposed to demonstrate? Bose’s instruments were meant to present before the ordinary human senses otherwise imperceptible natural phenomena, like the invisible microwaves, or inner designs of plant-life; that is why they were believed to be “sensitive” machines.⁵³ They were supposed to *magnify* ordinary human sense-perceptions which were thought to be inherently limited. As instruments of demonstration through magnification,⁵⁴ Bose’s instruments seemed to be in a dialogue with other contemporary instruments of similar nature, especially the

scientific apparatus that provided the fin-de-siècle Bengali *bhadraloks* with a new sense of wonder: the microscope.⁵⁵ In simpler terms, Bose's scientific instruments are like the various types of detectors present in physics labs that brought the imperceptible "microphysical world" into the purview of empirical investigations of science.⁵⁶ As recording-instruments on the other hand, they appeared to be in a dialogue with various other contemporary machines of similar nature. One of the reports in *Nature* clubbed the Crescograph with a long list of other contemporary recording and measuring instruments such as the cardio-phonograph, the viscosimeter, the stethograph, the portable ergograph, the micro-nitrometer, the colorimeter, the chronograph with electro-magnetic signal, the pursuit-meter, etc.⁵⁷ The shared commonality between these instruments and those of Bose's was that all-of them "demonstrated" before the naked eye the invisible phenomena of nature. Moreover, all of them extracted and recorded statistical data from the hidden mechanisms of nature.

A Messy History of Design

The scientific instruments designed by Bose were complex and composite machines. If we reduce the Crescograph to its parts for example, it would seem to be an assemblage of different small contrivances such as the optical levers, clockworks, different jewels and screws, guillotines etc. Instead of a monolithic story of an organic "invention" according to a premeditated design, the narrative of their construction, similarly, highlights efforts of combination (all of which were not successful), borrowed influences, contingent decisions. Bose's writings on his own instruments, show traces of a long tiring process of construction involving a constant introspection on the methods and circumstantial manoeuvring of the process.⁵⁸ The High Magnification Crescograph (or the Recording Crescograph) [Fig. I] was a device that employed a compound system of two optical levers to magnify the growth of plants by 10,000 times and record it. For the machine to work with precision its levers had to be extremely light-weight yet rigid. It was Navalium - an alloy of aluminium used in the construction of Zeppelins - that proved to be the right kind of material.⁵⁹ The bearings of the fulcrum of levers were required to be frictionless in order to get accurate results. Initially imported clock jewels of ruby from Germany fulfilled the requirement. But when the

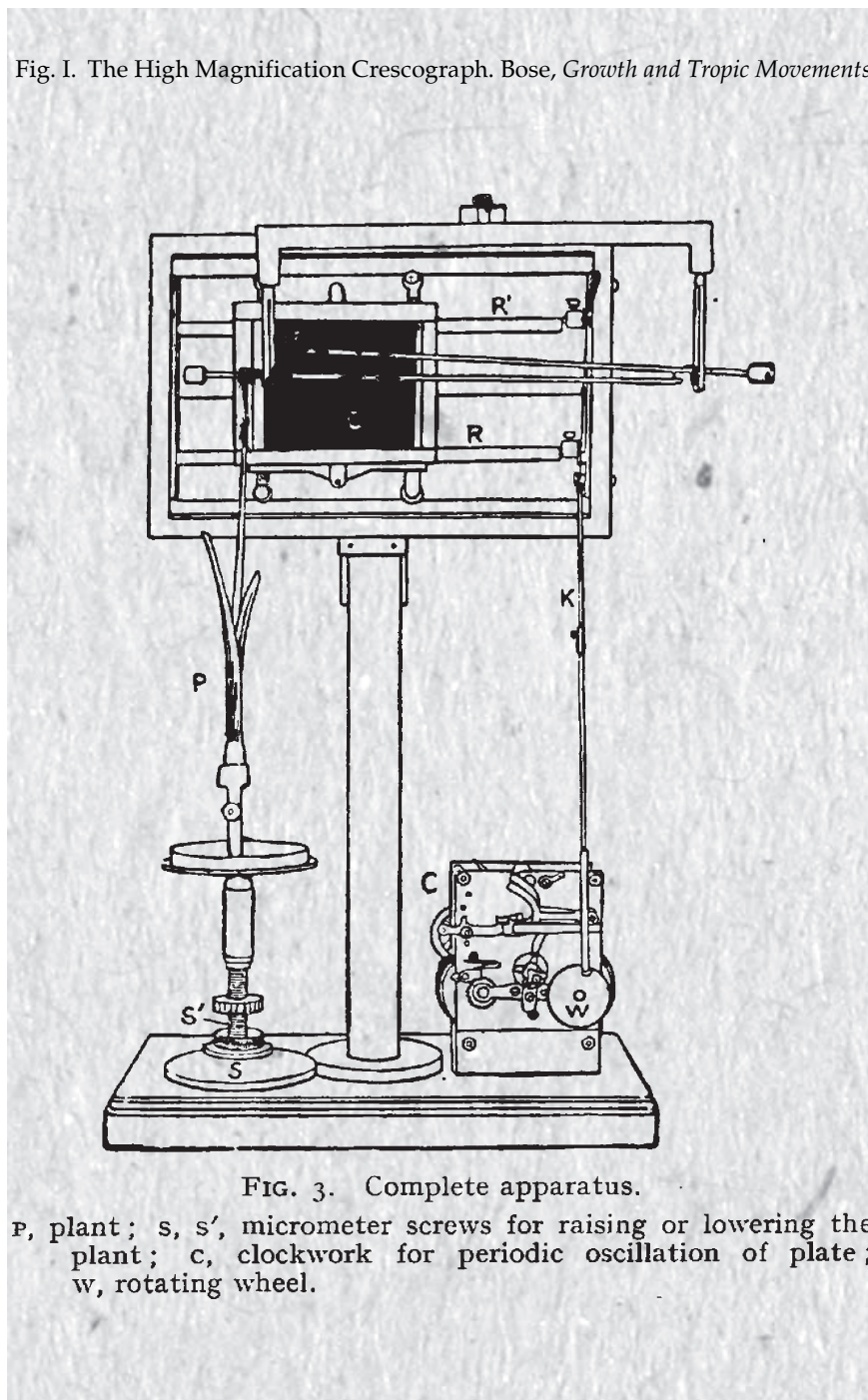
Fig. I. The High Magnification Crescograph. Bose, *Growth and Tropic Movements*

FIG. 3. Complete apparatus.

p, plant; s, s', micrometer screws for raising or lowering the plant; c, clockwork for periodic oscillation of plate; w, rotating wheel.

First World War interrupted the supply, Bose was forced to devise an alternative system based on “a new principle of suspension using local material”.⁶⁰ He faced another issue while designing the recording system of the machine: the leaf attached to the instrument failed to move the recording lever by overcoming even the slightest of resistances produced from “the friction of contact of the bent tip of the writing lever against the recording surface”.⁶¹ He first tried to resolve this glitch by replacing paper, the popular material for tracing response-curves of the physiologists, with a smoked glass-plate in order to obtain a smoother surface.⁶² Still unresolved, the problem of friction was to be finally overcome by adding to the instrument another Bose contraption - the “oscillating device in which the contact, instead of being continuous, is made intermittent”⁶³ — “Samatal Yantra”⁶⁴ or the isorythmic machine. Not satisfied with the High Magnification Crescograph, Bose wanted to make a more powerful instrument on the same model. When he attempted to add a third optical lever to the original instrument in order to amplify its magnifying power, it failed hopelessly. What these anecdotes tell us is this : rather than a simple linear flow from the germ of an idea, the concrete object emerged through a complex process which could not be anticipated in its totality at the level of a pure idea or plan.

The traditional narrative of the genius of the designer-innovator reflected a bias for theory over practice. In its imagination of a smooth, one-directional movement from idea to object, it banishes the *accidental* from the narrative of the design process. However, we can find traces of it here and there that can problematize the said one-directionality. Consider the following statement made by Bose himself:

[I]t was while turning round a lane near College Square that I had a distinct mental image of a ring suspended against the sky leading to the solution of the problem of my Resonant Recorder, which had baffled me for many years.⁶⁵

Thinking through the theoretical principles of a problem was not enough. Designing of an instrument at times entailed complex processes of visual thinking on the part of the designer. Bose acknowledged these “informal” sources of inspirations behind the designs of his instruments. During his trip to London in 1901, when he was casually

visiting “a second-hand shop of discarded instruments” on an afternoon, “[t]he stimulus of sight of these broken things evoked a complex set of molecular thrill in that detector which they call the ‘brain’; and standing there the vision of a new apparatus suddenly appeared complete in all details” to his mind. These types of *transfer of knowledge* or *skills*, where the sight of one object could stir the design of another in the maker’s mind, were crucial instances of the use of “tacit knowledge”⁶⁶ in the making of Bose’s apparatuses.

Many Lives of an Instrument

If Bose’s machines borrowed freely from technological solutions meant for other hypotheses and purposes, his machines also had the potential to generate multiple uses, or imaginary functions at least, beyond their original objectives. Not always “the agreement between theory and instrumental behaviour” was a necessary condition to believe that the instrument is working properly.⁶⁷ There could very much be a certain asymmetry between the performances of the instrument and the original hypothesis it meant to demonstrate, even then the instruments seemed to be *working* perfectly. We witness several illustrations of this in the case of Crescograph. When many European physiologists were skeptical about its credibility, in the contemporary world of metallurgical engineering and technology, the Crescograph promised uses and solutions beyond its intended field of application.⁶⁸ Dr. Albert Abrams, a “fringe” American scientist who claimed to diagnose and cure diseases with electronic methods, acknowledged the Crescograph as the inspiration behind his own invention — the Oscillophone.⁶⁹ The instrument also served some metaphoric functions in the contemporary nationalist imagination where it could promise to perform fantastic tasks. The editor of *Young India* was so moved by the particular potential of the Crescograph in speeding up an experiment and its magnification power that he mockingly suggested to employ the device for detecting the microscopic growth of self-government under the colonial rule.⁷⁰

Instruments of Translation, the Grammar of Curves

Instruments of plant-research like the Crescographs or the Oscillating Recorder did not only *magnify* life-movements of the plants,

they also made the plant *record* its own life-histories by means of tracing lines on the blank surface of the paper or the plate. It is as if the nature demonstrated itself through the instrument. The post-Enlightenment agenda of modern experimentalist science demanded that the need of nature must be into present itself for recording and observation.⁷¹

Bose's instruments of recording plant-responses, including the much-publicised Crescograph, were actually built upon contemporarily available practices of automatic recording of natural phenomenon which were developed since the last decades of the nineteenth century. In a sense, Bose's recording devices were to be seen as developments in a field of instrumentation which began with the popularization of James Watt and John Southern's Indicator-Diagram, the pioneer of recording instruments, in the nineteenth century.⁷² At one place Bose directly compared his instrument with Watt and Southern's indicator-diagram.⁷³ In the last decades of the nineteenth century, this method of automatically tracing curves and mechanically recording them on smoked plate or paper became quite popular among the physiologists who employed similar techniques in recording response-curves of animal muscles.⁷⁴ The invention of the galvanometer in 1858 further facilitated *this* practice of curve-tracing among the electro-physiologists of the late nineteenth century Europe.⁷⁵ Soon, the emergent discipline of plant-physiology embraced this new technology. In the last decades of the nineteenth century and the early twentieth century, instrumentation in this line was further advanced and a whole range of modified auxanometers were developed by physiologists like Sachs, Pfeffer and others to demonstrate and record minute modifications in plant growth.⁷⁶ Bose himself considered his instruments to be advancements in the line of physiologists' curve tracing machines.⁷⁷ The Crescograph and Bose's other plant-research instruments must be situated within this particular genre of instrument-making that was simultaneously unfolding in the contemporary west.

The curvatures produced through the Crescograph were automatic records of the plant's growth-movements. Bose deemed those curve-records "plant-autographs". By tracing response curves of plant movements the instruments were supposed to translate the everyday

experiences of the plant-life into information or data. However, I argue that more than objective scientific records, these curve-drawings constituted a particular affective register in Bose's discourse. Bose believed that the curves traced by the machine attached to the plant could successfully retrieve the "everyday life histories of plant" from the depth of silence.⁷⁸ For him, the curve-drawings traced by his instruments constituted a new language and a script - *Tarulipi* (arboreal script). According to him, "the script made by plants is similar to Devanagari to an extent - it is illegible to the untrained or half-trained eye".⁷⁹ Recording the "voices" of the unvoiced, was only one half of the task; the other crucial half was to learn to read and understand this new language. One contemporary newspaper compared the curves traced by Bose's devices to "a story told in a hieroglyphic script, but a script that a physicist can understand".⁸⁰ For the author of the article, Bose's instruments "are but pens with which petal, stem and leaf may write down a story of joy or suffering, of life and death".⁸¹

Now, how does one read into these lines the history of the plant-life? As Bose emphasised repeatedly, one must *learn to read* those unfamiliar scripts traced by the plants - *Tarulipi* - a script that was supposedly legible to the scientists only. To one who did not know how to read the script, the lines would be little more than doodles. No doubt Bose was referring to the language of curve-drawings that the twentieth century scientists frequently used to in communicating scientific data. Language presupposes the existence of a community. In the early twentieth century Bengal, it was a new, still emerging community that Bose's language of plant response-curves anticipated. Ramendrasundar Trivedi's article in the Bengali journal *Prabasi* on "New Discoveries made by Professor Bose" tried to train the newly forming scientific community in the grammar of this new language. Trivedi seemed convinced by the power of the curve-drawings in communicating all kinds of data or knowledge.⁸² Justifying the long introduction where he tried to familiarise his readers with the scientific practice of curve-drawing by means of data-plotting, Trivedi wrote, "For those who are not familiar with this method, this introduction is necessary. Otherwise, the lines exhibited by Jagadishchandra would appear meaningless to them".⁸³

An Affective Reading

However, in Bose's discourse, *reading* Tarulipi was something more than a simple reading of scientific diagrams. The curve-drawings seemed to transcend their diagrammatic functions in order to become symbols. Response-curves of plants were presented in a series with response-curves obtained from animals and metals.⁸⁴ By means of a technique of pattern-comparison (between curve-tracings of electrical responses of different objects) they strove to show the semblance of responses in metal, plant and animal bodies and thereby highlight the all encompassing unity in the universe. Bose and the popularisers of his theories cited these tracings again and again, displayed them side by side, pointed out the visual similarities [Fig. IIa & IIb].⁸⁵ For Bose and his sympathisers, they invoked the presence of life itself - symbolised the unity in nature. In this context, they were elevated to a particular iconic status in Bose's discourse. The response-curves traced by the Crescograph and others were, as Bose repeatedly emphasised, "plant autographs", and as *autographs* they automatically drew comparison to human signatures. A usual ploy of Bose in his lecture-demonstrations of the investigations into the plant-life was to begin by presenting a popular image of the two signatures of Guy Fawkes, made before and after his torture, and asking the audience to notice the change between those two. He would then ask the spectators if stories of life could be recovered from human autographs, why could it not be the same in case of plants and proceed with the recording of plant-responses through his instruments on stage.

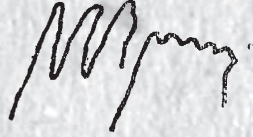
In and through circulation, the curve-drawings of plant-responses could become scientific relics and have a life outside the immediate context of the experiment. Basiswar Sen claimed that during Bose's visit to the University of Vienna in 1914 Professor Molisch, the renowned Botanist and the head of the Department of Botany, asked Bose if they could preserve the response curves produced during the lecture in their departmental museum. The curve-drawings of plant-responses were further reified by their architectural appropriation in the Bose Institute itself. Geddes informed his readers that "[a] distinctive sign of the Institute and its work is" the display of "a large double tracing, being automatically made in two parallel curves before

Fig. IIa. Curves showing similarities of responses in animal muscles and metals. Jagadananda Roy, *Vijnanacharya Jagadishchandrer Abishkar* (1912), pp. 192 & 194.

৩০শ চিত্রের (ক) অংশ পেশীর সাড়ালিপি এবং (খ) অংশ ধাতুর :
উভয়ের একই অতি অদ্ভুত। গুরু আঘাতে পেশী ও ধাতু উভয়েই
অবসন্ন এবং আড়ষ্ট। তাই চিত্রের রেখা উপরে উঠিয়াই সরল



(ক)

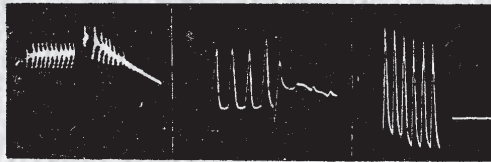
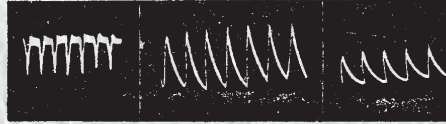


(খ)

৩০শ চিত্র

হইয়া গিয়াছে। পরে, কিছুকাল বিশ্রামের পর সেই রেখা নামিয়া
পেশীর স্বভাবপ্রাপ্তির কথা জানাইতেছে।

Fig. IIb. Curve-tracings showing similarities of responses in animals, plants and metals. Charuchandra Bhattacharya, *Jagadishchandrer Abishkar* (1942), p.16.



বাম দিকে : প্রাণীর সাড়া। মধ্যে : উদ্ভিদের সাড়া। দক্ষিণে : ধাতুর সাড়া
উপর হইতে নীচে : বিভিন্ন অবস্থায় উহাদের সাড়া

the eyes of the observer” as one entered through the main gate of the Institute. “One of these curves records the result of the essential changes of the atmospheric environments-temperature, light, etc. — while the other summarizes the responses of a large tree to those changing conditions for every minute of the twenty-four hours”. For Geddes,

*This autograph of the tree gives striking and vivid demonstration that all plants, including even rigid trees, are fully sensitive to the changes around them. Even the passage of a drifting cloud is perceived and recorded by the tree in its own peculiar script and by an instrument devised for the purpose.*⁸⁶

At moments like this, the tracing got detached from the material body which produced it and became an icon in itself. In Bose’s discourse, the response-curves produced by his machines had lives beyond the site of the laboratory and the plant-body which supposedly produced it. “[W]hich is the more real”, Bose asks in a rhetorical manner, “the material body or the image which is independent of it? Which of these is undecaying, and which beyond the reach of death?”⁸⁷ The lines traced through Bose’s instruments not only represented the “everyday life history” of the particular plant under investigation, but also stand in for the unity of life in nature. The curve-drawing symbolized all forms of life in nature. The language of the curves, in discourse, seems like the pre-Babel perfect language referred to in Christian theology which was said to epitomize the unity in God’s nature.

The Image Machine

This iconic use of the response-curves traced by Bose’s machines inspires one to identify those apparatuses as “image machines” following Peter Galison.⁸⁸ Though Galison uses this category to discuss significantly different instruments used in the physics laboratories of the twentieth century like the cloud chamber, Bose’s instruments of plant researches seem to share some of its criteria. Bose’s instruments were image making instruments;⁸⁹ they produced images which *could* escape a statistical reading of them yet present a scientific fact. Though the curves were by nature statistical data, their use as symbols invoked

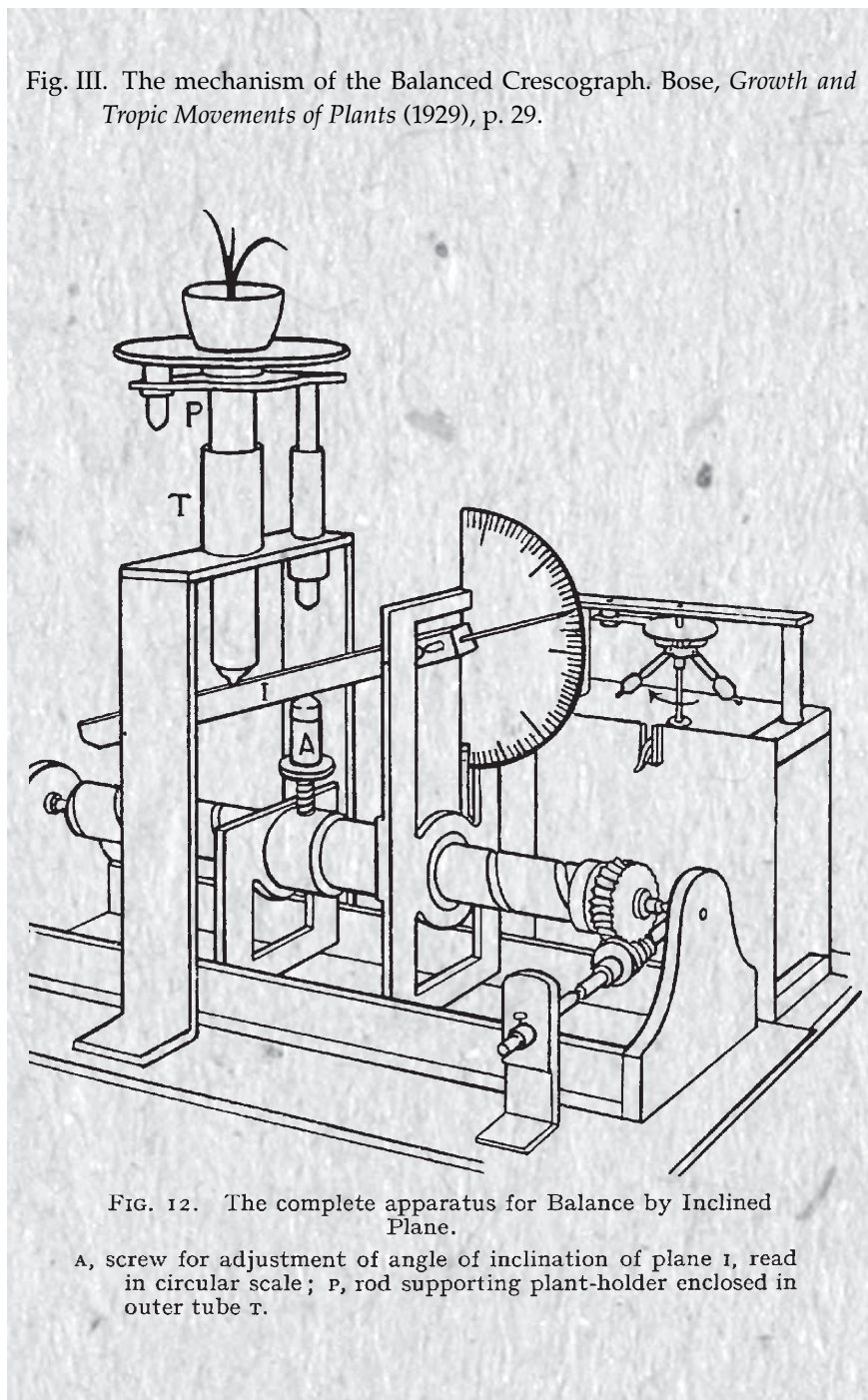
a different epistemology altogether. To extend Galison's classification, they are hybrids of image and logic machines. *The British Medical Journal* praised the Photosynthetic Bubbler for making available the data in the forms of curves, reading of which required elementary knowledge of mathematics.⁹⁰ There is another commonality between Galison's "image machines" and Bose's instruments: it is quite clear from Bose's writings and the story of the construction of Crescograph which we have noted earlier that "the passivity of their systems of registration" of natural events was considered to be a virtue in both cases.⁹¹

