

**BUILDING SCIENTIFIC INSTITUTIONS DURING THE NEHRUVIAN ERA:  
I.I.T, KHARAGPUR AND A.I.I.M.S, DELHI**

*Dissertation submitted to Jawaharlal Nehru University in partial fulfilment of the requirements for  
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**MASTER OF PHILOSOPHY**

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**DECLARATION**

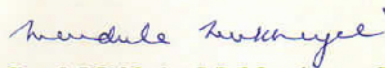
I declare that this dissertation entitled 'Building scientific institutions during the Nehruvian era: I.I.T, Kharagpur and A.I.I.M.S, Delhi' in partial fulfillment of the requirements for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University, is my original work. No part of this work has been published or submitted to any other university.


  
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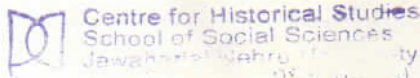
**CERTIFICATE**

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Priya Salam, July 2016

## **List of Abbreviations**

AEC	Atomic Energy Commission
AICTE	All India Council of Technical Education
TIFR	Tata Institute of Fundamental Research
AIIMS	All India Institute of Medical Sciences
AIWC	All India Women's Conference
BSIR	Board of Scientific and Industrial Research
CABE	Central Advisory Board of Education
CPWD	Central Public Works Department
CSIR	Council of Scientific and Industrial Research
DAE	Department of Atomic Energy
IACS	Indian Association for the Cultivation of Science
IIT	Indian Institute of Technology
IMC	Indian Medical Council
MIT	Massachusetts Institute of Technology
NPC	National Planning Committee
PWD	Public Works Department
TIFR	Tata Institute of Fundamental Research
UGC	University Grants Commission
UNESCO	United Nations Educational Scientific and Cultural Organisation
UPSC	Union Public Service Commission
WHO	World Health Organisation



Inauguration of AIIMS, Delhi ( Rajkumari Amrit Kaur with Queen Elizabeth II and Prince Phillip opening the five-storey building of the Institute)

Source: <http://www.aiims.edu/> (Retrieved on 22-07-16)



Pandit Jawaharlal Nehru laying the foundation stone of IIT, Kharagpur.

Source: <https://tncrazy.wordpress.com/2011/07/13/history-of-iit-kharagpur/> (Retrieved on 22-07-16)

## INTRODUCTION

Post-Colonial studies have often emphasised the effects of colonialism on different civilizations and traditions. What happened to the colonised people during and after Colonialism, what were their responses and reactions towards encroachments by the Colonisers, all these themes come under such studies. The last 50 to 60 years is when the most remarkable growth is reflected in Indian Science. The development of magnificent laboratories with specialist institutes for scientific research and education in the 1950s reflected novel ideas and ambitions as far as science and technology were to be included in the functions of the State. It would be of an interesting work to hence study the growth of scientific consciousness in late colonial period and the early years after independence. Jawaharlal Nehru comes as the perfect individual whose significance in the realm of science during such a gap could be bridged. This way, the process of appropriation and domestication of Science by the independent nation to project to the world their contribution in universal science could also be evident.

Science has always been coterminously placed with development or progress. Such a relationship could intimately be tied together as the inescapable connection between “horse and carriage”.<sup>1</sup> However, progress as an idea was supposed to be the monopoly of the West as it was argued that revolution in science was seen there for the first time. The word ‘Science’ also happens to be recent one, and its descent, European. Hence, any society or culture not belonging to this realm was viewed as “traditional” or “stagnant” and development was to be a far-flung idea for them. Modernisation was to follow only in those places where science was to be present. 19<sup>th</sup> century made up a rapidly developing scholarship in the history of science concerning the diffusionist model on the dissemination of modern science to the outside world from the West.

### Historiography

One such seminal work has been George Basalla’s *Spread of Western Science* where he lays three main stages in the institutionalisation of modern science outside Europe.<sup>2</sup> A period of inspection and exploration whereby non-western society becomes a

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<sup>1</sup> Bennet and Hodge (ed.) *Science and Empire: Knowledge and Networks of Science across the British Empire 1800-1970*, Palgrave Macmillan, New York, 2011.