However, while developing different versions of the Crescograph, it seems that Bose favoured one type of visualization over others. The imperative of live demonstration before a large public sometimes singularly affected Bose's technical choices in designing the instruments. While developing the High Magnification Crescograph, the photographic method of recording the growth was discarded in favour of a direct method of public demonstration. Bose rejected the photographic method as it involved the "discomfort and inconvenience of the darkroom". He wanted the spectators to "visually" follow the results produced by the instrument directly, without the detour via darkroom.⁹² Still, Bose was reportedly unhappy with the performances of the High Magnification Crescograph, the problem being the records of the rate of growth produced by the machine required a very careful inspection and interpretation. Instead, he wanted an instrument "which would *instantly* show, by the up or down movement of an indicator the changes in growth". The resulting machine was the Balanced Crescograph, which had an attached scale to indicate the actual rate of growth, and a higher power of magnification [Fig. III].⁹³

Reading as Witnessing

We must also keep in mind here Bose's strong attraction to sonic metaphors. According to him, these scripts of curve-drawings would give "voice" to the "dumb companions" of humans. As if one could hear voices emanating from the flat dimensions of those graphic records. "Use these instruments intelligently", as one of the commentaries on Bose suggested, "and vegetations, hitherto mute,

Fig. III. The mechanism of the Balanced Crescograph. Bosc, *Growth and Tropic Movements of Plants* (1929), p. 29.



will *whisper* its story".⁹⁴ To Bose, plant-life was an *echo* of human life, and the curve-drawings produced by his instruments were icons of life itself.⁹⁵ Through Bose's instruments, therefore, "writing speaks, [...] to read is to listen".⁹⁶ One should remember, Bose was one of the early connoisseurs of the gramophone technology in Calcutta.⁹⁷

Listening to those stories of plant-life, for Bose, was much more than a simple disenchanted witnessing of the *other* life by a passive investigator. Instead, through his instruments man would be able to experience not only the plant-life but also his own life and thereby identify with the object of experiment. Experiencing life in those mute records, I argue, was integral to the scientific project of Bose and involved mental faculties like compassion or empathy which were banished from the Enlightenment discourse on scientific investigation.⁹⁸ As we already know, a crucial project of the western modern science was to discipline "experience" in terms of information-collection. During the long period from the sixteenth to the eighteenth century, sophisticated and regimented modes of observation through instruments emerged in Europe as the only "scientific" and valid technique of *knowing* the nature, rejecting ordinary experiences as false or erroneous modes.⁹⁹ Bose's discourse calls for a somewhat different order: *experiencing* through precision instruments. In one of his Bengali writings, Bose pointed out the two major difficulties for recovering the everyday history of plants:

First, *winning the consent of the plant to give witness about itself*, and second, recording that testimony with the help of *both* the plant and the instrument. It seems less difficult to make a *child* obey your instructions than hoping to get answers from a plant. ... After so many years of close proximity with the plants, now I have begun to understand their nature gradually. Today, I am ready to confess before our compassionate and civilized society that I have done many cruel things to the harmless plants in order to collect evidences from them. For this, I have invented many ways of inflicting pain on them — direct or otherwise. Pierced them with needles, burnt them in acids. Let's not talk about that in detail. Today I realize that such forcefully collected testimonies have no value. To the arbitrator of honest justice, this evidence may appear concocted.¹⁰⁰

Instrumentality at its Limit

In other words, testimonies could only be accepted as true evidence when they were collected with no (or negligibly little) application of force. Bose's discourse suggested an *ethical* limit for the instruments of life sciences - they must stop functioning as apparatuses of torture. One of the major Romantic criticisms of the "all-embracing determinism" of modern science was that the "[m]echanistic science proceeds by decomposition and analysis, separation and distinction; it kills what it studies".¹⁰¹ Experimentalist practice of science "essentially involves the *manipulation* of bits of the world"; Davis Baird and Thomas Faust has argued, "belief may help direct this manipulation, but belief cannot take the place of this manipulation".¹⁰² Bose and his contemporary *bhadralok* enthusiasts of science agreed to this principle of active intervention on the part of the investigator and his active manipulation of the real world. Ramendrasundar Trivedi, for example, was of the opinion that one of the main differences between an animal and a man is while the former is only capable of "Abekshan" (simple observation), the latter is capable of "Parikshan" (experimentation), which could artificially create phenomena that did not occur on its own.¹⁰³ Instruments, in this understanding, were the sites of active intervention on part of the scientist. Bose's devices too, as laboratory instruments, sought to actively rearrange the site of experiment and control it mechanically. For instance, Bose designed an additional device, a cylindrical chamber built with a sheet of mica, that could be attached to the Crescograph to entrap the plant and expose it to various agents like gases and vapours.¹⁰⁴ Besides controlling and regulating the space of the experiment, Bose's devices also sought to artificially reduce the duration of the experiment.¹⁰⁵ However, the above statement of Bose regarding the validity of the evidence produced by the interventionist instruments of life sciences presents a counter-ethics to this dominant philosophy of instruments. The active intervention was necessary for knowledge- production, Bose knew too well. But, in his philosophy of scientific instruments — given *his* truth-agenda and the hypothesis of unity in nature — the observer, the instrument and the specimen stood in a perfect harmony with one another. Any destabilization in this harmony could provide a scope for doubts in the legitimacy of knowledge arising out of this

relationship. The design of the instruments sought to capture the “everyday history” of the plant life in its “normal” state. It was the “crude and drastic methods of stimulation” employed by the experimenters before him that led Bose to invent a new device (Resonant Recorder) and arrange his own investigation into the subject of transmission of excitation through plant-body. “The object of our inquiry”, Bose wrote, “is not to find whether a mechanical disturbance caused by some violent blow is transmitted to a distance, but the determination of propagation of physiological change under *normal* modes of stimulation”.¹⁰⁶ For this the plant-witness must be treated with great patience and delicate sensitivity. Rough handling of the specimen under scrutiny, Bose warned, would hamper normal growth and the instrument would thus fail in its purpose. Instead, the correct procedure would be “to mount the plant as gently as possible, and to give it two hours’ rest before taking the record”.¹⁰⁷ The plant must give the go-ahead.

According to Bose, one could translate the unusual gestural languages - whether that of the human child or the plant which behaved like a child - into meaningful narratives only by the instruments of love, compassion and sympathy.¹⁰⁸ The enquirer must empathise with his subject of enquiry.¹⁰⁹ His instruments are nothing but “sympathy machines”¹¹⁰ as they demonstrate the “compassionate history”¹¹¹ of dumb plants to their fellow beings — the humans, so that they can *sense* the unity everywhere in nature. Within this context, the usual boundary between the subject and the object threatened to collapse. The dominant philosophy of western science and technology in the post-Enlightenment era, with its discourse on patents, conceptualised the instrument as a thing that was *detachable* from both the observer on one end and the specimen from the other, and thereby became *portable*. Bose’s discourse suggests a different understanding of the instrument. The operator of the machine, could no longer be completely dissociated from both the object of the study (plant) and the means of it (instrument). Therefore, in one of his Bengali articles, Bose emphasised that in order to successfully use the crescograph, “the hand must be in total control of will power. Otherwise the machine would not work”.¹¹² The instrument was not simply an extension of the phenomenal eye, but also that of the mind’s eye in a sense. An ethical horizon marked Bose’s philosophy of

instruments which run counter to the principle of absolute intervention and manipulation and emphasized the principle of harmony in nature instead. Given the axiomatic principle of unity between the living and the non-living in Bose's imagination, both the mechanical instrument and the object of experiment (the plant) could no longer be completely detached from the human-investigator. This ethical horizon also marked the aesthetic imperative in Bose's discourse which considered the scientific demonstration of unity in nature as *beautiful* in itself.

III. Performing Bodies : The Living and the Machinic

If Bose's instruments were imagined to be located midway within one continuum — between the subject and the object of the experiment — at one level, we will see that they were also entangled in between another: that is the human body and the inert machine. The imperfections of human senses was thought to be hindering the production of scientific knowledge. The post-Enlightenment experimentalist scientific practices therefore tried to regulate the "subjective" human senses with tools and techniques of "mechanical objectivity".¹¹³ Bose's instruments, too, were meant to serve as the vehicle of liberating human beings from the finite limits of ordinary and imperfect sense-perceptions by *extending* them. While discussing the limited scope of human eyes in the perception of light-rays, Bose frustratingly commented that mortal men had no way but to hopelessly wander among the infinity of invisible colour beams in nature and this intolerable finitude of human condition must be transcended.¹¹⁴ From a location in the colony, this human finitude was thought to be much more aggravated due to the lack of sophisticated instruments of science which could aid human perceptions.

One can witness a certain Promethean ethos in Bose's statements. The hero of the Greek mythology Prometheus was able to recover human beings from their primitive state of helplessness by discovering *technai*.¹¹⁵ Bose, too, believed that this natural finitude could not stop man from setting off in his voyage to discover new lands hitherto unknown. Mechanization of human actions provided the ultimate solution.

Instruments as Prosthetics of Senses

Bose's instruments were meant to extend the capacities of human sense-perceptions. But they could only do so by mimicking the human actions. Introducing the Galena Detector [Fig. IV] designed for the

Fig. IV. Drawing of the Galena Detector or the Artificial Retina in the Patent Application submitted by Bose to the United States Patent Office on 30 September 1901.

No. 755,840.

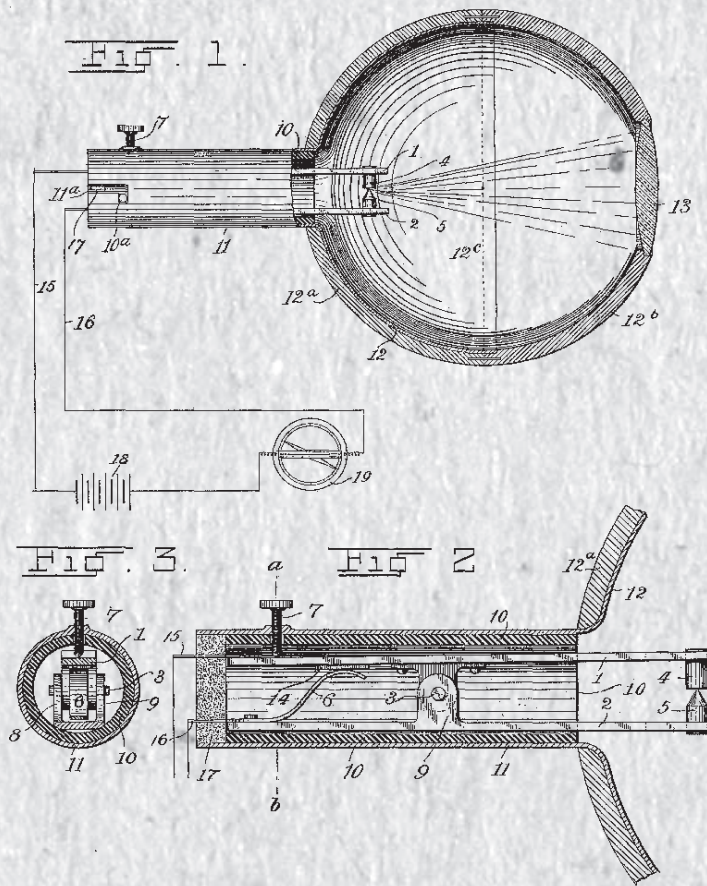
PATENTED MAR. 29, 1904.

J. C. BOSE.

DETECTOR FOR ELECTRICAL DISTURBANCES.

APPLICATION FILED SEPT. 30, 1901.

NO MODEL.



WITNESSES:
Fred White
Thomas Mallard

INVENTOR:
Jagadis Chunder Bose,
 By his Attorneys:
Arthur C. Orason

reception of infrared rays, also called the “Artificial Eye” or the “Artificial Retina”, Bose wrote:

It was necessary to build an artificial eye in order to witness invisible light beams. We have a membrane made of nerves behind our eye. When ray of light falls on it, the consequent excitement in the nerves stimulate a specific region of our brain; and then we recognise it as light. The construction of the artificial eye is similar. Two pieces of metals are kept in close contact with one another in this machine. Whenever light rays fall on the very point where they come into contact, it causes atomic distortion within those metals and as a result a wave of electricity originates which moves the arms fixed to the magnet. Like a dumb man expresses himself by signaling with his hands, the artificial eye also indicates existence of beams by moving its arms.¹¹⁶

Here, the imitation of the natural in the designing of the artificial eye is too explicit to get unnoticed; but it was a better copy of the organic eye in the sense that the scope of vision is much wider than the latter. In 1901 while lecturing on the Artificial Retina, Bose seemed hopeful that the day was not far when other human sense-organs could also be duplicated with success. At another occasion, he proposed the design of an “artificial ear”, based on the same principle of resonance on which his Resonant Recorder was constructed.¹¹⁷ Though he called the contraption ‘ear’, it was supposed to indicate its reaction to a particular note via an arrangement of *visual* demonstration. This can be read as yet another example of the constant process of translation of senses in Bose’s discourse. Bose, it should be pointed out here, was well aware of the pedagogical implications of these artificial simulations of human organs. In a letter to Tagore, he hoped that the Artificial Retina would help him fill the gaps in his theory of vision.¹¹⁸ In this context, the Artificial Eye or the proposed Artificial Ear was also a scientific model. But as the *Electrician* commented, they were not models that *merely imitated* the scientific phenomenon, but *represented the theory* behind that phenomenon. In that sense, they were like the “analog models” of Peter Achinstein which do not reproduce all the characteristics of the prototype, rather “establish correspondences on similarities in the relations of respective parts and structures”.¹¹⁹

In designing the Artificial Eye or proposing the Ear, the famous Aristotelian principle regarding the relationship between art and nature was faithfully followed. *Mechanical Problems*, a text commonly ascribed to Aristotle, emphasised that “art makes creative use of the natural regularities to go beyond what nature itself can achieve”.¹²⁰ In this sense, Bose’s instruments were prosthetics of senses, as they not only imitate but replace the original sense-organs by being better than the originals. And this is not restricted to these two devices alone. The popular press frequently described Bose’s instruments of plant-growth research too as “Artificial Organs of Perception”.¹²¹ One of the articles written by Bose in *Prabasi* called his instruments “Anubhab Yantra”.¹²²

Life and the Machine : A Continuum Imagined

If the mechanical instruments seemed to successfully imitate the living body, the latter also appeared to be more like a machine. There seems to be an uninterrupted continuum between the living body and the dead machine in the discourse around Bose’s researches.¹²³ During one of his public demonstrations of “plant autographs” at the Presidency College laboratory, for example, Bose compared the sensitivity of the recording device to that of the tongue of Hindus.¹²⁴ Some of his instruments freely used organic substances as part of their construction for their sensitive qualities.¹²⁵

In Bose’s discourse, the organic body appeared like spontaneous machines whose automatic movements were caused by the energy that it collected from the nature, preserved, and converted in its own body. “[N]othing is self-originated”, Bose declared.¹²⁶ Geddes summarised Bose’s philosophy of the living body neatly in the following passage:

The essential problem is thus stated: - Is the plant a mysterious entity, with regard to whose working no law can be definitely predicated? Or can it be interpreted as a machine - i.e. as transforming the energy supplied to it in ways more or less capable of explanation? ... the thesis is here clearly affirmed, and justified in detail, that the plant may nevertheless be regarded as a machine.¹²⁷

At times, the spontaneous body-machines seemed identical to the wind-mill [Fig. V].¹²⁸ In his later writings however, Bose compared the spontaneous body-machin to the steam-engine.¹²⁹ It can also be

Fig. V. The analogy between the wind-mill and the organic body. Bose, *Plant Responses as a Means of Physiological Investigation* (1906), p. 742.

But the observer, in the course of his further inquiry, finds that the vanes, whose rotation under the impact of the external stimulus of wind first attracted his attention, are but a part of a complex machine, the interior of which had been hidden from his view.

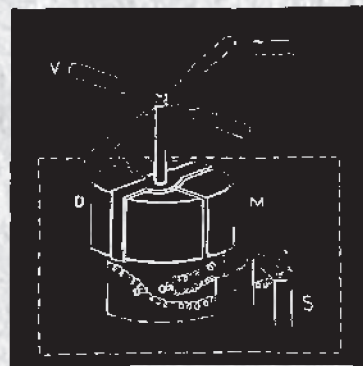


FIG. 278. Diagrammatic Representation of a Windmill with Attached Dynamo, D, and Accumulator, S

Wind acting on vanes, V, from right, represented by arrow (\leftarrow), causes responsive rotation in direction opposite to that taken by the hands of a watch. This external energy also causes electrical storage. On the cessation of the wind the accumulator begins to part with its stored-up energy, and, the dynamo now acting as a motor, causes a responsive rotation of the vanes in the other direction, as shown by the arrow (\rightarrow).

He finds that the energy supplied from outside is being transformed by a dynamo inside, and stored up in an accumulator. When the external force is not acting, the reverse movement is caused by the internal energy thus stored up. This very movement, being apparently without a cause, he would formerly have designated as automatic. When the stored-up energy is exhausted, the seemingly autonomous movement comes to a standstill, and only by the accession of fresh external stimulus, causing renewed storage, can it be resumed.

At a given moment, moreover, the responsive movement of the vanes is determined by the opposing actions of the external and internal factors. As long as the wind is sufficiently strong, movement takes place in one direction, and when there is a pause the internal energy begins to find expression, by causing movement in the opposite direction. If the circumstances were such that the rise of the wind were synchronous with day, and its fall with night,

argued that for Bose, the machine served as a model for explaining the workings of organic life instead of imagining them as driven by an unquantifiable “vital force”. Though it recognised the specificity of the organic body, I argue, the body appeared as a machine in the last instance in Bose’s discourse on life.

Psychological phenomena such as emotions like ecstasy, joy, sorrow, pain or memory, for Bose, were nothing but mechanical-chemical responses of the body-machine to external stimuli and were supposed to be transferred to one individual body-machine from another through the fluid called breast-milk.¹³⁰ Emotions travelled through the same *circuit* of nervous system in the body which facilitated the circulation of information through the body and from outside. Note that different qualitative virtues were imagined here as variations of the same entity and therefore opened up the possibility of quantification: now, they could all be measured with the use of galvanometer. This was not entirely a new idea for the twentieth century bhadraloks; Trivedi informed his readers that scientists in the discipline of Experimental Psychology or Psycho-Physics had started trying to measure human feelings and sensations to construct a scientific knowledge about them.¹³¹ Similarly, the theory of omnipresence of electric impulses claimed to provide a scientific understanding of those phenomena. No wonder then, emotional qualities like sympathy or empathy, for Bose, would constitute legitimate techniques of data-collection as they too were understood to be forms of the same electro-physiological impulse produced in the body-machine that carried information through mechano-chemical processes.

Bose’s notions about the continuity between the energies internal and external to the organic body¹³² problematize a strict binary opposition between the organic body and the artificial machine. In his discourse, all living bodies, like machines, collected energy from the outside, stored it in their own body, and with it directed its movements. Every phenomena of organic life, whether physiological or psychological, could thus be explained as the mechano-chemical manifestations of a singular interconvertible energy in nature. In the context of the strong obsession of the nineteenth century physics with interconvertibility of energy, of which the steam engine presented a

practical example, theory of the all-pervasiveness of ether, numerous researches in vegetable and animal electricity,¹³³ Bose's concept of the body-machine could make perfect sense. The equivalence between the machine and the organic body was increasingly gaining prevalence in the twentieth century popular Bengali press too. The discourses on metabolism, which were gaining currency among the twentieth century *bhadraloks*, found in the steam engine its favourite explanatory model. Thus one article in the Bengali periodical *Bijnan* remarked that "[i]f the human being is considered to be a machine, it should be recognised that in order to function the human-machine needs food like fuels".¹³⁴ Based on the different types of *functions* or works done by different body-machines, the article produced a chart listing amounts of calories needed for different people engaged in different works. It is within this universe of shared concepts, Bose's discourse on the living body could find favourable attention. His 'genius' could only be recognised and celebrated in a world where his ideas could find resonances and therefore appear as something meaningful.

The Engineering Ideal of Life

Imaginations of the human body as a machine with a concrete unchanging plan programmed within it promised certain practical advantages for the contemporaries. Firstly, machines served as particular "types" in the process of knowledge production by serving as a homology between the plant and the animal. Starting from the premise of this homology, the simple form of the plant-machine could serve as a pedagogical model that could facilitate the knowledge about the more "complex mechanism of the animal machine".¹³⁵

At another level, this machinic philosophy of life "provided an ever-recurring dream of rejuvenescence".¹³⁶ If the organic body resembled the machine, the efficiency of human body could then be believed to be improved or reduced artificially at will, the human power of vision through the construction of the artificial eye for example. This promised a prospect that by means of a perfect knowledge of the mechanism one could improve human capacities to a level unprecedented. Further, Bose's experiments with the effect of electric stimulus on plants had convinced people like Geddes that a dead organ could be artificially brought back to its normal condition of growth by giving it appropriate stimulus from outside.