<sup>2</sup> Raina, Dhruv, *Images and Contexts*, Oxford University Press, New Delhi, 2003.



laboratory for experimentation by the West followed by colonial science in which the range of colonial activities expand exploiting the former and finally the rise of nationalism leading to the achievement of an sovereign and free native scientific tradition which forms the completion of the transplantation of modern science in total. Basalla here generalises everything. He gives a simplistic analysis of linear flow without having studied the complex character of the cultures at different periodizations. The first model itself is ambiguous as it is a “one-way traffic”<sup>3</sup> because knowledge flows from the colony to Europe, opposite of what he had proposed, opined Kumar.

This model, even though influential during the time, proved problematic and hence was to follow enormous wave of criticisms giving way to other hypothesis. Another set of writings emerged whereby this uncomplicated flow of scientific knowledge from the west to non-west was challenged contending the existence of cultural assimilation and redefinition in different structures. The importance of the contribution of these marginal quarters in forging a universal science became necessary to put an authoritative voice and an identity for themselves.

Deepak Kumar has mostly focussed on the relation between science, technology and colonialism during British Raj in India. In *Science and the Raj*,<sup>4</sup> the process of applying science to exploit and subordinate the colonised by masking over the idea of civilising them becomes paramount. However, the same science in the 1940s was employed for India’s development. From means to an end, science became an idea of imagining modern scientific India. Another phenomenal work of his, *Technology and the Raj*<sup>5</sup> consists of wide ranging articles by various authors giving a scintillating glimpse of the technological study in colonial India. Though the first article stresses on different levels of appropriation of technology transfers in China, Japan and India, majority of the articles focuses on the primacy of technical education during the time. Particularly emphasising on engineering education generally, it is known that scientific or technical education through the creation of educational institutes in different parts were done to man their own corps in subordinate posts. Departments like PWD were established whereby the graduates from these institutes were employed. So also his *Science and*

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<sup>3</sup>Deepak Kumar, ‘Colony and Science’, in Chattopadhyaya (ed.) *History of Science, Philosophy and Culture in Indian Civilization*, Vol. XV, Part I.

<sup>4</sup>Kumar, *Science and the Raj: A study of British India 1957-1905*, Oxford University Press, New Delhi, 1995.

<sup>5</sup> Macleod and Kumar (ed.), *Technology and the Raj*, Sage publications India Pvt. Ltd., New Delhi, 1995.

*Empire*<sup>6</sup> has compilations of articles asking what colonial science actually was and how science was received by the colonised subject.

Dhruv Raina through his book, *Images and Contexts* challenges the linear model of the transmission of science from the West to the non-western periphery which George Basalla had postulated. Basalla's three models, Dhruv feels is seriously problematic. Science is a cultural universal in which breakthroughs from the peripheries are also possible is the central argument of his theme. He is also of the opinion that the 'Grand Question' of Needham in the 1930s paved the way for institutionalising India's history of science after independence to counterfeit the Eurocentric nature of science.<sup>7</sup> But most of all, Nehruvian era's 'Big Science' which witnessed the development of various research laboratories and institutions in the 1950s led to its initiation. Hence, the study of Nehru and the period between 1940s and 1960s proved vital to consider how science was domesticated and new ideas were formulated within this gap.

Accentuating Nehru and his inevitable connection with Science, Baldev Singh in his volume *Nehru and Science* gives a collective account of the speeches that he covered in a variety of subjects in relation to his thoughts and predicaments in relation to science and its relevance to the ills of the society. Particularly selecting his speeches from various annual sessions of the Indian Science Congress (ISC), Singh in the introduction states that Nehru attached great importance to the ISC as representing Indian science and made use of the opportunity provided by its annual sessions to make public the importance he attached personally to science and its application and the commitment and support of his government for its advancement.<sup>8</sup> Such scientific gatherings consisting of various scientists and great personalities, also foreign delegates were the initialising factor bringing science to a wider audience whereby the temper of science could be diffused. His rather extensive and meticulous volume *Nehru on Science and Society* has three sections, the first probing onto how science was introduced to young Nehru; was it his interest that grew naturally or was it because of other factors.<sup>9</sup> How at different stages, scientific outlook was inculcated could also be investigated. The other two sections compose of speeches that he delivered during various inaugural, foundation stone laying

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<sup>6</sup> Kumar (ed.) *Science and Empire: Essays in Indian context 1700-1947*, Anamika Prakashan, New Delhi, 1991.

<sup>7</sup> Dhruv Raina, *Images and Contexts*, Oxford University Press, New Delhi, 2003.

<sup>8</sup> Baldev Singh, *Jawaharlal Nehru on Science*, Nehru Memorial Museum and Library (NMML thereafter), New Delhi, 1986, p. xi.

<sup>9</sup> Singh, *Jawaharlal Nehru on Science and Society*, NMML, New Delhi, 1988.

and convocation functions of different technical, medical, nuclear institutes etc prior to and post-independence period. These speeches showed and evoked his love and trust for science and its goodness.

Carol E. Harrison and Ann Johnson through their work try to analyse the importance of science comparable with state.<sup>10</sup> In other words, the parallel development of State and its relation with science happens to be a novel scholarship which requires new direction as far as the nation states independent of the colonial rule is concerned. Through this, national identities are forged by these newly independent nations as opined by them. Lamenting the availability of vast corpus of Nationalist historiography without any recognition or utterance of the usefulness of science and technology, this article throws immense light to the readers regarding the uniqueness and necessity of such studies. Analogy between the appliance of science in sovereign French state after Revolution and Nehru's ventures after independence on taking India on scientific plane has been drawn which they contend that Nehru's plan was an emulation of the modern west. They also state that science was employed in every newly independent nation as a means of contributing to the universal science. The policies of the state were to be intrinsically linked to the development of science and technology through which a modern national identity was formulated. Science thus pushes the process of nation building and creates an identity.

Quite similar to this work is David Arnold's article examining Nehru as a seminal figure and Nehruvian science in which he articulates that it would be wrong to solely honour him for bringing science to the forefront and employing it for the country's progress. As far as visualising and putting science in political practice is concerned, he came later and was not alone. Mention could be made of Meghnad Saha who had formed a journal called Science and Culture by 1935 bringing scientific topics and ideas to interested public and his pursuance of Nehru through Bose or even Bhabha, Bhatnagar and Mahalanobis who formed scientific research institutions like CSIR, TIFR and ISI as a nation building strategy through which India's contribution to international science could be evident. However, on the contrary, he feels that exploring Nehru's nature would give the perfect answer to how during late colonial and early post-independence years, science was conceived and appropriated by the citizens and became the instrument of the state.

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<sup>10</sup> Carol E. Harrison and Ann Johnson, 'Introduction: Science and National Identity', *Osiris*, Vol. 24, No.1, pp. 1-14.

According to him, Nehruvian science became an authoritative force trying to initiate a national as well as universal science. This was done to disregard and ‘contest negative representations of science in the non-West, as a form of stubborn “localism”, as a kind of ethnographic aside to the “real” (i.e. Western) history of science.’<sup>11</sup> But, still, as no progress would follow without isolation, science had to be employed in a broad way as possible. All in all, his work posts interesting questions as to how a consensus could be arrived at as far as the context of local and universal science in the debate existing in the marginal areas and the West.

Providing such an exhaustive and comprehensive archival and personal document, the book *Nations and Nucleus*, by Robert S. Anderson gives fascinating and ground breaking social background to the study of scientific institutions in post-colonial period which had their basis in at least a decade before independence.<sup>12</sup> The chief main protagonists in such a theme consist of world renowned scientists like Bhabha, Bhatnagar, Saha, C.V Raman as well as secondary personalities in the background, of course connected by Nehru as the leader after his role as the Prime Minister of the country. To someone who is new to this study, the theme becomes phenomenal as one would realise that as early as 1930s, there were individuals who had already been famous due to their respective seminal works and because of them, networks had already been created through which India’s journey towards science and their establishments became possible afterwards. Anderson also delves deeper into their lives digging much more into their occasional rivalry, chase and hunt to accomplish their ambitions. Late colonial period saw Saha, Bhabha and Bhatnagar trying to form their own scientific establishments manoeuvring their way around Nehru for patronage whereby the latter two came closer to him while Saha disappeared from the scene whole together. Nehru too, focussed with the process of nation building by applying science and technology saw in them the perfect mixture to elevate the nation towards self reliance in every field. His book also majorly highlights how the scientific communities in India became vital and instrumental in scientific policies of the state.

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<sup>11</sup> David Arnold, ‘Nehruvian Science and Post-Colonial India’, *Isis*, Vol. 104, No. 2 (June 2013), pp. 360-370.

<sup>12</sup> Robert Anderson, *Nucleus and Nation*, University of Chicago Press, Chicago, 2010.