That life-processes could be planned for improvement seemed feasible within the horizon of this discourse. Therefore, we find Ramendrasundar Trivedi, a commentator on Bose's works and a distinguished natural philosopher himself, saying:

Perhaps a day will come, when after long investigation into the principles governing the workshop of nature, we will be able to know the proper combination of matters which results into the creation of a living body. That day we will finally be able to create lives artificially.¹³⁷

That day, it was believed, would mark the ultimate liberation of humanity from the bondage of heteronomy and finitude. Writing around 1886, Hiranmayi Devi, one of the co-editors of the Bengali periodical *Bharati*, the elder daughter of Swarnakumari Devi and grand-daughter of Debendranath Tagore, already noted that, "There is a saying, 'man can do anything but cannot infuse life.' ... What was not possible in the nineteenth century perhaps will be made possible in the twentieth century.... witnessing the scientific abilities of man, we also believe that nothing is impossible".¹³⁸ While concluding the foregoing discussion on the Siemens electrical devices which claimed to artificially maintain and augment plant growth by applying electric light and heat to it, she hoped, "[n]ow the creation of plants and other jobs can also be easily done by the use of electricity". It is to be remembered in this context that the discourse on eugenics was already doing its rounds in the *bhadralok* discussions.¹³⁹ The news of the breeding experiments for a hybrid of Indian and Australian varieties of cows were already circulating in the popular press. Jagadanda Roy's article titled "Bangsher Unnatibidhan" expressed the ambivalence of the Bengali *bhadralok* in the early years of twentieth century towards eugenics.¹⁴⁰ Though there were differences of opinion regarding the ethics and morality of such experiments, eugenics was more or less accepted as a credible practice. Trivedi argued that it was nature itself who was capable of creation (*Nirman*), whereas we, human beings, follow the natural principles in making something new. The latter is not creation *per se*, but intelligent combination of elements (*Yojana*) - engineering. He reminded his readers that though the scientists had been able to identify the right ingredients to artificially create life, they were yet to become successful in that respect

as they were unable to determine the exact recipe or formula of their combination.¹⁴¹ That life could be engineered was a belief shared by many science-practitioners of the twentieth century both in India as well as in the West. German-American biologist Jacques Loeb, who was one of the main advocates of the “engineering standpoint” in biology, was active during 1890-1915 in trying “to define a biology centered around the control of organisms”.¹⁴² In 1899, Loeb developed a technique of inducing artificial parthenogenesis: “the artificial production of normal larvae (plutei) from the unfertilised eggs of the sea urchin”.¹⁴³ Controlling life according to a premeditated design, it seems, was an agenda of both Loeb and Bose. By 1938, a department of genetics attached to that of plant-physiology was already in place in the Bose Institute.

Body as an Instrument of Controlled Precision

Trivedi was skeptical about the success of this project of artificial control of life. In “Praner Kahini”, he cited Bergson to point out that the course of life, unlike that of matter or the motion of machines, was “essentially irreversible”. Life, according to Trivedi, was spontaneous, free to choose its own course; no scientist would be able to direct its course along their predetermined path, nor could they predict the route. Now, this was precisely the task that Bose was preparing for. After a successful experiment demonstrating the similarity between animate and inanimate responses, Bose wrote to Tagore: “Why does poisoning cause death? [...] Which knob in the human-machine is turned? Why is it turned, can we turn it back - why not?”¹⁴⁴ Researches on the nervous mechanism in plants, in the last phase of Bose’s career, held out hopes for the improvement or maintenance of organic growth at *will* by means of control over the nerve impulses. According to Bose’s theory, the nervous impulses could be controlled so as to obliterate or inhibit external shocks which hampered or stopped organic growth and facilitate those shocks that instigate growth.¹⁴⁵ The “inner control of the nerve” could help one to modify their senses profoundly so that one could exercise wilful control over body. However it must be clarified that Bose repeatedly refused to reduce this practice of nervous controls to traditional Hindu metaphysics; for him, it could only be possible by the application of “exact” scientific knowledge. When Bose suggested to a reporter that

it was possible for man to voluntarily control nervous impulses, the latter asked him, "Is that not a kind of yoga?" To this question, Bose "emphatically waved his hand in denial, and hastily added 'never attempt such speculations in science lest you should be carried away by the force of interest. Be patient and wary'".¹⁴⁶ Minute precision was a necessary virtue that one must learn from the practices of physical sciences in the west. Only precise knowledge produced *through* instruments, according to Bose, could promise transcendence by enabling the perfect attuning of the body to the mechanisms of nature.

Again, Bose was not alone in this; that "increased biological knowledge implies increased possibilities of controlling life"¹⁴⁷ was a belief prevalent in both the academic as well as the popular domain of scientific practices in the 1920s west too. Bose was of the opinion that only with the help of precise knowledge, one would be able "to catch those indistinct messages" from nature "that have hitherto passed by him unperceived" and found themselves in a harmonious relation with the outside. One could easily recognize the hint towards an antenna here. His thesis therefore urged for the human body to engage in a "constant communion" with the external forces in order to draw energies from them efficiently.¹⁴⁸ No wonder he would express a strong favour for the extension of physical senses through artificial simulation of the body as it seemed to be put one step forward in this process of "communion" with the outside by highlighting the all pervading unity in the world. The individual body-machine must be attuned with the larger cosmological machine to produce a perfect harmony. The former shared a relationship of *synecdoche* with the latter. After all, for Bose, what were the creative hands of ordinary human beings if not the extension of the tools of the *ur-artificer*, *Vishwakarma*!¹⁴⁹

Nation : A Necessary Epilogue

Mechanisms designed by Bose were therefore believed to be aiding in the grand project of modernity - that is engineering an ideal infrastructure for life. If life became an object of engineering, of design and planning in this discourse, another abstraction called the nation could not be far away. The "ever-recurring dream of rejuvenescence" Geddes talked of appeared true in the case of nation too. One should remember that the sources and channels of energy could be redistributed to augment growth of the socioeconomic life of the nation

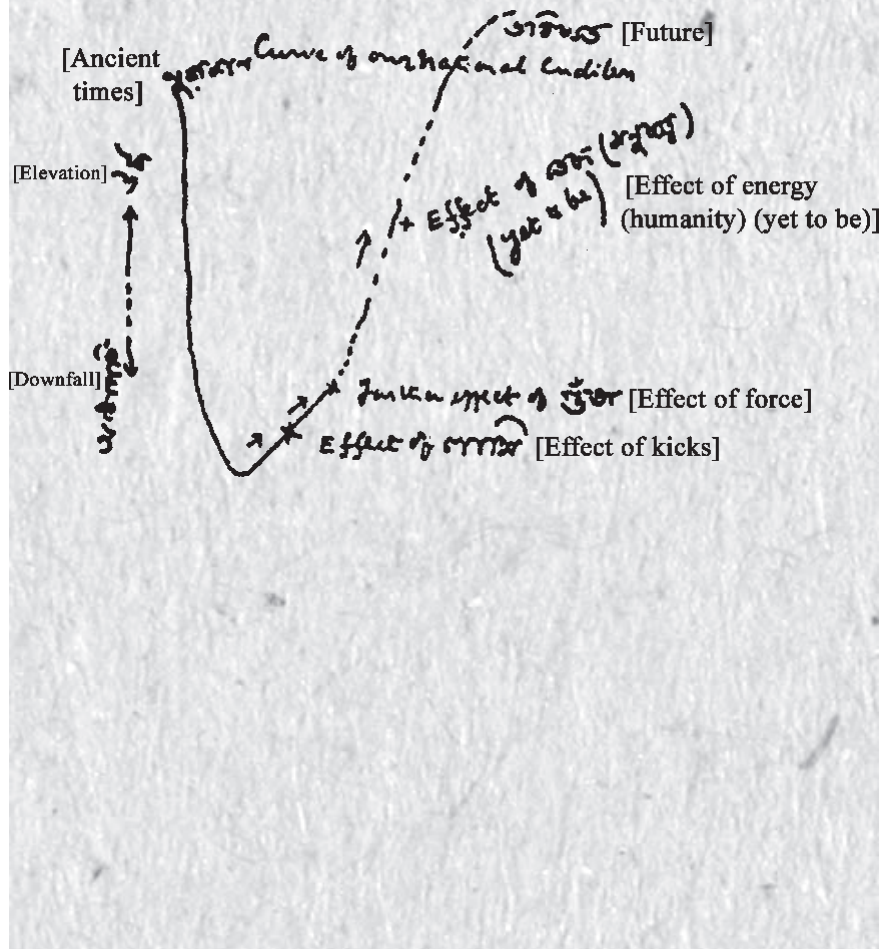
and its social body was an important political economic agenda in swadeshi Bengal.¹⁵⁰ It was believed that with the right kind of external stimuli applied to the body of the nation, it had the potential to take off towards the path of glory again.¹⁵¹ No wonder, an admirer of curve-plotting like Bose would try to represent this promise by a diagram (Fig. VI) that he drew in a letter to Tagore.¹⁵²

In the diagram, the external shocks or stimuli which could rejuvenate the downfallen “curve of national condition”, were marked with the symbol “+”, traditionally used to designate the positive end of the electrical circuit in a diagrammatic representation or to suggest the act of addition in an algebraic equation. We must also notice that the part of the curve that represents the “future” of the nation is dotted. It is yet to be a fully formed line, but its course is already plotted; it is a ghostly line. It is on this plot of dots, the future of the nation must be constructed. Salvation was believed to be dependent upon a perfect planning which could provide the essential artificial stimuli for growth and keep the nation-machine functioning by supplying energy from outside.¹⁵⁴

Conclusion

In drawing attention to the performative nature and the infrastructural context of Bose’s scientific practices, this paper has tried to emphasize the materialities of *doing* science within a globally networked culture of instruments and demonstrations. In contrast to the tragic trope of Bose’s under-recognized genius in the nationalist accounts, it highlights the various contemporarily available techno-epistemological registers on which the very claim of “innovation” could be enunciated. Bose’s scientific demonstrations not only attempted to persuade the scientific community of the west but sought legitimacy from the colonial public as well. The questions of portability, simplicity of design and publicness of his instruments seemed to be of crucial importance in this context. Bose’s scientific instruments not only enunciated a different ethic of addressing the question of evidence in scientific experiments but also engaged with the swadeshi politics of labour and skill. The post-swadeshi nationalist appropriation of Bose has always emphasized a mystical oriental meditation on the spiritual aspect of life and vitalism and thus reduced the machines to

Fig. VI. "Curve of our national condition". Drawn by Bose in his letter to Tagore, dated 8 June 1900. Reprinted in Jagadishchandra Basu and Rabindranath Tagore, *Dui Bandhur Chithi. Parasparik O Paramparik* 1899-1936, p. 24. [Terms within the diagram are translated by the author.]



mere signifiers of both his hypothesis of life as well as his oriental 'spiritual' life. Foregrounding the demononstrations and the instruments of Bose helps to shift the focus to the materialities of his scientific practices which can never be fully subsumed under the category of colonial difference. Bose's scientific practices therefore, I argue, could neither be explained in terms of a simple-minded indigenism, nor through the schema of an 'alternative, colonial science.' Nor were his inspirations purely philosophical and unembodied in nature. Further, the knowing subject of an experiment, in this discourse, could no longer be a detached, impersonal investigator practising an absolutely emotionless objectivity, but was rather entwined with the object of the enquiry in a perfect natural harmony. The organic cannot be understood as a self-standing category. Highlighting the allegorical extension of the machinic to the organic body in Bose's discourse, this paper shows how the notions of the machine as well as of life were reconfigured within a peculiar cosmological imagination which was more mechanistic than organismic in a sense. Finally, I argue that the engineering ideal of life ensuing from the imaginary continuum between the living and the mechanic in this discourse hinted at a particular imagination of the transcendental subject which exceeded the usual framework of an organismic metaphor of freedom. This unsettles the dominant academic penchant for understanding the nation form exclusively in terms of an organism and thereby helps us to rethink the prehistory of the postcolonial imagination of the nation as a totality that could be planned and designed.

Notes

- ¹ Cf. A. Nandy, *Alternative Sciences: Creativity and Authenticity in Two Indian Scientists*, Oxford University Press, New Delhi, 1995, 17 - 87; J. Lourdasamy, *Science and Nationalist Consciousness in Bengal*, Orient Longman, New Delhi, 2004, 100-143; P. Chakraborty, *Western Science in Modern India: Metropolitan Methods, Colonial Practices*, Permanent Black, Delhi, 2004, 180 - 218; D. L. Gosling, *Science and the Indian Tradition: When Einstein Met Tagore*, Routledge, London and New York, 2007, 91-97. While Subrata Dasgupta's intellectual biography of Bose includes discussions on various apparatuses designed by Bose, it reads them in the context of Bose's theories. As a result of this, rather than taking the centre-stage for themselves, the instruments still

provide only a background to the narrative that highlights Bose's intellectual 'difference'. S. Dasgupta, *Jagadis Chandra Bose and the Indian Response to Western Science*, Permanent Black, New Delhi, 1999.

² Jahnvi Phalkey maintains that an obsessive "pursuit of an ideological explanation" has dominated the histories of science in India for long. The new narratives of the science in colonial India, Phalkey insists, should be built around the histories of actual practices that went beyond the "concerns with ideology and authority". J. Phalkey, "Introduction", *Isis*, Vol. 104 (2), 2013, 333-336. For the last three decades or so, historians and sociologists of science have turned their focus on the "materialized epistemology" of scientific practices with a renewed vigour. Cf. M. N. Wise, "Making Visible", *Isis*, Vol. 97 (1), 2006, 75-82; P. Galison, *Image and Logic: A Culture of Microphysics*, The University of Chicago Press, Chicago, 1997; P. H. Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution*, University of Chicago Press, Chicago, 2004; *Thing Knowledge: A Philosophy of Scientific Instruments*, University of California Press, Berkeley, 2004, J. Tresch, *The Romantic Machine: Utopian Science and Technology after Napoleon*, University of Chicago Press, Chicago, 2012. The present article draws heavily from this new line of research.

³ Galison, *Image and Logic*, 2.

⁴ *Ibid.*

⁵ As Galison argues, in the late nineteenth or early twentieth century, it was unthinkable that an experimental physicist would have no knowledge about instrumentation; the life of such an experimenter demanded some knowledge of the 'properties, costs, and uses of materials'. Galison, *Image and Logic*, 8. Bose's life as an experimenter who worked with delicate machines also necessitated possession of different mechanical skills and knowledges other than that of botany or physics. It is at the time of crisis, those 'other' knowledge regimes manifest themselves. For example, on one of his trips to London, when the indicator of a delicate instrument broke just before a scheduled lecture-demonstration, Bose had to instantly mend it with the seccotine capsuler he was carrying with him. J. C. Bose, "Nothing Easy" (1925), in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose : A Scientist & A Dreamer*, Vol. 4, Bose Institute, Calcutta, 1997, 119.

⁶ According to Timothy Lenoir, the nineteenth century researches into electrophysiology of muscles and nerves more than often employed a theoretical model what Norton Wise has called a formal analogy. This type of models demonstrated the "similarity between the formal structure of some known or imagined system and the relations discerned to hold among the principal phenomena of the object domain under investigation". T. Lenoir, "Models and Instruments in the Development of Electrophysiology, 1845-1912", *Historical Studies in the Physiological and Biological Sciences*, Vol. 17(1), 1986, 3.

- ⁷ Tresch, *The Romantic Machine*, xi.
- ⁸ For a history of the use of organismic metaphors in the discourses on the nation-form, see P. Cheah, *Spectral Nationality: Passages of Freedom from Kant to Postcolonial Literatures of Liberation*, New York, Columbia University Press, 2003, 17-59. For the Indian context, see A. Sartori, "The Conceptual Structure of an Indigenist Nationalism" in *Bengal in Global Concept History: Culturalism in the Age of Capital*, University of Chicago Press, Chicago, 2008, 136-175.
- ⁹ Bose maintained that a scientific fact was truly a 'fact' only if it was universally demonstrable. J. C. Bose, "Address to the Hindu University", Anonymous, *Sir Jagadish Chander Bose: His Life, Discoveries and Writings*, G. Natesan & Co., Madras, 1921, 36.
- ¹⁰ J. Lourdasamy, *Science and Nationalist Consciousness in Bengal*, 77-79 and 84.
- ¹¹ For example, a reviewer of the popular science-text *Prakriti-Parichay* by Jagadananda Roy wrote in *Prabasi*, "Once I came across an article in a Bengali monthly, where the writer said many things about amoebas, but how could he, who never observed an amoeba through a microscope, ever be able to understand them a bit?" The reviewer emphasized that every student of science must build a small laboratory in their own houses. *Prabasi*, Vol. 11 (2), 1318 B. S. [c. 1911].
- ¹² P. N. Ghosh, "Report of the Sub-Committee on Industries Connected with the Manufacture of Scientific Instruments" (1947), in K. T. Shah, ed., *National Planning Committee Series*, Bombay, 1948, 1. The glass apparatuses used in chemical researches were also to be imported from Europe. This presented a great obstacle for the experimenters as they were often "broken in transit" and "it took months to obtain a new apparatus". P. C. Ray, "A New Enterprise", in S. Ghosh, *Kaler Shahar Kolkata*, Ananda Publishers, Kolkata, 1991, 229-230.
- ¹³ B. Sen, "Round the World with My Master [III]", *The Modern Review*, Vol. 19 (3), 1916, 359.
- ¹⁴ P. Geddes, *An Indian Pioneer of Science: Life and Work of Sir Jagadis C. Bose*, Longmans, Green & Co., London, 1920, 57-58.
- ¹⁵ S. Shapin and S. Shaffer, *Leviathan and the Air-pump: Hobbes, Boyle, and the Experimental Life*, Princeton University Press, New Jersey, 1985.
- ¹⁶ Bose, "Nothing Easy", 118.
- ¹⁷ The same incident was recounted by Basiswar Sen too. B. Sen, "Round the World with My Master", *The Modern Review*, Vol. 19 (I), 1916, 84.
- ¹⁸ Bose, "Nothing Easy", 118.
- ¹⁹ Patrick Geddes was full of praise about the lay-out of the seventy-feet-by-sixty-feet lecture hall. "Its purpose", he wrote, "is neither restrictedly scientific, as its magnitude shows, nor yet simply popular". Geddes, *Life and Work of Sir Jagadis C. Bose*, 245-246.
- ²⁰ A. Mitra, *Acharya Jagadishchandra O Basu-Bijnan-Mandir*, M. C. Sircar & Sons, Kolkata, 1961, 31.

- ²¹ *Ibid*, 31-32.
- ²² Sen. "Round the World with My Master [III]", 359.
- ²³ In the context of early colonial scientific exhibitions and museums, Gyan Prakash demonstrated how the very 'staging' of science which was meant to diffuse rational scientific knowledge among the public, also inspired awe and a sense of marvel among the spectators. G. Prakash, "Staging Science", *Another Reason: Science and the Imagination of Modern India*, Oxford University Press, New Delhi, 2000, 17-48.
- ²⁴ R. Tagore, "Acharya Jagadisher Jaybarta", (1901), A. M. Harun-ar-Rashid, ed, *Rabindranathke Lekha Jagdishchandra Basur Patrabali*, Bangla Academy, Dhaka, 1971, 114.
- ²⁵ B. Sen. "Round the World with My Master [IV]", *The Modern Review*, Vol. 19 (5), 1916, 553-554.
- ²⁶ Cf. Letter from Bose to Tagore, London, 22 May 1901, in Harun-ar-Rashid, ed, *Jagdish Chandra Basur Patrabali*, 55.
- ²⁷ Anonymous, "No Heartbeats in Plants", *The Science News-Letter*, Vol. 15 (419), 1929, 241.
- ²⁸ T. N. Das, "Sir Jagadis Chandra Bose as a Leading Figure of Asiatic Renaissance", in Prantosh Bhattacharya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 420.
- ²⁹ For a detailed narrative of the 'controversy', see S. Dasgupta, "Jagadis Bose, Augustus Waller and the Discovery of 'Vegetable Electricity'", *Notes and Records of the Royal Society of London*, Vol. 52 (2), 1998, 307-322.
- ³⁰ Anonymous, "Professor Bose's Remarkable Work", *Science Progress in the Twentieth Century*, Vol. 15 (57), 1920, 114.
- ³¹ Anonymous, "Plant Response", *The British Medical Journal*, Vol. 1 (3093), 1920, 513.
- ³² Geddes, *Life and Work of Sir J. C. Bose*, 244.
- ³³ For a brief history of the emergence of Calcutta as a 'science city' in the nineteenth century, see D. Kumar, "Calcutta: The Emergence of a Science City", *Indian Journal of History of Science*, Vol. 29 (1), 1994, 1-7.
- ³⁴ Bose, "Voice of Life" (1917), in Samir Rakshit and Kamal Chowdhury, eds, *Jagdishchandra Sera Rachana Sambhar*, 256.
- ³⁵ Das, "Sir Jagadis Chandra Bose as a Leading Figure of Asiatic Renaissance", 420.
- ³⁶ Letter from Bose to Tagore, Kolkata, 16 March 1903, Jagadishchandra Basu and Rabindranath Tagore, *Dui Bandhur Chithi: Parosporik O Paromporik*, Monfakira and Ababhash, Kolkata, 2008, 236.
- ³⁷ Bose's notebook digitised and catalogued at the Bose Institute Museum under the title "Notes on Instrument Design, Instrument Working, Experiments, Bengali Science Fiction".
- ³⁸ From Bose's diaries, one gets the specific instructions (sometimes with rough diagrams) left for the assistants named 'Bhupen', 'Bepin', 'Nanku' and others on how to construct those parts.

- ³⁹ Anonymous, "Jagadish Chandra Basur Mahaprayan", *Prabasi*, Vol. 37 (2), 1937, 433-434.
- ⁴⁰ Anonymous. "Interview with Prof. J. C. Bose", *India*, December 1896, in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 313.
- ⁴¹ Sen, "Round the World with My Master [III]", 357; Anonymous, "Jagadish Chandra Basur Mahaprayan", 435.
- ⁴² For Bose, the sensitivity of the tongue of a Hindu was much higher than that of a European. Anonymous, "Plant Autographs: How Plants Can Record Their Own Story", in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 15.
- ⁴³ J. C. Bose, "The Unvoiced Life", in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 124; B. Sen, "In America with My Master, III", *The Modern Review*, Vol. 19 (9), 1916, 254-255.
- ⁴⁴ J. C. Bose, "Convocation Address at the University of Punjab on the 19th December, 1924", in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 110.
- ⁴⁵ L. Kriegel, *Grand Designs: Labor, Empire, and the Museum in Victorian Culture*, Duke University Press, Durham and London, 2007, 142.
- ⁴⁶ Dinanath Sen, one of the earliest promoters of engineering education in Bengal, was of similar opinion. See Sen's letter to the editor of the *Hindoo Patriot* of 20 February 1876 reprinted in S. Ghosh, *Kaler Shahar Kolkata*, 225-226.
- ⁴⁷ He was one of those rare laboratory assistants of Bose whose name got a rare mention in the contemporary press.
- ⁴⁸ Bose, "Promotion of the Advanced Study of Physics in India", *Journal of the Society for Arts*, Vol. 45 (2310), 1897, 266.
- ⁴⁹ G. Bhattacharya, "Mone Pore", *Bijnan Omnibus*, Dey's Publishing, Kolkata, 1987, 9.
- ⁵⁰ Swadeshi educationist and promoter of industrial education in Bengal, Benoy Kumar Sarkar was in favour of the dissemination of a practical know-how of machines and some general technical skills. B. K. Sarkar, "Naya Banglar Ishkoolmaster" (1927), *Puratani Granthamala 3: Magajmeramater Hatiyar*, Seriban, Kolkata, 2009, 85.
- ⁵¹ Bose, "Promotion of Advanced Study of Physics in India", *ibid.*
- ⁵² This was similar to the hierarchical relation between the illustrator and the scientist imagined in the episteme of 'truth-to-nature'. L. Daston and P. Gallison, *Objectivity*, Zone Books, New York, 124. The status of the mechanic in our case shows a situation where the mechanic/operative, though recognised as a 'collaborator,' was subordinated to the scientist-innovator in the last instance.
- ⁵³ Bose described his instruments as "sukkhadarshi kal" on one occasion. Bose, "Vijnane Sahitya", in Samir Rakshit and Kamal Chowdhury, eds,

Jagadishchandra Sera Rachana Sambhar, 106. "Sukkhadarshi" in Bengali meant one that had an extremely delicate scrutinising power.

- ⁵⁴ "The peculiar economy of attention" that the Enlightenment science introduced was "pointillist, magnifying", Lorraine Daston points out. L. Daston, "Empire of Observation", in Lorraine Daston and Elizabeth Lunbeck, eds., *Histories of Scientific Observation*, University of Chicago Press, Chicago, 2011, 99. The microscope was the epitome of this economy.
- ⁵⁵ Anonymous, "Jagadish Chandra Basur Mahaprayan", 433; J. C. Bose, "Ahata Udbhid", in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 140; "The Mechanism of Life", *The Modern Review*, Vol. 40, 1926, 667. Not only in the contemporary bhadralok press, but in the contemporary science journals of the west too, the Crescograph invoked comparisons with microscopes and ultra-microscope of Siedentopf and Ziegsmundy; *Machinery*, vol. 16 (1920), 396. Bose had made the same comparison before an audience in Calcutta on 10 January 1916 when he demonstrated the work of the Magnetic Crescograph; "The Magnetic Crescograph", in Anonymous, ed., *Sir Jagadish Chander Bose*, 151-152.
- ⁵⁶ For Peter Galison, detectors were "the mediators between the production of phenomena and the production of evidence". Galison, *Image and Logic*, 3. We will see shortly that Bose's instruments of plant-researches shared similar epistemological foundation.
- ⁵⁷ Anonymous. "The International Physiological Congress, 1920: Summary of Papers", *Nature*, Vol. 2674 (106), 1921, 707.
- ⁵⁸ The final version of the machine was the outcome of five years of efforts. "The Magnetic Crescograph", 154.
- ⁵⁹ J. C. Bose and G. Das, "Researches on Growth and Movement in Plants by Means of the High Magnification Crescograph", *Proceedings of the Royal Society of London. Series B, Containing Papers of a Biological Character*, Vol. 90 (631), 1919, 366; "The Magnetic Crescograph", *ibid*.
- ⁶⁰ "The Magnetic Crescograph", *ibid*. The new system was found to be better than the jewel bearings which got clogged by dust particles from time to time.
- ⁶¹ Bose and Das, "Researches on Growth and Movement in Plants", 368.
- ⁶² Bose, "Ahata Udbhid", 121.
- ⁶³ Bose and Das, 'Researches on Growth and Movement in Plants', 368.
- ⁶⁴ Bose, "Ahata Udbhid", 138.
- ⁶⁵ J. C. Bose, "Reply to the Address of the Citizen of Calcutta", in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 96.
- ⁶⁶ "Tacit" forms of knowing, as sociologists and historians of science like Michael Polyani, Collins and others argue, are non-verbal, pre-logical and unarticulated means of knowing that are beyond the formal channels of knowledge transfer. The concept of "tacit knowledge", as Galison has pointed out, hints at the "craft aspects of scientific work". Galison, *Image*

- and Logic*, 52-53. The knowledge embodied in objects and transferred only through the circulation of them *also* constitutes "tacit knowledge" for us.
- ⁶⁷ D. Baird and T. Faust, "Scientific Instruments, Scientific Progress and the Cyclotron", *The British Journal for the Philosophy of Science*, Vol. 41 (2), 1990, 154.
- ⁶⁸ Anonymous, "The Measurement of Minute Motion", *The Journal of American Society of Mechanical Engineers*, Vol. 42, 1920, 308.
- ⁶⁹ A. Abrams, "Response of Metals to Stimuli", *Physico-Clinical Medicine*, Vol. 4 (1), 1919, 39-40.
- ⁷⁰ [M. K. Gandhi], "Prof. Bose's Invention", *Young India*, Vol. 3 (1), 1920, 21.
- ⁷¹ L. Daston and E. Lunbeck, "Introduction : Observation Observed", in L. Daston and E. Lunbeck, *History of Scientific Observation*, 4.
- ⁷² D. Baird, "Between Technology and Science", *Thing Knowledge*, 170-188.
- ⁷³ Geddes, *Life and Work of Sir Jagadis C. Bose*, 129.
- ⁷⁴ The indicator diagram inspired Carl Ludwig's pulse-recording Kymograph and Hermann Helmholtz's Myograph for recording muscle energy of a frog. see Wise, "Making Visible", 78. Bose acknowledged the influences of physiological researches on his own experiments with response curves on several occasions. Bose, *Responses in the Living and Non-living*, Longmans, Green & Co., New York and Bombay 1902, 190.
- ⁷⁵ Bose acknowledged the researches of Fritiof Homgren, James Dewar, McKendrick and others on the physiology of eye. Bose, "The Response of Inorganic Matter to Mechanical and Electrical Stimulus", *Collected Physical Papers: Bose Institute Transactions*, Longmans, Green & Co., London and Calcutta, 1927, 262. Curve-drawing instruments were also used by Waller and Sanderson in their physiological researches.
- ⁷⁶ For a short compendium of auxanometers, auxographs and similar instruments of plant-growth investigation in the early decades of the twentieth century, see W. F. Ganong, *A Laboratory Course in Plant Physiology*, Henry Holt & Co., New York, 1908, 199-205. Crescograph was also in the list. The *Botanical Gazette* wrote in its issue of August 1906, 'we have been content, for example, with magnifications of 10 or 20 times in the auxanometer, where Bose finds 1,000 or even 10,000 practicable with his crescograph'. C.R.B., "Plant Response", *Botanical Gazette*, Vol. 42 (2), 1906, 149.
- ⁷⁷ Bose, *Responses in the Living and Non-living*, 190.
- ⁷⁸ J. C. Bose, "Vijnane Sahitya", 106.
- ⁷⁹ *Ibid.*
- ⁸⁰ Anonymous. "Do Plants Have Feelings?", *Seattle Daily Times*, 22 February 1925.
- ⁸¹ *Ibid.* *The Pioneer*, published from Allahabad, also compared Bose's instrument to a pen. Anonymous, "Unity of Life: Sir J. C Bose's Address", *The Pioneer*, 16 June 1907.
- ⁸² R. Trivedi, "Adhyapak Basur Nababishkar", in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 50-58.

- ⁸³ *Ibid*, 53.
- ⁸⁴ Bose sometimes borrowed images from others for purpose of this pattern-comparison. In the Responses in the Living and Non-living he used muscle-curve-drawings produced by other British physiologists. Bose, *Responses in the Living and Non-living*, 16.
- ⁸⁵ Bose sent photographic reproductions of curves to Rabindranath Tagore too. Letter from Bose to Tagore, London, 3 May 1901, Harun-ar-Rashid, ed, *Rabindranathke Lekha Jagadishchandra Basur Patrabali*, 49. Magic lantern slides were made of these response-curves and shown to various audiences. Bose, "The Unity of Life" (Lecture given at the Bombay University on 31 January 1918), in Anonymous, ed., *Sir Jagadis Chunder Bose*, 160.
- ⁸⁶ Geddes, *Life and Work of Sir J. C. Bose*, 244. Emphasis added.
- ⁸⁷ J. C Bose, *Plant Autographs and their Revelations*, Longmans, Green & Co., London, 1927, 220.
- ⁸⁸ Galison, *Image and Logic*, 4 and 19-31.
- ⁸⁹ In the history of the forms of visualizations employed in scientific investigations, Norton Wise argues, 'the historical space between maps and film' was occupied by 'another genre of image making [...], one that used mechanical instruments to record graphically the invisible processes occurring inside man-made machines and the imagined machines of nature'. According to Wise, Watt and Southern's indicator diagram was the first of this kind. Wise, "Making Visible", 77-78.
- ⁹⁰ Anonymous, "Sir J. C. Bose's Researches", *The British Medical Journal*, Vol. 2 (3330), 1924, 770.
- ⁹¹ Galison, *Image and Logic*, 25.
- ⁹² Bose, *Growth and Tropic Movements of Plants*, Longmans, Green & Co., London and New York, 1929, 6.
- ⁹³ *Ibid*, 22 - 23.
- ⁹⁴ Anonymous, "Mysteries of Plant Life. Sir J. C. Bose's Wonderful Researches. Plant Autographs and What They Mean", *The Leader*, 8 December 1917, 7.
- ⁹⁵ J. C. Bose, "Nibedan" (1917), in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 131.
- ⁹⁶ T. Ingold, *Lines: A Brief History*, Routledge, London and New York, 2007, 14.
- ⁹⁷ Ghosh, *Kaler Shahar Kolkata*, 34-35.
- ⁹⁸ Bose, "Ahata Udvid", 134.
- ⁹⁹ G. Pomata, "Observation Rising: Birth of an Epistemic Genre, 1500-1650", in L. Daston and E. Lunbeck, *Histories of Scientific Observation*, 45-80 and 81-113.
- ¹⁰⁰ Bose, "Bijnane Sahitya", 106-107.
- ¹⁰¹ Tresch, *Romantic Machines*, 3.
- ¹⁰² Baird and Faust, "Scientific Instruments, Scientific Progress and the Cyclotron", 148.
- ¹⁰³ Trivedi, "Abekshan O Parikshan", in Brajendranath Bandyopadhyay and Sajanikanta Das, eds, *Ramendra-Rachanabali*, Vol. 4, Bangiya Sahitya Parishat, Calcutta, [1950], 230-232.

- ¹⁰⁴ Bose and Das, "Researches on Growth and Movement in Plant", 372.
- ¹⁰⁵ With Crescograph one did not have to wait for several hours to detect the normal growth rate of plants as it was with auxanometers and other growth-recording instruments. Bose and Das, *ibid*, 364.
- ¹⁰⁶ Bose, "An Automatic Method for the Investigation of Velocity of Transmission of Excitation in Mimosa", *Philosophical Transactions of the Royal Society of London. Series B, Containing Papers of a Biological Character*, Vol. 204, 1914, 65.
- ¹⁰⁷ Bose, *Plant Autographs and their Revelations*, pp. 98-99.
- ¹⁰⁸ 'A loving glance allows many qualities to show, allows many words to be heard'. J. C. Bose, "Gachher Katha" (1895), in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 76.
- ¹⁰⁹ The science of psychoanalysis in early twentieth century Europe was witnessing a debate around the validity of empathy as a tool of scientific observation, in which stalwarts like Freud and Ferenczi participated. E. Lunbeck, "Empathy as a Psychoanalytic Mode of Observation", p. 1. Daston and E. Lunbeck, eds, *Histories of Scientific Observation*, pp. 255-275.
- ¹¹⁰ I borrow this term from A. Wetmore, "Sympathy Machines: Men of Feeling and the Automaton", *Eighteenth-Century Studies*, 43 (1), 2009, pp. 37-54.
- ¹¹¹ This is Bose's word. Bose, "Ahata Udvid", 134.
- ¹¹² Bose, "Udbhider Hritspandan" (1925), in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 155.
- ¹¹³ Daston and Gallison, *Objectivity*, 115 -190 and 139.
- ¹¹⁴ Bose, "Bijnane Sahitya", 105.
- ¹¹⁵ Schiefsky, "Art and Nature in Ancient Mechanics", in Bernadette Bensaude-Vincent and William R. Newman, eds, *The Artificial and the Natural: An Evolving Polarity*, The MIT Press, Cambridge, 2007, 77.
- ¹¹⁶ Bose, "Adrishya Alok" (1921), in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 85.
- ¹¹⁷ Bose, *Plant Autographs and their Revelations: From the Smithsonian Report for 1914*, pages 421- 443, Washington, 1915, 425.
- ¹¹⁸ Letter from Bose to Tagore, Kolkata, 6 March 1900, Harun-ar-Rashid, ed, *Rabindranathke Lekha Jagadishchandra Basur Patrabali*, 26.
- ¹¹⁹ Lenoir, "Models and Instruments", 3.
- ¹²⁰ Schiefsky, "Art and Nature in Ancient Mechanics", 86.
- ¹²¹ This was name of the section discussing Bose's growth-recorders in one of his popular lectures. Bose, "Surge of Life", in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 101.
- ¹²² Bose, "Udbhider Hritspandan", 156. "Anubhab Yantra" roughly translates into a machine that *feels*.
- ¹²³ This imaginary continuum between the human/natural and the machinic/artificial abounds contemporary Bengali science-writing in general. Thus we find Jagadananda Roy explaining to his readers the mechanism through

which we were able to speak by citing the violin as an analogy. Roy, *Vijnanaer Galpo*, Indian Press Ltd., Allahabad, 1920, 32.

- ¹²⁴ Anonymous. "Plant Autographs: How Plants Can Record Their Own Story", 15.
- ¹²⁵ Bose, "Adrishya Alok", 88.
- ¹²⁶ Bose, "Convocation Address at the University of Punjab", 110.
- ¹²⁷ Geddes, *Life and Work of Sir J. C. Bose*, 128.
- ¹²⁸ Bose, *Plant Response as a Means of Physiological Investigation*, Longmans, Green & Co., London, 1906, 741-743. The text attached a diagrammatic representation of the windmill itself to illustrate its point.
- ¹²⁹ Bose, "Mechanism of Life", 226.
- ¹³⁰ Bose, "Snayusutre Uttejana-Prabaha", in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 147; Bose, "Ahata Udvid", 136.
- ¹³¹ R. Trivedi, "Jara Jagat", in Brajendranath Bandyopadhyay and Sajanikanta Das, eds, *Ramendra-Rachanabali*, Vol. 3, Bangiya Sahitya Parishat, Calcutta, [1950], 289.
- ¹³² Bose, "Snayusutre Uttejana-Prabaha", *ibid.*
- ¹³³ For a discussion on the nineteenth century physics of interconvertible energy, ether, and animal electricity see Tresch, "The Machine Awakens", *French Historical Studies*, Vol. 34 (1), 2011, 87-123.
- ¹³⁴ Anonymous, "Khadyer Hisabe Shramajibir Barttan", *Bijnan*, Vol. 3 (5), 1914, 188-191.
- ¹³⁵ Bose, "Unity of Life", 140.
- ¹³⁶ Geddes, *Life and Work of Sir J. C. Bose*, 136.
- ¹³⁷ R. Trivedi, "Adhyapak Jagadishchandrera Abishkar", in Samir Rakshit and Kamal Chowdhury, eds, *Jagadishchandra Sera Rachana Sambhar*, 41.
- ¹³⁸ H. Devi, "Udbhider Jiban Rakkhar Nababishkrito Upay", *Bharati*, 1294 B.S. [c. 1887], reprinted in Parthajit Gangopadhyay, ed, *Thakurbarir Bijnan-Bhabana*, Parul Prakashani, Kolkata, 2010, 169-171.
- ¹³⁹ M. Singleton, 'Yoga, Eugenics, and Spiritual Darwinism in the Early Twentieth Century', *International Journal of Hindu Studies*, Vol. 11 (2), 2007, 128-129.
- ¹⁴⁰ Roy translated the term "eugenics" as "Bangsher Unnatibidhan" or "Manabbangsher Unnatibidhan" (improvement of lineage or human lineage), J. Roy, "Bangsher Unnatibidhan", *Baijnanikee*, Indian Publishing House, Kolkata, 2003, 17-25.
- ¹⁴¹ Trivedi, "Adhyapak Jagadishchandrera Abishkar", 41.
- ¹⁴² P. J. Pauly, *Controlling Life: Jacques Loeb and the Engineering Ideal in Biology*, Oxford University Press, Oxford, 1987, 5. Loeb was a student of Julius Sachs, whose researches influenced Bose a lot. Sachs, as we have already noted, also designed an improved version of auxanometer.
- ¹⁴³ *Ibid*, 93.

- ¹⁴⁴ Letter from Bose to Tagore, London, 30 August, 1901, in Harun-ar-Rashid, ed, *Rabindranathke Lekha Jagadishchandra Basur Patrabali*, 63.
- ¹⁴⁵ Bose, "Control of Nervous Impulse" (1918), in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 82-83.
- ¹⁴⁶ Anonymous, "Interview with J. C. Bose", *New India*, 26 January 1921, reprinted in Prantosh Bhattacharyya, ed, *Acharya J. C. Bose: A Scientist & A Dreamer*, Vol. 4, 318.
- ¹⁴⁷ J. A. Thomson, *The Control of Life*, Andrew Melrose, Ltd., London and New York, 1921, 5.
- ¹⁴⁸ Bose, "Convocation Address at the Punjab University", 114.
- ¹⁴⁹ Bose, "Bijnane Sahitya", 108.
- ¹⁵⁰ I. Mitra, "Experiencing the Social: The Physicality of Vernacularization", in "Modeling the Social: Vernacular Tracks of the Economic Discipline in Colonial Bengal", Unpublished PhD Dissertation: Department of Economics, Jadavpur University, 2013, 147-188.
- ¹⁵¹ In another occasion, Bose emphasized the importance of external stimulus to the growth of "the intellectual life of a nation". "When, through narrow conceit", Bose held, "a nation regards itself self-sufficient and cuts itself from the stimulus of the outside world, then intellectual decay must inevitably follow". Bose, "Address to the Hindu University" (1916), in Anonymous, ed, *Sir Jagadish Chander Bose*, 25-26.
- ¹⁵² Letter from Bose to Tagore, 8 June 1900, in Harun-ar-Rashid, ed, *Rabindranathke Lekha Jagadishchandra Basur Patrabali*, 31.
- ¹⁵³ This "shock-therapy" metaphor was no doubt common to the twentieth century colonial elites. Jawaharlal Nehru, for example, in his *Glimpses of World History*, first published in 1934-35, considered India's colonial encounter with the west as generating a succession of unfortunate but necessary "violent shocks" that "could shake us out of our torpor". For Nehru, western science and technology was one such shock. "Without this 'great gift', India was 'doomed to decay.'" D. Arnold, "Nehruvian Science and Postcolonial India", *Isis*, Vol. 104 (2), 2013, 362.

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CONTRASTIVE LINGUISTICS BEYOND LANGUAGE TEACHING

ADITI GHOSH

1. Contrastive Linguistics: Early History

Contrastive analysis started to develop in the 1940s and 1950s primarily as an aid to the field of Second Language Teaching. This was based on the linguistic assumption that people of different linguistic backgrounds learning the same foreign language encounter different problems, because their primary languages will interfere with the learning process of the new language. According to the proponents of this method, with a systematic comparison of the system of the learners' own language and the language to be learned, one can come up with materials and strategies that are best equipped to handle those problems specific to learners of different language backgrounds¹. The background and justification of using Contrastive Analysis as an aid to language teaching is explained in the famous comment by C. Fries² (9), where he wrote :

“... the most effective materials (for teaching L2) are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the language of the learner.”

Even though Fries's comment about scientific description and comparison as a resource material for language teaching, set the requirement for the establishment of this field, the of contrastive Analysis as a distinct field of study with well-defined methods did not develop until Uriel Weinreich's book³ was published in 1953. Till this time the main focus of almost all major linguistic studies, was on exploring the structure of a single language as a homogenous system. Diverse results of language contact were largely ignored. As an example we can see the comment made by Harris, “the universe of discourse of descriptive linguistic investigation is a single language or dialect.”⁴

Andre Martinet, in his preface to *Languages in Contact*, pointed out this lacuna in the existing linguistic studies and emphasised the importance and benefit of studying the results of language contact :

“linguistic studies favoured divergence at the expense of convergence linguistic convergence can be studied at all places and at all times, but its study is particularly rewarding when it results from contact of two clearly distinct structures”.⁵

Robert Lado in his *Linguistics across Culture* formalised the procedures of Contrastive Analysis in different level of linguistics. The procedures according to Lado are based on the fundamental assumption that individuals tend to transfer the form and the meaning and the distribution of those form and meaning of their native language and culture to the foreign language and culture both productively (i.e. when speaking and writing) and receptively (i.e. when trying to understand). Lado explored all levels of the analysis-phonological, lexical, orthographical and even cultural. The problem of reception is a particularly important one in case of phonological analysis.

Robert Lado (13), proposed three checks, for contrastive phonological analysis.

1. If both languages have same phonemes,
2. If the phonemes have same variations,
3. If the phonemes and their variants are similarly distributed.

Once the differences between the phonemic structures of languages in question are established, one can device teaching strategies based on the points of differences. Absence of a phoneme in one's mother language certainly can make it difficult for a learner to learn those sounds for a second language. But the absence or presence of those sounds is not the only source of difficulties. The Contrastive Analysis also takes into account how the phonemes in question behave in the particular languages. For example, if the same phoneme has different allophones in two different languages, the learner may tend to transfer their own allophones to the second language. In this way, contrastive analysis can be done in other levels of linguistics⁶ and those can aid in creating languages teaching materials and language teaching strategies targeted to learners of specific language backgrounds.

2. Contrastive Analysis: Criticisms

Contrastive Analysis as aid to foreign language teaching generated a lot of enthusiasm in the years following the publication of Lado's book. A large number of works contrasting English with other European and non-European languages were in the following years.⁷ However, gradually some scepticism developed regarding the actual extent of its utility in the field of language teaching and learning. It was often seen that in learning process the most striking differences create little problems for learners. On the other hand, the languages which have very similar structures end up creating more interference and therefore greater learning difficulty. This is explained by Osgood⁸ in the following comment:

"When two sets of materials to be learned are quite different or are easily discriminated by the learner, there is relatively little interaction, that is, learning one has little effect upon learning the other. If they are similar in such a way that the learning of one serves as partial learning of the other, there may be facilitation or positive transfer. If, however, the similarities either of stimuli or responses are such that responses interfere with one another, then there will be greater interference as similarity increases."

Besides, it was argued that differences between languages do create some difficulties, but that is only a very limited part of the difficulties that a potential learner faces during language learning process. For example, one of the main problems is created by factors like motivation of the learner. Such difficulties are quite beyond the purview of the sphere of contrastive analysis. Besides, the basic theoretical grounding of contrastive analysis is founded in the doctrines of behaviourism, which, as a theory, debatable.

In context of these criticisms, it must be mentioned that Contrastive Analysis was never claimed to be the solution to all the problems related to language learning. Even the earliest works⁹ mentioned some possible limitations. Firstly, Contrastive Analysis may identify differences that may not translate into learning difficulties. For example, as discussed earlier, if the linguistic elements are radically different from the elements of the learners' primary language, actually may not create any notable interference.

Secondly, the Contrastive Analysts agree that there are a number of problems, mostly non-linguistic including the person's ability, his or her attitude towards the target language etc., which cannot be dealt with a comparison of languages. For this the social, psychological and cultural context of the learner needs to be taken into account. This, however, does not deny the importance of linguistic analysis in studies of language teaching and learning.

Apart from the questions raised about its utility as a valid tool for language learning Contrastive Analysis was later criticised for a theoretical reason. This has to do with the fact that the basic tenet of Contrastive Analysis as a method is founded in the principles of behaviourism which suggests that learner language habits will interfere with the language learning process because it sees the learning process essentially as a consequence of external stimuli. But later as behaviourism as a concept came under serious counter arguments¹⁰, the whole premise of Contrastive Analysis as an effective approach to language learning also came under question.

In spite of all the arguments, the basic premise that differences between languages contribute seriously to a large number of language learning difficulties is still accepted by many language learning researchers and continues to be used in this field. Moreover, it would be incorrect to assume that the applicability of Contrastive Analysis is restricted to the realm of language learning and teaching only. Even during the formative days of the method, other possibilities of the same were examined. Uriel Weinreich, Lado's mentor, explored these possibilities in the first full-length work¹¹ on the topic that explores the possibility of systematic comparison and contrasting linguistic systems. Weinreich gave some important pointers about the direction and significance of such analysis. He pointed out that in a technical sense the term contact may be extended to cover not only the contact between languages but that between dialects and other language varieties as well. This explores the possibility looking into various sociolinguistic outcomes of dialect and language contact which is not covered in the field of language teaching. Weinreich envisioned a broader applicability of the field of contrastive linguistics as he drew attention to bilingualism and language contact in its broadest sense. He was one of the first linguists who insisted on going beyond the

pure linguistic description of the language and to include socio cultural factors. The use of social variables to study language change and language variation was later taken up by another of his student William Labov and in many sense shaped the field of sociolinguistics¹² as well as modern contact linguistics. Till now many current ideas in sociolinguistics can be traced back to Weinreich's work.

Weinreich's work primarily concentrated on immigrant bilingualism and how second language influences the immigrants' command of and maintenance of native language. So in a way, Weinreich focussed on the shifts in the learners' primary language. Whereas, Lado's work focussed on how native language influences the foreign languages in the process of learning a foreign language. There is a difference in the direction of contrastive analysis in the two works. However, Weinreich also spoke of dual directionality in *Languages in Contact* (88), "... .. deviation from the norms of either language."

So Weinreich advocated the use of Contrastive Analysis not just for language teaching but also for all possible outcomes of language contact. And the term 'language contact' too was to be understood in the broadest possible sense in his work. Later, however, the leading contrastive linguists concentrated primarily on the implication of the Contrastive Analysis in second language teaching and learning.

The fields of Contrastive Linguistics, Language Contact and Bilingualism were also enriched by the work of Einar Haugen and his *Bilingualism in Americas: A Bibliography and Research guide*. Haugen explored a different approach to the utility of Contrastive Analysis in language learning. He said we should also take a good look at the learner's own language instead of the language to be learned to understand the impact of Bilingualism or Language Contact. He suggested that (370) "it is the language of the learner that is influenced, not the language he learns."

Here the scope of Contrastive Analysis goes beyond the realm of language learning towards language shift or maintenance. They point out the fact that social, pedagogical, political, psychological or legal problems arising from language contact may provide opportunity for some inter-disciplinary research and a good contrastive analysis may often be the central requirement of such researches.

3. Contrastive Analysis: Later applications

Even after the decline of its popularity as a tool for foreign language teaching, the method of Contrastive Analysis continued to be prevalent and came to be extended to a number of other fields. Contrastive Analysis went beyond a simple method of comparing languages to detect possible learning problems. On the one hand, it gave rise to a number of concepts which continued to be of use for linguists in different fields even today. On the other hand' the basic idea of systematic comparison of languages to find the nature of differences between languages also found to be useful in some fields other than language teaching. Some of these concepts are discussed below.

3.1 Concepts and ideas related to language learning arising out of Contrastive Analysis

The concept of Language Transfer holds that sentences in second language may exhibit interference from mother tongue. Two separate studies, one by H. C. Dulay and M.H. Burt¹³ and another by H.Y. George¹⁴ concluded that one third of the deviant sentences in the Target Language can be attributed to Language Transfer. Error analysis is a concept originating from Contrastive Analysis that emphasises on a closer study of the errors made by learners. S. P. Corder¹⁵ makes a distinction between error and mistakes on the ground that errors are indicative of the learner's knowledge and the way a second language should be learned. P. Strevens¹⁶ suggested that errors should not be viewed as problems to overcome but as normal and inevitable features indicating the strategies that the learner adopts. Selinker¹⁷ introduced the term *Interlanguage* to denote the intermediate stages between the Native and the Target Language as observable in language learning. According to this concept, in the process of learning a language emerge a language system, which is different from both the target language and the mother tongue. William Nemser¹⁸ uses the term *Approximative System* to describe the same phenomenon. This term has the advantage of implying the developmental nature of language learning, since the learner's system is constantly modified as new items are incorporated into it.

Though different from the early Contrastive Analysis in the outlook, none of these concepts completely denies the importance of

intralingual contrasts or the concept of mother tongue interference. Selinker while dealing with the concept of inter language gives an example of error made by an Indian learner of English, where he wrongly says, "driving" a cycle. He ascribes the mistake to over generalisation of Target Language¹⁹ rule. The same mistake can be explained as a case of negative transfer of the mother tongue rules, as in most of Indian languages the verb for driving a car and cycling is the same.

These concepts deal with some of the other areas, such as training inadequacies etc, that are beyond Contrastive Analysis. For example, the Serbo-Croatian speakers learning English very often confuse the gender opposition in case of pronouns. This cannot be attributed to mother tongue interference as in their language the opposition is present. Researches reveal that this was due to the second language teaching system and text books available in that country that gives all or at least most of the examples with the pronoun 'he'.

3.2 Application of Contrastive Analysis in other fields

During the 80's, Contrastive Analysis came to be used in various fields other than language learning. Some of the important ones are as follows:

Contrastive rhetoric^{20,21} investigates how a person's first language and culture can influence their second language writing how second language learners of different language backgrounds produce written texts. Contrastive pragmatics²² deals with the problem of differences in contextual meaning in different languages. What is polite in one culture is often rude in another, especially for languages which are linguistically and culturally wide apart, such as English and Japanese. Contrastive Pragmatics studies this subject. This type of cross-linguistic and cross-cultural differences has very practical applications and this was also discussed partly in Lado's discussion of contrastive cultural analysis. Contrastive textology²³ is a cross-cultural comparison of text and investigation of attitude towards specific texts. The text, in this context, can be defined as connected and cohesive stretch of language either in writing or discourse. Another study²⁴ in this respect claims that the contrast of markedness between languages emerges from the fact that the deployment of one feature is more marked in one language than the other.

The practice of comparing and contrasting languages continues to be appealing and interesting for linguists for many other purposes beyond language learning. In the late 1980s and 1990s the scope of Contrastive Analysis continued to be broader and more inclusive and new fields continued to use the basic method. Contrastive Sociolinguistics²⁵ is one such field. This field criticises the practice of contrastive linguistics for comparing and contrasting unspecified varieties of language and making generalisation based on those data. Instead it advocates a systematic comparison of sociolinguistic patterns and developing a theory of language based on Contrastive Analysis²⁶. Similarly, cross-cultural pragmatics²⁷ also extends the basic principles of Contrastive Analysis but it broadens the scope of its application from language to human interaction in general. Languages or speech communities may differ in their degrees of directness, explicitness, etc., which may lead to intercultural misunderstandings²⁸. The application of Contrastive Analysis was extended to fields of academic writing as well. In Clyne's²⁹ comparison of German and English, for example, it was seen how text structuring may vary from one language or culture to another. There are well-known number of general differences in academic texts in which scientific texts are structured in the Continental European as opposed to the Anglo-Saxon tradition brought to light.

From the above discussion it can be concluded that, though the validity of the claim that contrastive analysis can create effective tool to solve language learning problems may have come under dispute, the legitimacy of the method itself and its potential for wide range of utility and diverse applicability continues to be explored in newer fields. In the next section one such prominent field - the field of Translation Studies - will be explored in terms of its relation to Contrastive Analysis.

4. Contrastive Analysis in Translation Studies

Translation Studies and Contrastive Analysis are, in many senses, feeding disciplines. Almost all studies in Contrastive Analysis (except for contrastive phonological analysis) rely heavily on translations and translated texts for systematic comparison in order to determine the degree and quality of differences between the languages concerned. On the other hand, in various branches of Translation Studies,

including Descriptive Translation Studies, the methods of Contrastive Analysis are used almost instinctively. In Holmes's³⁰ classification of Translation Studies, the product oriented Descriptive Translation Studies (among the descriptive sub branch of the pure branch of Translation Studies) and the area restricted translation theories (of the partial theoretical sub branch of pure Translation Studies) are two main branches where languages and cultures or groups of languages and cultures are compared. Needless to say, these studies borrow heavily from Contrastive Analysis. Moreover, in the history of the field of Translation Studies, it is seen that the basic approach of Contrastive Analysis is often used repeatedly as a means of evaluating translated text.

4.1 Contrastive Analysis as a tool to evaluate translations

From the beginning of the formation of the field of Translation Studies the common adopted strategy was of transnational and transcultural comparison - i.e., to compare and contrast the Source Text and the Target Text to evaluate the success of translated texts. In fact, the field of Translation Studies, throughout history, have fallen back on some form of systematic comparison which can be related to the basic methods of Contrastive Analysis. It has been also claimed that Contrastive Analysis is a prerequisite for Translation Studies.³¹ The field of Translation Studies, that of the literary translation studies in particular, began through Comparative Literature and Contrastive Analysis workshops³² and was initially treated as a sub discipline of Contrastive Linguistics or Comparative Literature or both³³. For a period of time, Translation Studies was also treated as a branch of Linguistics in general and of Contrastive Linguistics in particular. Besides, even before Translation Studies was established as a formal discipline of study, Contrastive Analysis was used almost intuitively by scholars to study and evaluate translated texts. The history of translation shows many such instances where translation critics and evaluators compared and contrasted Source and Target Text to evaluate the translation. The dichotomies of word-for-word vs. meaning-for-meaning, literal vs. non-literal, faithful vs. free translation were founded in the comparison and contrast of Source and Target Texts. Even Dryden's tripartite classification of meta phrase, paraphrase and

imitation were based on such comparisons. To a lesser extent, the influence of the basic tenets of Contrastive Analysis can also be seen in Jakobson³⁴ theory of equivalence. Jakobson's discussion on the lack of semantic equivalence across languages in the, what he called, 'code units' in different languages applies the methods of Contrastive Analysis in the realm of lexical semantics. For example, the closest lexical counterpart of the word 'cheese' in English is 'syr' in Russian, 'ques' in Spanish, and 'Kase' in German. However to translate one of these words from one language to another will produce a less than satisfactory translation since their meanings are not equivalent. The range of cheese-like objects covered in these words in their respective language differs from one another. For example Russian has the word 'tvarok' which signifies 'cottage cheese'. In Jakobson's discussion, the problem of meaning and equivalence thus focuses on differences in the structure and terminology of languages rather than on any inability of one language to render a message that has been written in another verbal language.

Other than using Contrastive Analysis as a general means to evaluate translated texts, the linguistics based approaches to Translation Studies extensively used Contrastive Analysis for Translation, which is discussed in the following sections.

4.2 Contrastive Analysis in Linguistics based Translation Studies : Catford

Contrastive Analysis influences most of the language oriented approaches to translation theory. Catford's 1965 seminal work, *A Linguistic Theory of Translation*, for example, uses the method of Contrastive Analysis quite extensively. His work suggests such analysis of the Source and Target Text in a range of different levels (phonology, morphology, syntax, semantics etc) and ranks (sentence, clause, morpheme, word etc). He distinguishes between 1) formal correspondence which is a system based correspondence between the Source Language and the Target Language and 2) textual equivalence which is concerned with the equivalence between the Source and the Target Texts. Catford brought in the concept of shifts which are departures from formal correspondences in the process of going from Source Text to Target Texts. The first type of shift is a level shift could be a shift of grammar represented by lexis in the target language. For example French conditional can be replaced by a lexical item in English.

For example, the French sentence *trois touristes auraient été tués* would be translated as *the tourists would have been reported killed* instead of the literal translation *three tourists would have been killed*. The second type of shift is category shift which is of four types. 1) The structure shift, which is the most common type of shift involving shifts in the language specific grammatical pattern. For example, the English sentence *I miss you* (subject 1st pers pronoun-verb-object 2nd pers pronoun) would require a grammatical shift in French *tu me manques* (subject 2nd person pronoun- direct object 1st person pronoun- verb lit. 'You me miss'). 2) The class shift consisting of the shifts from one part of speech to another. For example, *a medical student* in English would be translated to *un étudiant en médecine* in French where the adjective is altered into a adverbial qualifying phrase *en médecine*. 3) Unit or rank shift where units of one rank (i.e., phrase clause, word) is transferred into a different rank in target language. 4) The intra system shifts, where units act differently in the source and target language. For example, English and French has similar article and number system, but their distribution is different. The English sentence *I am a student* require the indefinite article 'a', but its French counter part *je suis étudiant* does not require that. Similarly, the English word *advice* (singular) becomes *des conseils* (plural) in French. These examples demonstrated the use of Contrastive Analysis in his different levels of analysis.

4.3 Contrastive Analysis in other linguistics based Translation Studies

Catford's treatise on translation is heavily influenced by the basic methods of Contrastive Analysis and his was not the only work that makes use of Contrastive Analysis to study translations. *Stylistique Comparée du Français and d'anglais*³⁵ also used a contrastive approach to understand the translation problems of French and English. They looked at texts of the two languages, analysed them contrastively to establish the nature and degree of differences and suggested translation strategies that can be adopted to overcome those differences. They suggested two main strategies to deal with the differences, i.e., direct and oblique translation, which are similar to the main ideas of literal and free translation and both require a comparison of the Source and the Target Text to adopt the different strategies. To achieve a direct translation one can adopt three strategies - first, borrowing the word from the source to the target language, words like *glasnost*, *perestroika*

are adopted in English in this way; second, calquing or meaning borrowing is a semantic literal translation of the source language text. For example a literal translation of the English phrases *excuse me* or *may I come in* is calqued in many Indian languages. Another example is the English expression *forget-me-not*, which is a calque of French *ne m'oubliez pa*; and thirdly, literal or word for word translation. The oblique translation consists of four strategies - transposition, modulation, equivalence and adaptation. For transposition the text is taken at phrase level and the meaning of the Source Text is maintained in the Target Text but structures may be altered. In case of modulation the semantic context of the Source Text can be altered in the Target Text, if the maintenance of the same can create an unidiomatic, awkward or in some sense unacceptable Target Text result. For example the French sentence *vous l'avez echappee belle* is literally translated in English as *you have escaped beautifully* where as the more acceptable English result would be *you have had a narrow escape*. The strategy of equivalence transfers the situation of the source text with required stylistic and structural alteration. This is especially useful in case of idioms. Adaptation involves alteration of a cultural situation in case it does not exist in the target culture. For example, an expression like *that's not cricket* can be replaced in the target culture if the culture is not familiar with the concept of cricket. A similar approach was taken up by Alfred Malblanc³⁶ for the comparison of French and German. Nida's³⁷ concept of formal equivalence is also based on the basic principles of Contrastive Analysis.

4.4 Contrastive Analysis in Descriptive Translation studies

The field of Descriptive Translation Studies or DTS also partially uses the contrastive analysis approach. According to Holmes³⁸ classification Descriptive Translation Studies is a branch of pure translation studies and has three different sub areas depending on three different viewpoints. 1) Product oriented DTS, 2) Function oriented DTS, 3) Process oriented DTS. Of these three, the first uses Contrastive Analysis to a great extent. It deals with the analysis of the Source Text and Target Text, focussing on either the language or the text or the period of writing or the different styles adopted. It aims towards an analysis of the translators mind. Among the other two, the function oriented approach focuses on socio cultural factors that

influence translations, including the choice of text that is translated. Descriptive Translation Studies as propagated by Gideon Toury³⁹ also talks of shifts from Source Text to Target Text, but he focuses on placing the text within target language culture for studying it. According to him, instead of analysing the correspondence or most kind of equivalences the focus should be on norms. Toury uses the terms 'adequate' and 'acceptable' to designate two different types of translations. If the translated text approaches the cultural system of the source text culture, then translated text would be **adequate**, if it approaches the target text culture norms then the translated text is **acceptable**.

To sum up, Contrastive Analysis has been a guiding discipline for Translation Studies. In the initial stages it was even considered a parent discipline. And even after the primacy and dominance of cultural studies in the discipline, the use of different principles of Contrastive Analysis is invariably noticeable in different branches of Translation Studies, especially when the linguistic part of the translation comes in discussion.

4.5 Corpus based translation studies and Contrastive Analysis

The developments in DTS shifted focus from the question of equivalence to a target oriented Translation Study. This shifted the focus from the practice or processes of translation to the study of actual translations itself and gave rise to the field of corpus based Translation Studies⁴⁰. The rise of corpus linguistics also brought back focus on Contrastive Linguistics as it increasingly throws light on cross linguistic issues. Large bilingual corpora can help the contrastive linguists test with empirical evidences the claims that are traditionally made by Contrastive Linguists based on intuitions. Therefore, the emergence of Corpus Linguistics and the initiation of the use of corpora in Translation Studies brought forth a new area where translation studies and contrastive analysis converge, where both may rely on empirical data to test their theories and generalisations which were based on perceptions of the scholars. Different types of cross linguistic corpora can be used for the studies of contrastive linguistics and translation studies or both. Granger⁴¹(21) gives a chart to demonstrate the potential areas of expertise that can be covered by both with different types of cross linguistic corpora.

| | Types of comparison | Type of corpus | Discipline |
|----|--|--|--|
| 1. | Original language A ↔Original language B | Multilingual original corpus of comparable texts | Contrastive Linguistics |
| 2. | Source language A ↔ Translated language B | Multilingual parallel/ translation corpus | Contrastive Linguistics & Translation studies |
| 3. | Source language A ↔ Translated language A | Monolingual comparable corpus of original and translated texts | Translation Studies & Contrastive Linguistics |
| 4. | Translated language A ↔ Translated language B | Multilingual comparable corpus of translated texts | Translation Studies |

The first type of comparison, between corpora of original texts in different languages is traditionally the domain of Contrastive Analysis. However, Translation Studies researchers are also interested in using this kind of corpora in the research of research for translation studies. The second type of comparison -involving multilingual translation corpus — is used most extensively by both Contrastive Linguists and Translation Studies. The third type of comparison, which contrasts original and translated varieties of one and the same language, is the ideal method for uncovering the distinctive features of translated texts and therefore, falls within Translation Studies. However, this type of comparison is also used by Contrastive Linguistic researchers who interpret these differences as indirect evidence of differences between the languages involved⁴².

5. Conclusion

To summarise it can be said that Contrastive Analysis, which initially developed as a method for foreign language teaching, later came under criticism regarding its actual function as a tool for language teaching. However, though there has been controversy regarding its utility in this area, the usefulness of Contrastive Analysis extended to diverse fields of study and it came to be of use in various sub branches of Translation Studies. With the emergence of Corpus

Linguistics and development of multilingual and monolingual corpora, there has been development of studies which has contributed to a convergence of Translation Studies and Contrastive Linguistics. Both Contrastive Linguistics and Translation Studies share a common ground as they deal with cross linguistic difference and similarities and therefore can be seen as two fields that can naturally benefit from each other's contributions. The utility of Contrastive Analysis goes well beyond the realm of language teaching and it is a useful approach to many different fields of studies related to linguistics, especially to that of Translation Studies.

Notes

- ¹ for a detailed discussion see Ghosh
- ² Fries
- ³ Languages in Contact
- ⁴ Methods in Structural Linguistics
- ⁵ Andre Martinet, Preface to Languages in Contact.
- ⁶ Lado included contrastive cultural analysis along with other purely linguistic levels like phonological, morphological, syntactic etc.
- ⁷ cf., Moulton, Kufner, Stockwell, Bowen and Martin
- ⁸ Osgood
- ⁹ Weinreich
- ¹⁰ cf., Chomsky's review of Skinner publication
- ¹¹ Languages in Contact
- ¹² C.f., Labov, The Social Motivation of a Sound Change; Labov, The Social Stratification of English in New York City.
- ¹³ Goofing, an indicator of children's second language strategies
- ¹⁴ Common Errors in Language Learning: Insights from English
- ¹⁵ Significance of learners errors
- ¹⁶ Two ways of looking at error analysis,ERIC
- ¹⁷ Interlanguage
- ¹⁸ Approximative Systems of Foreign Language Learners
- ¹⁹ TL — 'target language' and SL - Source Language: terms preferred by Selinker over second language or foreign language
- ²⁰ Connor, ²¹ Thomas
- ²² Purves A. C.
- ²³ Hartmann
- ²⁴ Eckmann
- ²⁵ Hellinger and Ammon
- ²⁶ Jainicki
- ²⁷ Weirzbicka
- ²⁸ Cf., House

- ²⁹ Clyne
³⁰ Holmes
³¹ Toury, *The Art and Science of Translation* 3
³² Munday 4-11
³³ *ibid*, 182
³⁴ Jakobson
³⁵ Vinay and Darbelnet
³⁶ *Stylistique compare du francaise de l'allemand*
³⁷ *Toward a Science of Translating*
³⁸ *The name and nature of translation studies*
³⁹ *Descriptive Translation Studies - And Beyond*
⁴⁰ C.f., Baker, *Corpora in Translation Studies: An Overview and Some Suggestions for Future Research.* (Baker, *The Role of Corpora in Investigating the Linguistic Behaviour of Professional Translators.*)
⁴¹ *The corpus approach: a common way forward for Contrastive Linguistics and Translation Studies.*
⁴² C.f., Johansson and Hasselgard, *Corpora and cross-linguistic research in the Nordic countries; Johansson, Contrastive Linguistics and Corpora.*

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MANOJ DAS : A STUDY OF HIS SATIRIC ART IN HIS SHORT STORIES

KALIPADA PRADHAN

Manoj Das, an internationally popular short story writer, born (1934) in a remote village of 'Shankhari' of Balasore district of Odisha in India. He belongs to a middle class family. He initially wrote in Odia in his early stages and later on switched over to English. In this context, in an exclusive interview held on behalf of the British Council's *Literature Alive* (June 1986), he said:

“At one stage I felt inspired to write in English because I was haunted by a feeling if I do not sound presumptuous — that much of the Indo-Anglian fiction that claimed to project India did not do justice to the claim. I was born in a village before independence and lived through the transition at an impressionable age. Hence I thought I could present through English a chunk of genuine India. Well, right or wrong, one is entitled to one's faith in oneself!”¹

Thus, Manoj Das entered into the galaxy of Indo-English writers. Post-Independent India saw a group of eminent writers in English, such as Bhabani Chatterjee, Khuswant Singh, Nayantara Saigal, Kamala Markandeya, Anita Desai, Ved Mehta, Bharati Mukherjee, Salmon Rushdie, Jhumpa Lahiri, Manohar Malgonkar, Arun Joshi, N. Daruwala, Ruskin Bond and Manoj Das. Their concern for Indian society and its enrichment was marked by the proliferation of humour and satire in their writings. India was undergoing a phase of transition in the initial years of independence. It was the era of recovery and reconstruction when Manoj Das entered into the arena of Indian English literature. Coming out from the shackles of foreign domination, this young nation was trying to find out a foothold to establish its identity. This transitional phase was a fertile ground for writers like Manoj Das. This is more so evident in the exploitation of social eccentricities and its urge to cling to sudden values and ideas in such writings. The study seeks to establish this sensitivity of Manoj Das in his satirical portraiture of this transitional Indian society.

Das is widely known as the best-loved and serious among the Indian writers writing in English. He is also the living legend of Odia literature. Affluent writer of a quaint charm, Das is an astonishingly prolific writer. He has a lot of creative writings — more than eighty books in Odia and English to his credit that earned for him international celebrity. Manoj Das grew up in the midst of loving rural folks and extraordinary natural beauty. Das's early life had been as picturesque as his writings. He had his Marxist leanings during his early life and took an active role in politics. As a student leader, he had courted jail for his inflammatory speeches against the authority. But his sudden transformation from Marxism to Mysticism on being inspired from within, basically being a votary of Sri Aurobindo's mystical teachings has been a turn or natural transition due to his mental upheaval caused by Stalin's fall from grace since 1956. After that historic event, during destalinisation era especially, his natural quest for the meaning of life enriched by a new awareness led him to mysticism. Describing his transformation as a disciple of Sri Aurobindo, Das says, "His exposition of Man as a transitory, evolving being, and my quest into the nature of suffering and the meaning of life drew me to the Mother at the Aurobindo Ashram at Pondicherry in 1963"². He took to short story writing since his early teens, winning rapid recognition and found his main vocation in it.

The writerly career of Manoj Das spans over decades along with the numerous accolades including the Sahitya Akademi Fellowship given to him for his creative writings and appreciation given by many critics of India and abroad in recognition of his outstanding contribution to the Post-Independent Indian English literature. As a short-story writer of international repute, Manoj Das is now acknowledged as one of the foremost forces in current literature especially his widely popular short stories which are our main preoccupation with several collections of stories in English and in Odia, in particular, in addition to his novels, collections of poems, travelogues and belles-lettres. He has also, to his credit authoritative treatises on Sri Aurobindo, besides writing a regular column for several national dailies, including *The Statesman*. He is now one of the ablest interpreters of Indian's literary and cultural heritage. As a student of mysticism he has now been delving deep into the philosophies and yogic literature of India.

Indian English short story writer and novelist Manoj Das is usually thought of as a satirist in the sense that Chaucer was a satirist, Shakespeare and Dickens were satirists. There are few stories of Das in which the organising principle is the attempt to diminish a subject by ridicule and satire is the main consideration. On the other hand, he has a good number of stories, the over-all form of which is not satiric but satire occurs as an incidental element in a certain character, situation or interpolated passage of ironic commentary on some aspects of human condition and contemporary milieu. Das wants to reform this transitional society of misery and hardship, complex false values and urban vices, of the reign of superstition and the decadence of moral values through satire. With regard to this philosophy of reforming, Manoj Das was highly influenced by the philosophy of Mahayogi Aurobindo. He understands that man is an evolutionary being immensely capable of self-development. Das does not believe in any 'ism'. For him, the aim of literature while picturing life is to search for something greater than life itself. So he maintains that principle earnestly in all his literary pursuits through satire. Das is highly praised and appreciated by his readers. In this context, Das, in a humble way, says:

'I have never consciously written satire for satire's sake. Still critics point out that satire is a natural and inalienable element of my stories. Whenever I have realized that they are right, I have felt very low about myself. .. How can this writer with numerous flaws in him have the right to satirise? However, to my good fortune, my readers and critics have taken up my so-called satire not as mere satire but as a means of some profound message'.³

Das has succeeded in using the concept of satire in his literary works through numerous creative devices. Das's creativity, which is quite modern in form and sensibility achieves universal appeal and the quantum of timelessness with his subtle satire on contemporary social vices and individual follies. Das justifies his stories in that direction based on purely social observations, circumspection, little ironies and funny situations encountered by him particularly with much loftiness and serenity. His stories have generally a genial and humorous structure, but inherent in them, there is a subtle ironical attitude against lies and hypocrisy which have become an essential part of our character in

everyday life. Though apparently entertaining, the stories have a sharp point of view and also constitute serious contemplations about life. Das's satire is effective and impressive. He never offends while exposing their shortcomings. He says in this connection, "I always remember what Jonathan Swift said: 'Satire is a sort of glass wherein beholders generally discover everyone's face but their own'. But I never forget to try to behold my own face in that mirror."⁴

The earlier stories of Manoj Das are more fantastic and the stories and novels written at a developed stage are more realistic. Whether his stories and novels are fantastic or realistic, they are all written in a satirical vein. His stories like *Sharma and the Wonderful Lump*, *Mystery of the Missing Cap*, *Man who Lifted the Mountain*, *He who Rode the Tiger*, *The Last I Heard of Them*, *The Sage of Tarungiri and Seven Old Seekers*, *The Brothers*, *Statue-Breakers are Coming!*, *A Trip into the Jungle*, *Story of a Strange Last Journey* etc. are in essence satiric. In other stories satire occurs incidentally.

Das's *Mystery of the Missing Cap* is a gentle satire on a minister's visit to an Indian village. It satirically presents how a good and honest man takes recourse to a lie to gain the favour of the minister and suffers a lot. This story satirises both the politically ambitious host, Sri Moharana and his pretentious and vainglorious minister guest, Babu Birkishore. *Man who Lifted the Mountain* shows how the ego, vanity and arrogance of a 'low' man named Thieffou leads him to a disastrous consequence. Man's nature hardly changes. Even when he is given all the riches of the world, he never lowers his usual ugly nature. He is sure to suffer in the end for his stupidity, vanity and selfishness.

The satire of *Sharma and the Wonderful Lump* shows a society based on false values and ideals. Mr. Sharma, the protagonist of the story who is a part and parcel of this society, is humorously treated with an *aboo* (lump) on his head. He returns to normal happy life when the *aboo* disappears from him forever. *He who Rode the Tiger* is a satire on extreme human pride and egotism. The story presents a fantastic world where almost all characters starting from the gardener to the king with much pride and egotism struggle to ride on a wild tiger caught in a trap. The king finally decides that the prince is only the worthy man of the country to ride on the tiger. Despite his opposition and reluctance, the prince is led to sit on the wild tiger and is miserably ended up. The story presents

a serious theme in a lighter vein. It is a pathetic study of man's pride, pretension, vanity and arrogance.

Modern satire rarely adopts direct attack. It expresses itself through various forms and methods. Manoj Das adopts ancient Indian tale forms and western techniques for his satirical achievement. Fables, fantasies and allegories serve as the suitable method to work out his satire. Manoj Das combines fantasy and realism to create satirical effect in his stories and novels. Realism is the base and substratum of his short story. Das uses fantasy as the mode and technique to project realistic issues without directly attacking the follies and vices of people. The aim of all his fables and fantasies is to expose the follies and weaknesses, pride and vanity, ego and arrogance of modern man indirectly within a different world.

Story of a Strange Last Journey is allegorical and it reveals the dictatorial attitudes, treachery and power conflict of modern politics through the socio-political affairs of a strange animal kingdom called *Luourva*. *The Tiger and the Traveller* shows man's insatiable attachment to material wealth which leads him to death. The purpose of *The Turtle and the Sky* is to reflect on the stupidity of man in judging even the trivial affairs of life. This story tells of the pitfalls of exaggeration. *The Stupid Servant* in which the monkey kills his master warns against heeding the advice of bad gurus. "The above fables give new interpretations to the Panchatantra tales, written about two thousand years ago by Bishnu Sharma."⁵ Thus, almost all the stories of Das are written with an undercurrent of satire. They tell of a number of pitfalls in human behaviour. Das does not adopt in them all the modes of satire we have already discussed. Chiefly he uses irony and humour to expose the ridiculous sides of his characters. Irony is mostly structural in his stories to frustrate the ego, vanity and arrogance of his fellow beings. Humour sweetens it and provides pleasure and mirth.

Das admits that his primary purpose of writing short stories and novels is "to present through English a chunk of genuine India, the India in her elements."⁶ While he presents the faithful picture of essential India of the post-independent era, whatever indecent, incongruous and disorder in human nature flashes before his mind, he exposes them humorously without animosity and hatred. This takes the form of an indirect satire which is both mild and sympathetic.

Satire exposes as well as attacks human follies and vices, Manoj Das exposes more than he attacks. His intention is not to directly ridicule and lash but to show and amuse. He presents human follies and foibles, frustrations and failures, abnormalities and absurdities with a good deal of sympathy and humour, what he pleads for, is the sanity and humanity, which will ultimately preserve man's true nature and his essential goodness.

Das always reflects on the problems and predicaments of man under an Indian background. K. R. Srinivasa Iyengar says, "The background is rural India, the changing yet changeless Indian village, or the rather more quickly changing our small town The passage from British Colonialism to Hind Swaraj, from local feudalism to Swadeshi-sarcasm, from Gandhian idealism to careering corruption has created tensions and comic situations that are the raw stuff out of which Manoj shapes his moving and memorable lyrics of prose fiction."⁷ Das lived in a society in which old systems and old values were sinking down under the contagious influence of the west. It was apparent that good and honest people would not survive in a world full of sycophants and depraved beings and peace and happiness of the society would be shattered.

In the story, *The Sage of Tarungiri and Seven Old Seekers*, the seven grossly materialist old men are set against the spiritual sage of Tarungiri called Tukan Baba. Tukan Baba weeps for twenty four hours a day, smiles once in twenty years marvelled by the wonders of God's creation. He is the model of holy thoughts and ideal living in the story and the materially unhappy seekers are presented to seek the divine blessing from him. The story *He who Rode the Tiger* presents a savage account of human nature. Almost all the characters including the king who gather round a trapped wild tiger are cunning, cowardly foxes and vain braggarts without any sense of good judgement. They are imbeciles, tottering puppets set against the prince, the only sensible person with sound common sense. The prince in spite of his reluctance is compelled to ride on the tiger to show his bravery and heroism but is miserably eaten up by the wild beast.

As a literary artist, Manoj Das is more concerned with life, particularly with the life of man. In his view, some men are no better than animals like the monkey and the jackal. So he exposes that animal face of man through jackal, monkey and other creatures. Further,

through trees, ghosts and God, he shows the conventional attitudes of Indian masses which sometimes make them superstitious and inactive in life. The tree serves as the symbol of spiritual faith of Indian villagers and the ghost as their supernatural belief. Modern satire rarely presents direct attack; it attacks human folly and vices indirectly through a device. Manoj Das creates myths, symbols, suggestions and fantasies out of social realism to achieve satirical effect in his stories. The heroic characters of his stories both beasts and human beings are employed by him as symbols to convey certain basic human feelings and ideas. By being symbolic of some human emotions and ideas, they are essentially formless presented in the stories with some forms. Their names are mere titles given to mark out their existence and confirm their identification from others. They are brilliant projections of ideas under Eliot's system of *objective co-relative*. So without considering them as non-heroes or anti-heroes, it would be better for us to consider them as heroes of ideas.

The heroes of Manoj Das's stories are taken up as ideas to convey some message of the author. That is why, they are not presented with all facets of their personalities. Each one of them stands for a particular idea or emotion. A particular branch of their personality is the object of study in the story. Beyond that branch they have no other identification in life. Bhuban Mishra and Kalu Roy are two opposite poles in the story, *The Brothers*. Roy Sahib of *Trespassers* stands for feudal pride and vanity. He is like Kailash Babu of Tagore's *The Babus of Nayanjore*. Mr. Gupta in *Statue-Breakers are Coming!* burns with a craze to establish self image by a statue. Tuken Roy in *Birds at Twilight* and Kunja in *The Kite* are projected to convey the idea of freedom. The *aboo-man* in *Sharma and the Wonderful Lump* represents human ego and avarice. Mr. Maharana in *Mystery of the Missing Cap* is the symbol of uncontrolled political ambition. Mr. Caxton in *Creature of Conscience* is for love and Vilash Singh in *The Murderer* is for revenge. All these characters are capable of self-realisation and correction. The peculiar notions and whims of these characters and that of others connected with them in the stories are held up for ridicule. Humour is both a means and an end in itself. As end it arouses laughter for laughter's sake, and as means, it works as a powerful vehicle of satire.

Humour can be satirical but its primary purpose is to produce laughter for the sake of amusement. Pure humour forms the basis of some of his short stories like *So Many Smiles*, *The General*, *The Tree*, *The Love Letter*, *Crocodile Lady*, *Bhola Grandpa and the Tiger*, *The Bull of Babulpur*, *Creature of Conscience*, *Prithviraj's Horse and Martial Expedition*. In these stories Das persistently excites laughter for the sake of laughter only.

The stories like *Laxmi's Adventure*, *Mystery of the Missing Cap*, *Statue-Breakers are Coming!*, *The Dusky Hour*, *Sharma and the Wonderful Lump*, *He who Rode the Tiger*, *The Sage of Tarungiri and Seven Old Seeker*, *The Last I Heard of Them* and *Story of a Strange Last Journey*, are replete with humour which is satirical in spirit. These stories are written in a framework of gentle satire.

Bulldozers and Fables and Fantasies for Adults under New World Literature Series No. 26 contains satirical fiction. They are satires from one of India's master story tellers, Manoj Das. Reviewing an earlier collection of some of these stories published in England Adrian Cole in *Fantasy Media* observed, "Charming tales ... There is more than Arabian Nights quality to the stories punctuated with flashes of very tasteful imagery"⁸. The stories are satires proper, with an absorbing application of the form and finesse of the fairy tale. *The Sundry Times* of London in 1972 remarked that "Pundit Pomposity is pleasantly pricked by Manoj Das"⁹ as an element of satire always a subtle presence in his stories. Das is agreeable to what F. M. Colby said elsewhere: "Satire is a lonely and introspective occupation, for nobody can describe a fool to the life without much patient self-inspection"¹⁰ for this collection of satirical stories because the fools the readers would meet in the following pages are only projections of bits of the author along with bits of many others. In this collection some of the stories are expansion of and development over tales from the *Jatakas*, the *Panchatantra* and the *Kathasaritsagara*. These satires are presented through an ambience of fable and fantasy where serious themes are shown in a satirical and humorous vein. They are observations on mice and men that are aspects of probability and reality at different psychological and occult planes. What is told about his stories may also be applied in his English novels. This may be discussed later on separately.

Manoj Das is a conscious creative artist and a social critic of the first order. He admits that his "Stories are written out of creative inspiration,

some are written out of simple creative joy. Some are out of a commitment to society.¹¹ He further says, "Inspirations from high ranges of creativity are not a continuous experience; but one keeps on writing to meet different demands."¹² The author appears to have perfected a creative technique peculiarly responsive to various levels of readership. As a satirist, Das adopts different strategies in his stories in order to expose the follies and foibles of the individuals and the vicious sores of the society. Das takes up the short story, fable and fantasy form to give vent to his satirical impulses quite effectively. He makes the sustained use of humour and ironies, symbol and allegory together with his powerful and innovative use of language as his literary devices, while settling down to writing satire in his stories. He is humorous in sensibility and humanitarian in outlook. His satire, on the whole is mellow and mild, good-humoured and benign. Das belongs to the Indian Satirical Short Story tradition and it has an immense impact on his creative story literature. His satiric vision is based on genuine love for humanity coupled with awareness of moral sense and robust optimism. His world is an all-inclusive unique world presented with various shades and colours. It is a world of satire, humour and irony. Das is a subtle satirist. His satire is through a unique mean as-stories. Das has a keen sense of observation and humanistic vision. His attitude to human life and its predicaments due to this change from one stage of life to another has obviously been exhibited in his short stories. "When I see a lotus blossoming out of as filthy a stuff as mud, with the intervention of sunlight, I don't see why a godly race can't emerge out of the present muddy humanity?"¹³ constitutes Das's changed vision. Das presents in the satiric design his futuristic vision for a better society through spiritual life. He thinks that imperfection of human nature and evils can be eradicated from society by following a spiritual path in life.

Finally Das's stories are comments on the conduct of mice and men of the present time. Das is primarily a seeker — an ever-evolving personality who has never ceased to grow. As an unparalleled master of narrative literature and passionate advocate of transcendence, his observations concern the eternal values and purpose of human life, which has relevance to the present society. He continues with his realism but explores its deeper, wider and higher planes through his creative strategies. The satirical approach to his works makes the discerning

reader conscious of the shortcomings and follies of mice and men. Satire is not expected to bring about much change in the people, in general but plays its role in the life of the receptive reader. It also enriches his / her perception of things. So Das is a good-humoured satirist of Horatian spirit whose satire is always mild and shining mingled with sympathy.

Notes

- ¹ Interview held on behalf of the British Council's *Literature Alive* (June 1986).
- ² *The Sunday Statesman*, 24 June, 2001.
- ³ Das Manoj in his *Preface to The Abooman and Other Stories*, published in Odia, Grantha Mandir, Cuttack, 1975. This quotation is the English version of Das's Odia Statement.
- ⁴ *The Hitavada*, Nagpur : Sunday, June 15, 1980.
- ⁵ Anand Lal, *Book Review. Bulldozers, Fables and Fantasies for Adults* by Manoj Das : Sunday, Nov. 25-Dec.1. 1990.
- ⁶ Quoted P. Raja, "Manoj Das : A Significant Story- Teller", *The Times of India*, May 18, 1980.P.13.
- ⁷ K. R. Srinivasa Iyengar, "Stories of Rural India", *The Hindu*, August 26, 1986.
- ⁸ Adrian Cole in *Fantasy Media*.
- ⁹ *The Sundry Times* of London in 1972.
- ¹⁰ Remark of F.M. Colby.
- ¹¹ *Bhavan's Journal*, April, 1970.
- ¹² *Preface to Bulldozers and Fables and Fantasies for Adults*.
- ¹³ *The Statesman Festival*, 2003. 27.

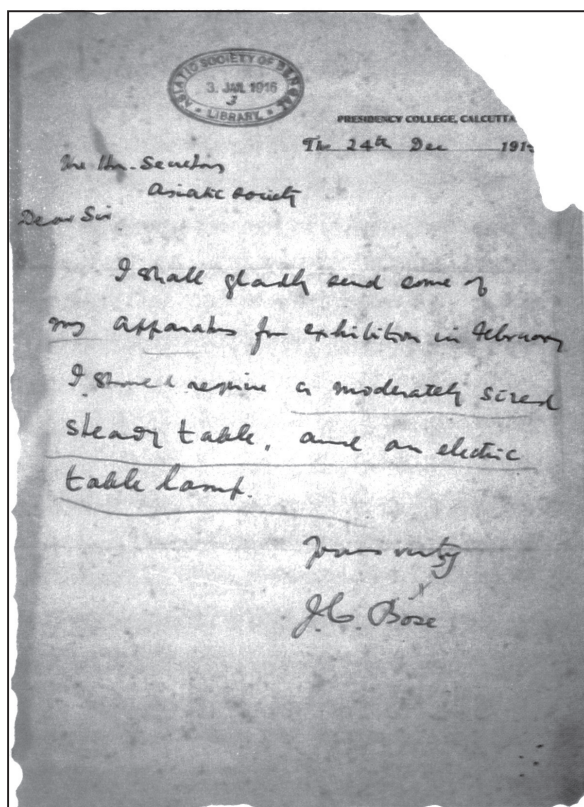
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'ON POLARISATION OF ELECTRIC RAYS BY DOUBLE REFRACTING CRYSTALS' : A NOTE

RAJKUMAR ROYCHOUDHURY

Sir Jagadish Chandra Bose was known for his path breaking works on Radio Waves and Plant Physiology. He invented mercury coherer while working on microwaves. However, one of his important works was on double refracting crystals. It was published in the *Journal of the Asiatic Society of Bengal* in 1895. Double refraction or birefringence is an optical property of a substance. A ray of ordinary light incident on such substance is generally bifurcated after transmission, and the



Acharya Jagadish Chandra Bose's letter to the Secretary, The Asiatic Society, 24 December, 1915.

two emerged rays are found polarised in planes at right angles to each other. Crystal of Iceland spar is one such substance. Iceland spar is generally Calcium Carbonate, sometimes mixed with impurities like iron, magnesium, zinc, cobalt and sometimes manganese.

In his paper entitled "On polarisation of Electric Rays by Double Refracting Crystals" J. C. Bose devised an experiment to show

that there are substances where double refraction occurs in case of electric radiation. The experiment was important as the wave length of an electrical ray is very large compared with the visible light.

That light, visible or not (light falling in the ultra violet or infra red region is not visible to naked eye) is just electromagnetic wave was known when J. C. Bose did his experiment on double refraction. But quantum nature of light was yet to be discovered. After the ground breaking work of Max Planck (1858-1947), we know that light consists of photons. The photons have spin 1 and belong to the family of bosons (named after the Indian Physicist Satyendra Nath Bose).

Jagadish Chandra lists the materials for which double refraction occurs when an electrical ray is incident on them. Crystals like Apatite and Nematite clearly exhibited double refraction. The other crystals used by him were Barytes, Microcline and Rock-salt and in all the cases the results were positive.

Incidentally, coherer which was used in his experiment on microwave, was also used in this experiment. J. C. Bose himself built the apparatus for this experiment.

At his time it was a very important research work. This is because analogy between electric radiation and light would be rendered more complete if it could be shown that substances which show double refraction property also show the same property in case of electric rays also.

Jagadish Chandra showed that in spite of having large wave lengths electric rays behave in the same way as visible lights do. This was a confirmation of the electro magnetic nature of light.

J. C. Bose showed his immense talent to demonstrate that very high standard experiment can be done in India using inexpensive simple instruments. Later on a number of Indian Scientists like C. V. Raman, Bidhu Bhusan Ray and others did very good experimental research in Physics. But J. C. Bose was the pioneer. In the colonial period the British ruler thought that natives were not good enough for doing quality research in science particularly experimental research in Physics. However, J. C. Bose proved them wrong.

That he did not get the Nobel Prize is another story.

EXPLANATION OF PLATES.

PLATE III.

- Fig. 1. *Iambrachæus remifer*, ♂.
 „ 2. *Physachæus otenurus*, ♂; 2a. abdomen of ♀ × 4; 2b. abdomen of ♂ × 4.
 „ 3. *Physachæus tonsor*, ♀
 „ 4. 4a. *Grypachæus hyalinus*, ♀.

PLATE IV.

- Fig. 1. 1a. *Inachoides dolichorhynchus*, ♂.
 „ 2. 2a. *Apocremnus indicus*, ♂.
 „ 3. *Naxia investigatoris*, ♂.
 „ 4. *Macroceloma nummifer*, ♂.
 „ 5. *Maia gibba*, ♂.

PLATE V.

- Fig. 1. *Achæus cadelli*, ♂.
 „ 2. 2a. *Chorilibinia andamanica*.
 „ 3. *Callodes malabaricus*, ♀.
 „ 4. 4a. *Paratymolus hastatus*, ♀.

On Polarisation of Electric Rays by Double Refracting Crystals.—By PROF. J. C. BOSE, B.A., (CANTAB.) B. SC. (LOND.)

[Read 1st May.]

Plate VI.

A ray of ordinary light incident on a crystal of Iceland spar is generally bifurcated after transmission, and the two emergent rays are found polarised in planes at right angles to each other. The object of the present inquiry is to find natural substances which would polarise the transmitted electrical ray. It was thought that the analogy between electric radiation and light would be rendered more complete, if the classes of substance which polarise light were also found to polarise the electric ray. The identity of the two phenomena may be regarded as established, if the same specimen is found to polarise both the luminous and electric rays.

As the wave length of an electrical ray is very large compared with that of visible light, one would think very large crystals, much larger than what occur in nature, would be required to show polarisation of electric rays. By working with electric radiations having very

short wave lengths, I have succeeded in obtaining very satisfactory results with crystals of moderate size. These experiments show that certain crystals are double refracting as regards electric rays, and that they polarise the transmitted beam. With the help of a rudely constructed apparatus, I was able last year to detect traces of these effects. The apparatus has since been improved in detail; it is now possible to detect the polarisation effects with certainty.

The usual optical method of detecting the bi-refringent action of crystals, is to interpose the double refracting structure between two crossed Nicols. The interposition of the crystal generally brightens the dark field. This is known as the depolarising effect, and is regarded as a delicate test for double refracting substances. There is however, no depolarising effect, when the principal plane of the crystal coincides with the polarisation planes of either the polariser or analyser. The field also remains dark, when the optical axis of the crystal is parallel to the incident ray.

A similar method was adopted for experimenting with polarised electric radiation. The electric ray is first polarised by a wire grating. A similar grating acts as an analyser. The two gratings are crossed, and the crystal to be examined is interposed. The Receiver is a modified form of 'Coherer' with its associated Voltaic cell and Galvanometer. Brightening of the field is indicated by a throw of the Galvanometer needle.

APPARATUS USED.

Radiator.—A small Ruhmkorff's coil is used for the production of oscillatory discharges between two small metallic spheres, the diameter of each sphere being 1.5 c. m. The choice of a coil to produce electric oscillation has been a matter of necessity. I obtained oscillatory effects with ease and certainty by using a small influence machine of the Replenisher type. But in the damp atmosphere of Calcutta, the satisfactory working of such a machine is a matter of great difficulty, at least for the greater portion of the year. I had therefore to abandon the influence machine with regret, and to use a Ruhmkorff's coil instead. This coil caused me the greatest trouble. The discharge would of a sudden cease to be oscillatory; after a great deal of coaxing it would work satisfactorily just for a short time. The only coil I could get, was a badly constructed one, with defective insulation. I made it serviceable by changing the condenser and improving the vibrator. By looking to many points of detail I succeeded in making the apparatus work with fair uniformity for several hours. It must be borne in mind that the Receiving apparatus also requires careful adjustment.

1895.]

J. C. Bose—*Polarisation of Electric Rays.*

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Among the possible causes of unsteadiness may be mentioned the following—

1st. The current actuating the coil may vary after a time. To overcome this difficulty a fairly constant battery was made to charge a small storage cell, and a derived circuit from this cell was led to the Primary coil.

2nd. The interrupter may have its rate of vibration changed by heating, wearing out of contact points, and other causes. Any change in the periodicity of the vibrator is at once made evident by the corresponding change in the pitch of the note given out by the vibrator.

3rd. The sparking balls may have their surfaces roughened by the disintegrating action of the spark. To avoid this difficulty, the balls were thickly coated with deposit of gold, and were turned round at intervals to expose fresh surfaces.

The coil with a storage cell is enclosed, with the exception of a horizontal tubular opening, inside a metallic box, not dissimilar in appearance to an Optical Lantern. The interrupter is actuated by turning a key from outside. The sparking balls are at one end of a brass tube 25 c.m. long and 5 c.m. in diameter. At the further end of the tube is the Polariser. Inside the tube is placed a convex lens with the spark gap at its principal focus. With the help of the lens and suitable diaphragms, the electrical beam is made approximately parallel. By means of an Iris diaphragm, the amount of radiation may be varied.

Polariser.—The success of the experiment depends greatly on the care with which the Polariser and Analyser are constructed. Fine copper wire 2 m. m. in diameter is carefully wound in parallel lines, round two thin sheets of mica. There are about 25 lines for every centimetre. The mica pieces are then immersed in melted paraffin, and the wires thus fixed *in situ*. By cutting round, two circular pieces, containing the gratings are obtained. The mica pieces are too thin to produce any disturbing effect. The gratings are fixed with wires parallel, at the ends of a tube 5 c.m. long. This Polariser tube rotates inside the outer end of the tube which sends out the parallel electric beam.

Analyser.—The Analyser is similar in construction to the Polariser. It rotates inside the Receiving tube, which contains the sensitive surface for detecting radiation.

Receiver.—The Receiving apparatus consists of a 'Coherer' with a Voltaic cell and Galvanometer in series. The Coherer is modified from its usual tubular form. The filings, a single layer thick, are spread over a large surface. This arrangement secures great sensitiveness. A pair of insulated wires from the ends of the Coherer, are led out to a distant dead-beat Galvanometer of D'Arsonval type in series with a constant

cell. The leading wires are shielded from radiation by enclosing them inside two coatings of tin foil, along the whole length. As an additional precaution the Galvanometer is also enclosed in a metallic case, with a slit in front of the Galvanometer mirror. A spot of light reflected from the mirror is received on a scale. By adjusting the electromotive force of the circuit, the sensitiveness may be increased to any extent desirable.

When the Analyser and Polariser are properly constructed, and the two exactly crossed, no radiation will reach the sensitive surface, and the Galvanometer will remain unaffected. The field is then said to be dark. But any slight rotation of either Polariser or Analyser, will partially restore the field, and the spot of light will sweep across the scale.

METHOD OF EXPERIMENT.

The spark gap 2 m.m. in length is adjusted in a line inclined at 45° to the horizon. The wires of the Polariser are placed at right angles to this line. The transmitted beam is then plane polarised, its plane of vibration being inclined at 45° to the horizon. The Analyser is now adjusted in a crossed position. On starting the electric vibration, by closing the Ruhmkorff's coil circuit, the Galvanometer remains unaffected. The crystal to be examined is now interposed with its principal plane vertical.

The Geological Department of India kindly lent me a large number of crystals for examination, for which I have to express my thanks. Out of a large number of experiments, I give below an account of some typical cases.

Rhombohedral System.— 1° *Beryl.*—The first piece experimented on was a large crystal of Beryl. It is a Hexagonal prism with basal planes. The specimen examined has each face 11×5 c.m. The three axes lying in the same plane are inclined at 60° to each other, the fourth axis which is also the optical axis, is at right angles to the plane containing the other three. This crystal was optically opaque.

On interposing this block with its principal plane vertical, the Galvanometer spot flew off the scale. The crystal had thus produced the well known depolarising action. The crystal was now gradually inclined till its principal plane coincided with the polarising plane of the Polariser. There was now no action on the Galvanometer. On continuing the rotation the Galvanometer at once responded. The spot became quiescent a second time, when the principal plane coincided with the polarisation plane of the analyser.

1895.]

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The crystal was now placed with its optic axis parallel to the direction of the incident ray. There was no action on the Galvanometer. Rotation of the crystal round this axis, did not produce any effect on the Galvanometer. The field continued to be dark.

2° *Apatite*.—This specimen exhibited decided double refraction.

3° *Nemalite*.—This is a fibrous variety of Brucite. This specimen exhibited a very strong depolarisation effect. It also exhibited certain interesting peculiarities which will form the subject of a future communication.

Rhombic system.—A large piece of Barytes was found strongly double refracting.

Triclinic system.—Microcline, a greenish blue crystal of the double oblique type, exhibited polarisation effect to a remarkable degree.

Regular system.—A large crystal of Rock-salt was taken. This as was expected did not produce any effect.

Having satisfied myself of the fact that systems of crystals other than regular, produce double refraction and consequent polarisation of electrical ray, I tried the action of electric radiation on crystals ordinarily used in optical experiments.

I got a fairly large piece of black Tourmaline. On interposing this with its plane vertical, there was prompt movement of the spot of light. There was no action on the Galvanometer, when the principal plane coincided with the planes of polarisation of either the Polariser or Analyser.

With ordinary light a piece of Tourmaline of sufficient thickness absorbs the ordinary, but transmits the extraordinary ray. With the piece of Tourmaline used in the last experiment I found both the rays transmitted, but, it seemed to me, with unequal intensities. In other words, one ray suffers greater absorption than the other. It seems probable that with greater thickness of crystal one ray would be completely absorbed. I found other crystals behaving more or less in the same way. I reserve for another communication particulars of experiments bearing on this subject.

Lastly I tried an experiment with a crystal of Iceland spar, taken out of a Polarising apparatus. With this I got distinct depolarising action.

The above results, with the exception of the last, were obtained with uncut specimens. Their faces were often rough and irregular. Better results, were they needed, could no doubt be obtained by judicious cutting and polishing the faces.

Summary.—It will thus be seen that crystals which do not belong to the Regular system, polarise the electric ray, just in the same way as they do a ray of ordinary light. Theoretically all crystals, with the

exception of those belonging to the Regular system, ought to polarise light. But this could not be verified in the case of crystals opaque to light. There is no such difficulty with electric rays, for all crystals are transparent to them. As a matter of fact, all the above experiments with one exception were performed with specimens opaque to light.

Explanation of the plate

R...metallic box containing the Ruhmkorff's coil.

S...position of the sparking balls.

L...position of the convex Lens.

P...the Polariser.

I...Iris diaphragm.

K...the Crystal.

A...the Analyser.

C...the Coherer.

G...the Galvanometer. In practice the Galvanometer is placed at a greater distance and the leading wires enclosed in tin-foil.

The following are the different parts of a complete apparatus :—

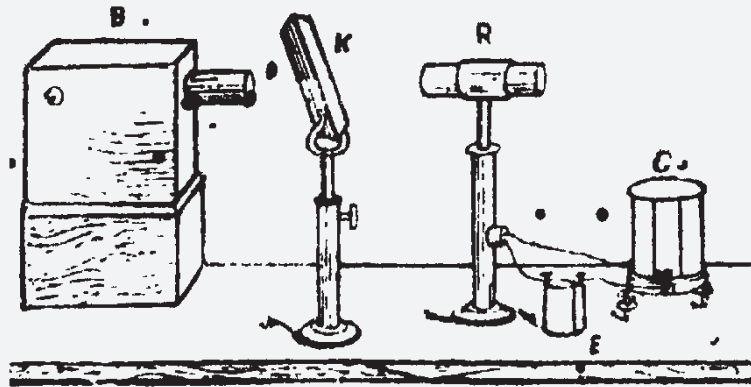


Fig. 1. Polarisation Apparatus.

B, Metallic box enclosing the Ruhmkorff coil and Radiator.
 K, The crystal to be examined. E, Voltaic Cell.
 G, The Galvanometer. R, tube enclosing sensitive receiver.

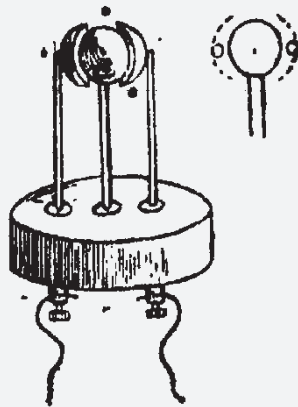


Fig. 2. The Radiator.

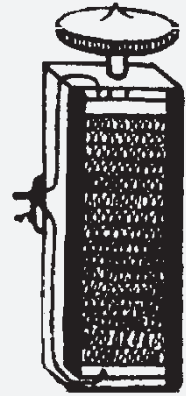


Fig. 3. The Spiral-spring Receiver.

BOOK REVIEW

Rabindranath Tagore in South-East Asia : Culture, Connectivity and Bridge Making, ed. by Lipi Ghosh, ISBN 9384082805, Primus Books, Delhi, Pgs : 148.

Indian literary persona and cultural theorist Rabindranath Tagore, undoubtedly was one of the most gifted and insightful thinkers of the modern times. His efforts to go back to an idyllic past, based on simplicities and bonding with the natural world, found expression in the founding of the two institutions: Santiniketan and Sriniketan, signifying the vastness of mind, unfettered by the boundaries of social hierarchies and puissance. Indeed, these visions of an universal human order, devoid of sectarian feelings, brought him closer to the vedic epithet *visva-manah*, one who has mind for all. The book 'Rabindranath Tagore in South-East Asia' is a collection of several scholarly articles by well-known academics, passionate in their quest to unravel the intricacies of his South-East Asian tour, which was influenced by the idea of global peace and coexistence. Tagore believed in universalism and, in explaining the aims of his university Visva Bharati (*yatra visvam bhabatyeka nidam*), he reiterated the ethos of an inherent world unity, which was free from discrimination and exploitation. Tagore had a wider notion of citizenry, which was seldom constrained by the stricter versions of geography, time and space. In fact, this empowered him to think of the universal man, who would be more involved with the world, rather than be shackled to a definite territorial space, imagined and constructed on the basis of shared ethnic loyalties and cultural traditions.

The volume propose to deal with the poet's vision of South-East Asian society and culture, and it also reflects his ideology of pan-Asian cooperation, linking India with Asia. The book attempts to offer glimpses of politics, economy and society, among other things, in this region and also consists of a number of analyses of India's relations with the popular culture of S. E. Asia, in practice and transition. In the Introduction, the editor tries to provide a conceptual framework of studying Tagore's visit to S.E. Asia. In tune with the Introduction, Prof. Sabyasachi Bhattacharya attempts to offer a historical perspective of Tagore's approach to S. E. Asian countries in the early 20th century. He also emphasizes the fact that Tagore's effort to build bridges with S. E. Asian countries was not an isolated event.

His approach to the issue had an individuality which is reflected in Tagore's *Java Jatrir Patra* and in some poems in *Parishesh* and *Mahua* which is on Siam, Bali and Borobudur. Another lecture which Prof. Bhattacharya pays special attention to was the lecture (at a meeting of the *Vrihattar Bharat Parishad* on the eve of his departure to S. E. Asia in 1927) wherein it was evident what Tagore had in mind in respect of S. E. Asia. The text was later included in *Kalantar*.

Eight contributors engage with Tagore's journey to S. E. Asia as variedly reflected in cultural processes and among communities, as in literature and performing art. William Radice's piece discusses Tagore's tour of S. E. Asia in 1927 in the context of his many journeys - poetic, religious and educational. Radice talks about Tagore's creative richness and complexity with a mixture of sensibilities, which might be termed as modern romantic classical or even post-modern. The poet was enthralled by the dances and shadow puppets which he saw in Java and Bali which deeply influenced the dance curriculum at Santiniketan. Radice's article deals with the voyages in S. E. Asia and gives an overview of the impact of its life and culture on the poet. Thaw Kaung and Khin Hin Oo discuss the significance of Tagore's visits to Burma. On his first visit he went to the Shwedagon pagoda. Tagore admired the tolerance, peace and tranquility of Theravada Buddhism practiced in Burma. His visit had a lasting impact on young Burmese writers. Amongst the Burmese writers who studied and translated Tagore in the post-WW-II period, the best undoubtedly was Paragu who spent 5 years (1947-1952) studying in India and later visited Santiniketan in 1986. He translated not only Tagore's popular poems but also his novels, plays and about 39 short stories. Tagore's centenary in 1961 was celebrated in a grand scale in Rangoon City Hall, with the President of the Union of Burma giving the inaugural address. The authors discussed how the poet's ethos acquired a new momentum and a sense of collectivity among the Burmese people in the early twentieth century. Switree Charoenpong's essay is on Tagore's visit to Siam. Apart from promoting the synthesis of different cultures, raising funds for his university was the common purpose for his visit to others countries. Tagore also hoped that a chair of Buddhism would be established at Visva Bharati with the support of the King of Siam. The next article deals with Tagore's visit to Singapore discussed by

Angela Oons Khengfay. Tagore's impact on Singapore and Malaya was very significant and he evoked strong reactions amongst the local population.

Phan Thi Thu Hien studies Tagore's visit to Vietnam and focuses on Tagore's activities and suggested principles necessary for a colonized nation like Vietnam to revive its own traditional culture, in integration with the values of Western civilization and modernization, to win freedom. The schools, colleges and universities even taught Tagore's works. The chapter concentrates on Indo-Vietnam friendship. The volume contains two more articles relating to Tagore's creative activities and travel to S.E. Asia. The article written by Prof. Dasgupta analyses different aspects of the poet's life and activity against the backdrop of the socio-cultural ethos of colonial Bengal, while the other, contributed by Prof. Bhattacharya examines the representations of Tagore's philosophy of universalism, while dealing with the eastern question.

Arun Dasgupta talks of Tagore's various aspects of life, beginning from his childhood, where he mentions that Tagore was a restless boy and he avoided formal education - something he never regretted in later life. In this article Dasgupta refers to Santiniketan, a school that offered a nationalist alternative to mainstream western education imparted through English medium. Tagore's Indonesia tour was a cultural mission from Visva Bharati meant to study remains of Indian civilization in the antiquarian relics in the life and arts of Indonesia. Dasgupta also explores details of Tagore's journeys in Batavia, Surabaya, Bali and Surakarta and refers to the notions of bridge-making among nations.

Finally, there is Prof. Sourindranath Bhattacharya's *Afterword - Tagore and Eastern Question*. According to Bhattacharya, Tagore's eastern journey has to be viewed in the backdrop of the divide between the East and the West. Rabindranath's eastern journeys may not exactly fit in the frame of Pan-Asianism. The hegemonic element of Pan-Asian movement would not appeal to Tagore. According to Prof. Bhattacharya, Tagore was desperately looking for an alternative idiom of civilization with human conditions being accorded a central position. India extended herself to the neighboring people through Buddha and other elements of her mythology and Puranic tradition. India

reached out to her island neighbors not through military and economic powers of the state but through cultural friendship. She approached her island neighbors with *Veena* on her hand, and asked with penitent expectation, 'This time I have brought only a Veena with me. See if you can recognize me.' Tagore craved for an ideal of harmony where all the contradictory elements which constitute a human personality could be resolved. The poet felt we should have the gift to be natural with nature and human with man. This volume is a significant attempt to accumulate scholarly views of Tagore's philosophy of nationalism and universalism keeping S.E. Asia at the backdrop. The work deserves appreciation.

It makes a fine contribution to the spheres of the connectivity and bridge making between India and S. E. Asia. There are a number of typographical errors and stylistic issues which must be addressed and set right. The volume, under review, is a collage of historical writings of varying significance. The researchers on Tagore have unravelled memories, literary compositions and personal memorabilia to explain Tagore's ideas on South-East Asia. The scholars of S. E. Asia, in turn, have displayed their adroitness in narrating the poet's journey through the region, an exercise in the coming together of what has been described as the 'hundred horizons'. Tagore's voyages to S.E. Asian countries was a cultural conduit for cultural exchanges and for building of relationships, which outrivalled the narrowness of cultural bigotry and jingoism of nationalist pride. The recording of the language of these exchanges is an important contribution towards the efforts to unearth the hidden and ubiquitous Asian cultural identity, which was rarely addressed in the early twentieth century, because the communion of the self and collective, was mediated through the discourse of nationalism.

Sutapa Chatterjee Sarkar

BOOK REVIEW

Ancestral Cult in Bengal : A Comparative Study, Gouri Sankar Bandyopadhyay, Touchstone Publication, Burdwan-2, 2011, Price : 400.00, Pages 155, Map 1 and Plates 16, ISBN 81-903768-2-9.

Human 'Religion' is a system of beliefs and practices found in every human civilization throughout the Living Planate which formalizes the conception of the interrelation between a human being and the surrounding environment. The early Neolithic men almost in the dawn of human civilization practiced a cult of ancestors and of spirits of the dead. The ancestral cult as worship of the dead ancestors is one of the main branches of the religion of the Indian sub-continental races. In India human group (or groups) or individual invoke their ancestors in various forms of ancestral cult along with its peculiar fertility and reproductive rites and rituals which are universal and timeless in nature. According to Maringer Johannes "it is also possible that the dead were regarded as benevolent tutelary spirits and unseen helpers in all big hunting expeditions." It is to note that the cult of the deceased ancestors had been widely observed in Neolithic times had become popular towards the end of the Neolithic period. The ancestor worship in brief means the worship of the original father of a clan (or family) in the primitive society. This worship is a series of rites and rituals performed by the survived family members to appease the soul or spirit of the departed for the prosperity and well being. Ancestor worship can be regarded as a family (or clan) cult, based on the desire of the survivors to maintain warm and friendly relations with the departed. Following the Harbert Spencer's view it can be said — the foundation of religion lay in the worship of the dead ancestors appearing in the form of ghosts.

This study goes to unfold an unexplored area covering different aspects of ancestral cult in the geographical space of Bengal since the remote past. Apart from this the study attempts to compare the various facets of ancestor's worships and dead cults. The Book has been divided into six chapters namely — Origin and evolution of the ancestral cult in ancient world; funeral rites, ceremonies, death taboos and the ancestral cult; ancestor worship and the disposal of the dead in India; development and consolidation of the cult of the ancestors

Indian culture; ancestral cult tradition among the aboriginals of Bengal; cult of the dead in Bengali mythology and folklore.

Apart from the other chapters particularly chapter V and VI, are worthy to mention. The author has elaborately described the ancestral cult tradition among the aboriginal Bengal and cult of the dead in Bengali mythology and folklore. With special mentioning of the western and south western districts of West Bengal-Santals, Hos, Mundas, Birhors, Lodhas, Khariars etc and a large number of aboriginal derivatives like the Savaras, the Kakmaras, the Mahatos most of whom still cling to their primitive old culture, the author's effort is to make a full picture in a comparative manner. In fact funeral rites and practices performed in rural Bengal are many due to the presence of varieties of casts, sub-casts and tribes. Obviously all such rites and rituals are generally associated with the worship of the ancestors. In particular author's main aim is to find out the rites, rituals and ceremonies which are regularly celebrated in Bengal as well as India in connection with the ancestor worship.

Incorporating all essential aspects the author's view is that the 'Ancestral Cult' and 'Dead cult' had been established as the popular religion of Bengal and in the sub-continent. The long drawn tradition cannot be ignored in our present time. Following the views of David Kinsley it can be opined that the rituals like 'Sraddha' shows a transition as well as transformation whereby the person who has expired from the state of living to the state of an ancestor deserving worship.

About the subject, it can at least be said, the author has incorporated all the known and unknown sources, but it needs more analytical discussions from his own point of view. Number of photographs in support of his arguments may give some impression to the readers. Over all the production of the book is quite good, but the author should be particular about the wrong page marking.

Rangan Kanti Jana

BOOK REVIEW

Domicile and Diaspora : Anglo - Indian women and the spatial politics of home by Alison Blunt, Blackwell Publishing Ltd, Malden, 2005, ISBN 1-4051-0055-9, pp. iv + 288, Price : 2621.00

The arguments made by Colonial studies and Postcolonial scholarship have been freshly revived by the discursive or cultural turn in the study of empire. Alison Blunt introduces her observations on this distinctive community - the Anglo Indians, as such a response to material reductivism (of either economic or political factors).

It is interesting to understand from the question left on us to bear, what are the ways in which we can potentially come to agree on one point, the discursive ways in which the project of colonialism is set in motion and the often unkind and unlikely settings in which the distinctions of subject - object are mired, cohabited and reproduced? More importantly how often these distinctions are misrecognized?

Blunt has been trying to put into perspective not only a racial-colonial bind but significantly a triad - with class put in as a major element of this principally bourgeois configuration that she came to acknowledge as being formed by the Anglo Indian class. It is important, to understand the genesis of colonialism in the dawn of such an impending and stupendous bourgeois idea as nation building, following the extension of 'libertarianism'.

Through Blunt's categorization of knowledge regimes we come closer to those 'privileged moments' when political regimes get configured. Such moments are not arbitrary but so chosen to be by a definite nature of historical processes through which colonialism breaks and so does the first offshoots of racism.

This reordering was enabled through a new form of systematization that has to de-recognize and disenfranchise the Indians, in the new 'mooluk' -McCluskieganj- getting formed for the resident Anglo Indians around the time of independence. In 1933, Colonization Society of India, with the prospect of the white British population, leaving the country looming large, made this sort of othering complete with the racial boundaries. Set up in the colonial terrains, foundation of this new settlement was a closely

guarded secret, as McCluskiegunj was meant to be a nation within a nation for the Anglo Indian, setting out a process of 'internal colonization'.

Anglo-Indians could buy shares in this co-operative - The Colonisation Society of India- which in turn would allot them a plot of land. It became home to 400 Anglo-Indian families within ten years. In 1932 Ernest Timothy McCluskie, a businessman from Calcutta, the founder of the town, sent circulars to nearly 200,000 Anglo-Indians in India inviting them to settle here. What caused the evolution of racial regimentation in the Indian subcontinent, following the white *sahibs* of the company who came to trade and effectively made it natural to trade in hearts as much, was a cohabitation with the local population. Before long the mixed racial group began to pose a morally sensitive question that united the bodily order with the bureaucratic order, in late 18th century India.

The history of European masculinity and chastity in India was formed around some spearheading institutions under the guardianship of the Anglican Church. When the Loreto order in India began establishing fee paying schools for the minority where Anglo Indian girls could get educated, Hill schools were also getting established by the Victoria and Dow Hill Association. Dow Hill Schools in many Himalayan hill stations for the purpose of educating the Anglo Indian community got formed (Blunt 20). For purposes of maintaining racial differentiation and hierarchy it was necessary to frame this moral self, in which the European nature could be made different from the other. This ethical sentencing was justly also an effort, as time and again highlighted in the backdrop of colonial history in South Asia, to discriminate the history of white non-elite groups and 'reclaim' or hide them from the gaze of the natives. This effort of the British elites were also driven to advocate a new norm of sanctity at home, which a woman was required to govern with as much talent, dignity and prestige as the empire itself. The domestic and the imperial were no longer unknown to each other.

As much as a new semiotics was in the process of getting inscribed in the colonial vision of the world that had to be 'enlightened' and 'liberated', the historical modes through which

such ideas were figured has to be equally kept in mind. In South Asia, a crucial break came with the insurrection of 1857. Following these events which shook the British sensibilities about India as a dominion in which not so long ago, following Macaulian directives, the predominant point of opinion tended to favour the pursuance of the natives towards Anglification that could finally position them favourably as 'brown sahibs'. This docile opinion of the Hindoo received a rude jolt following the events of 1857 and very interestingly started to reconfigure the narrative. It gave rise to a new discourse, following the critical political affairs of the time that required the setting up of an environment of engagement and in this new environment the interactions that could take place between the two parties, the colonial and the native were essentially hostile and broken one.

Blunt has carefully noted, for the first time in the minds of the average Briton, it was the character of the European female which came slowly to be enmeshed in the colonial project, required to be protected by the rapist up setters, even though the dominant version of the insurrections of 1857 has never been mired with sexual hostility. This demonstration of European bodies as desirable, defensible and that of the natives as vulgar usurpers, following a new truth narrative, was quite a sudden one.

By mid nineteenth century, events of 1857 signalled not only the changes in European sensibility but their state regimentation. Colonies indeed became the first grounds to test the applicability of such points of opinion. History after that watershed events of 1857, tagged in the colonial chronicles as the 'Sepoy Mutiny', was remade in strictly moral categories.

The so called unnoticeable policy of the Crown didn't forbid the mixed racial growth, expansion and union which led to strengthening of the bonds. What it actually came to usher was a moral tone for the rest of the local population of Hindustan. Anglo Indian women were taken as a different model of credibility, who had as Blunt refers:

'Prominence in paid employment attributed in part to their ability to work along side men. Through their ability to mix with men both socially and at work, and through their ability to choose whom to marry, Anglo Indian women were seen and saw themselves as more western and more emancipated than other Indian women' (Blunt 62).

It was this class ideology that was meant to be appropriated by the rest. In the latter part of the book (chapter four and five) Blunt focuses her attention on the process of expansion of this racial category to the Anglo Indian diasporic community, among those settled in Britain and Australia, pinned on the 'dual attachments to Britain as fatherland and India as motherland' (Blunt 137). Though decolonization made it much difficult to claim this Britishness through a common British male ancestor, the political status and ideological commitment of their ranks measured to a 'homeland' which the British Nationality Act of 1948 maintained by a 'wider definition of subject hood' (Blunt 138).

Very importantly, in the process of creating the Anglican self, which is sharply differentiated from the English, does the Anglo-Indian community, fall into the familiar trap of being framed through the colonial model, 'detrimental to the exploration of social realities and open to the dangers posed by nostalgia' as Gayatri Spivak (Spivak 1988)¹ had cautioned, is an important question to ask. This holds the key to understand the emphasis put by Blunt on figuring out the efforts to build a new Anglo Indian homeland inside India landmass, away from territorial boundaries of Britain but not from British influence.

This realization of mixed descent and the problem of successful integration with English mainstream society, hit home early. The colour and cultural criteria which was adopted for documentary proof of European descent in Australia in 1950, was required to be fully adhered to European sense of 'dressing, upbringing, outlook and mode of living' (Blunt 152). Appearance wise, settling Anglo Indians were to additionally have more than 75% of likeliness to racial profile of Europeans to satisfy doubts. A rising sense of uncertainty was a natural consequence to racial and cultural profiling.

The characteristic feature of Anglo Indians as 'halfie' was appropriately raised by Blunt when she recorded the conversation that one such visitor to Britain, who happened to visit her daughter, had with a 'white male' and the conversation that is to follow, give one of the pointed reminders of how not only the colonial - colonizer relation was shaped but how significant has been the experiences of the 'halfies' in trying to find their points of reference, within the two

dominant paradigm of conformity and resistance, between which they often revolved :

“I said, I’m from India.’ He said ‘How come you speak such good English?’ I said, ‘well English is my mother tongue. I dress like the English dress, I eat ... the same food, maybe a little more rice and curry, but otherwise we eat the same food. We eat, we sit at tables and eat from plates, and use cutlery and crockery’ ... Everything is so English ... but we haven’t got that accent you see we don’t have the accent, the English accent ... I said, ‘Well, haven’t you heard of the British empire or anything?’ I said, ‘Have’nt you heard? You didn’t rule it from here, you ruled it from there, and we are what you left behind.” (Blunt 133)

What this conversation signifies is a telling ‘ignorance’ as well as awareness on part of two different set of actors (ibid.). Resistance also took a new verve in the characterization of the Anglo Indians by themselves. The centrality of this issue of home was raised early in arguments that were strangely as contemporary in the previous decades to India’s independence, as afterwards. Blunt went on to record such strong altercations which presented many revealing moments. One such was from an article of one anonymous European woman in the 1941 edition for the Anglo - Indian Review (Blunt 53):

‘The startling and unbelievable fact that people born and reared in India with partly Indian blood in their veins and Indian soil as their back grounds have not only no affinity towards their homeland, but actually look down on it. A monstrous, a ghastly state of affairs ... Where is the home of Anglo - Indians. Are there really still many among them who, with eyes deliberately shut to realism, call ‘west’ their home?’ (ibid)

This ideological tussle was not one sided or settled. As early as late 1930’s, if one could easily have played the weatherman, it was not the ‘west’ that the Anglo Indians looked towards and also not towards ‘east’. In geo-political sense they made an unique choice of rather inventing a place. Ensnared very much in middle India, the prominent members of the Anglo-Indian community embarked on a significant geo-political mission that was meant to ‘colonize’ a desirable land feature close to the Chotanagpur mountainside of erstwhile state of *Bihar*, which with its pleasant, mild weather also bore strong resemblances to the rolling English countryside. In its

name McCluskieganj was indeed quite an innovation. The first part of the name came after Ernest Timothy McCluskie (Blunt 73), in all probability - the founder of the 'Colonialization Society of India' upheld by the Anglo Indian community to sell land deeds of this area. This act of naming helps Blunt to implore who became the inheritors of the project or is it simply another act of mimicry. The accompanying *gunj* - a *Hindoostani* word for *bazaar* or market signified a shorter expanse for a market place within the precincts of a sleepy town. This geographic and etymological invention soon began to serve the idea of homeland, after more than quarter of a century of effort since the registration of the colonization society in 1930.

Blunt confirms, Anglo Indians all around the world still claim McCluskieganj as their own unique contribution to nation building efforts, and one in which they could never continue to be an active part. McCluskieganj was very much in India and also beyond its boundaries. It was dubbed as the new '*mooluk*' home land for the Anglo-Indians (Blunt 89). These prodigal sons before the departure of the last British fleet following national independence in 1947, had made one choice for certain that they can remain in India but cannot be one of India. Diasporic spread of the community soon began after independence and Anglo-Indians became a marked presence in most commonwealth dominions like Australia & Canada. But, before the diaspora could take wings, this effort at founding a homeland in itself informs the readers about ways to theorize a colonial identity through its broken lineages. Blunt's book presents us with this profile of the Anglo Indian population in India who were resoundingly aware of their placements. In their multiple affiliations, this sense of belonging did not cater to sentimental excesses. Their feeling of estrangement in a land they called home, i.e., India, and the foundation of another one they wished to call home, could only be led through situatedness, guided as much by geographical as by moral compasses. The placement of McCluskieganj as a new homeland has been important for the Anglo Indian narrative that sought to constantly seek this cultural middle ground.

Notes

- ¹ Gayatri, Spivak. 1988. "Can the Subaltern Speak?" In Cary Nelson and Larry Grossberg, *Marxism and the Interpretation of Culture*, Chicago: University of Illinois Press, pp. 271-313.

Somraj Basu

CONTRIBUTORS

Aditi Ghosh

Assistant Professor

Department of Linguistics, University of Calcutta, Kolkata

Hari Vasudevan

Emeritus Professor

Department of History

University of Calcutta

Kolkata

Kalipada Pradhan

Headmaster, Jahalda High School (H.S),

Jahalda, Paschim Medinipur

M. Firoze

Joint Philological Secretary

The Asiatic Society, Kolkata

Priyankar Dey

Doctoral Student at the Centre for Studies

in Social Sciences, Kolkata

Rajkumar Roychoudhury

Physical Science Secretary

The Asiatic Society

Kolkata

Rangan Kanti Jana

Curator, Museum and Art Gallery

The Universtiy of Burdwan

West Bengal

Somraj Basu

Independent Research Scholar

Kolkata

Sutapa Chatterjee Sarkar

Professor, Department of History

West Bengal State Universtiy

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Books :

Rhys Davids, *Buddhist India*, London, 1933, 7.

Articles in Books :

H.V. Trivedi, "The Geography of Kautilya", *Indian Culture*, Vol. 1, 202ff.

Edited Volumes :

C.W. Troll, ed. *Muslim Shrines in India : Their Character, History and Significance*, Delhi, 1989.

Articles in Journals :

G. Hambly, "A Note on the Trade in Eunuchs in Mughal Bengal", *Journal of the American Oriental Society* (hereafter *JAOS*), Vol. 94(1), 1974, 125-29.

Articles in Edited Volumes

P. Gaeffke, "Alexander and the Bengal Sufis", in Alan W. Entwistle and Françoise Mallison, eds, *Studies in South Asian Devotional Literature, Research Papers, 1988-1991*, New Delhi/Paris, 1994, 278-84.

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SYSTEM OF TRANSLITERATION

SANSKRIT

| | |
|---------|---------|
| आ = ā | ई = ī |
| ऊ = ū | ऋ = ṛ |
| ऌ = ṛa | च = ca |
| छ = cha | ज = ja |
| ट = ṭa | ठ = ṭha |
| ड = ḍa | ढ = ḍha |
| ण = ṇa | श = śa |
| ष = ṣa | ' = m̐ |

TIBETAN

| | | | |
|---------|----------|------------|------------|
| ཀ = ka | ཁ = kha | ག = ga | ང = ṅa/nga |
| ཅ = ca | ཆ = cha | ཇ = ja | ཉ = ṅa/nya |
| ཏ = ta | ཐ = tha | ད = da | ན = na |
| པ = pa | ཕ = pha | བ = ba | མ = ma |
| ཚ = tsa | ཛ = tsha | ང = dza | ཤ = wa |
| ཞ = zha | ཟ = za | འ = 'a | ཡ = ya |
| ར = ra | ལ = la | ཤ = śa/sba | ས = sa |
| ཧ = ha | ཨ = a | | |

| ARABIC (both Cap & Small) | | | |
|---------------------------|----|----|----------|
| ا (long) | A | a | ا |
| آ | Ā | ā | آ |
| ب | B | b | ب |
| ت | T | t | ت |
| ث | Th | th | ث |
| ج | J | j | ج |
| ح | H | h | ح |
| خ | Kh | kh | خ |
| د | D | d | د |
| ذ | Dh | | ذ |
| ر | R | | ر |
| ز | Z | | ز |
| س | S | | س |
| ش | Sh | | ش |
| ص | S | | ص |
| | | | س (long) |
| | | | و (long) |
| | | | ع |
| | | | غ |
| | | | ف |
| | | | ق |
| | | | ك |
| | | | ك |
| | | | ل |
| | | | م |
| | | | ن |
| | | | ن |
| | | | و (long) |
| | | | و |
| | | | ه |
| | | | ه |
| | | | ي |
| | | | ي |
| | | | أ (long) |

| PERSIAN | | | |
|----------|----|--|----------|
| ا (long) | A | | ا |
| آ | Ā | | آ |
| ب | B | | ب |
| پ | P | | پ |
| ت | T | | ت |
| ث | Th | | ث |
| ج | J | | ج |
| چ | Ch | | چ |
| ح | H | | ح |
| خ | Kh | | خ |
| د | D | | د |
| ذ | Dh | | ذ |
| ر | R | | ر |
| ز | Z | | ز |
| س | S | | س |
| ش | Sh | | ش |
| ص | S | | ص |
| | | | و (long) |
| | | | و |
| | | | ع |
| | | | غ |
| | | | ف |
| | | | ق |
| | | | ك |
| | | | ك |
| | | | ل |
| | | | م |
| | | | ن |
| | | | ن |
| | | | و (long) |
| | | | و |
| | | | ه |
| | | | ه |
| | | | ي |
| | | | ي |
| | | | أ (long) |



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Sir William Jones
on the publication of the Asiatic Society