Pratik Chakrabarty highlights the topic of how science was positioned in the locale setting of Indian culture in his *Western Science in modern India*.<sup>13</sup> He takes up the tradition versus modern plane whereby the best of both the methods were initially engaged to be superseded by the triumphant of scientific method as could be seen in Nehru's victory over Gandhi's traditional ideas or S.C Mookherjee's end of his Bengal National College which ceased to exist because of less stress on western scientific and technical education but more emphasis on literary studies of the history, literature and philosophy of India. Technology as the dominant key to development by global scientists, politicians, economists etc were agreed upon during late colonial period through which universal form of science through mutual co-operation was to follow. This was evident when Independent India saw many foreign delegates like Hill, Havell coming to advise the nation on organisation of the country on scientific research from food, clothing, and public health to industrial, technical, medical development etc.

Continuing from where Chakrabarty had left, Shiv Vishwanathan's work come as a useful guide dealing with the organisation of scientific research starting late colonial period in India. He goes through the journey of how national laboratories like National Physical Laboratory and National Chemical Laboratory were established through Bhatnagar's CSIR, a body which financed and co-ordinated scientific and industrial research in the country, similarly finding its apt meaning in the trajectory of producing technology by applying science, a conscious commitment to invest in science and technology by leaders during the time.<sup>14</sup> The complexities which come with conflict between pure and applied science, one oriented to university and the other to industry also have been discussed at great length. The assistance of specialists like Blackett, Bernal, Hill, Haldane, Kitchlu from abroad etc seen in the growth of such laboratories highlights the international character of global science.

However, by the beginning of 1970s and 1980s, science discourse and its attachment with development and progress had come under serious criticisms. Scepticism concerning strategies and programs of development in the Third World, and large-scale investments in mega-development projects, accompanied by the realization amongst economists of the failure of trickle down to deliver on that much-hyped conception of

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<sup>13</sup> Pratik Chakrabarty, *Western Science in Modern India*, Orient Longman Pvt. Ltd., New Delhi, 2004.

<sup>14</sup> Shiv Vishwanathan, *The Making of an Industrial Research Laboratory*, Oxford University Press, Delhi, 1985.

development began to come unstuck, even in policy circles.<sup>15</sup> Post Colonial historians and theorists began to developed new scholarly pursuits on clear link between science, development and violence. Ashish Nandy argues the fact that the state post-independence had turned out to be more brutal and irreconcilable with the tenets of democracy, as science in the name of development had usurped greater power becoming not merely tool but the ‘reason’ of the state.<sup>16</sup> Following Nandy was Claude Alvares, who believes that science was imposed over the underdeveloped world through colonialism. Its domination and power still perpetuated after independence through western educated personalities who supported and blindly carried forward foreign technologies.<sup>17</sup> Bringing gender into the debate, Vandana Shiva in her various books and articles talk about how coming of modernisation through science displaced the productive capacity of women. She also talks about increasing social ruptures due to heighten commercialisation of everything natural which could be visible in the case of Chipko Movement. Nehru’s dependence on high scale industrialisation to catch up with the developed advanced countries has also been attacked by Ramchandra Guha who saw in the building of various big dams, serious consequences.

Though slightly similar with what the above authors in the way Nehru’s relation with various scientists, engineers and others had been examined, this thesis too examines the role Nehru played in teaming and forming a league through which the journey of Indian science began. Sharply contrasting and a novel scholarship towards this however are the case studies of two scientific institutions IIT, Kharagpur and AIIMS, Delhi which were to examine how with science and technology as the main catalyst, they were established. How various deliberations between the central and the state government, lobbying, sharp dichotomy between different sections in the early years of independence to forge India as knowledge and scientific based society which emerged as key nation in defying west’s monopoly of science and knowledge through these two institutions have also been examined.

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<sup>15</sup> Raina, *Naturalisation of modern science in South Asia: a historical overview of the processes of domestication and globalisation*. [www.edition-open-access.de](http://www.edition-open-access.de) (retrieved on 21-07-16)

<sup>16</sup> Ashish Nandy, ‘Introduction’, in Nandy (ed.), *Science, Hegemony and Violence: a Requiem for Modernity*, Oxford University Press, New Delhi, 1988, pp. 1-23.

<sup>17</sup> Claude Alvares, *Science, Development and Violence*, Oxford University Press, New Delhi, 1991.

## Outline of the Chapters

The first chapter deals with Nehru and his vision on how science was to be pushed forth for the development of the nation. Usage of autobiographies and biographies plus published primary sources had been employed to at least try and bring up a whole picture of the initial involvement and association of science by Nehru in different periods of time. At different stages of his life he was able to inculcate a deeper meaning of science believing in the notion of how if a nation befriends with science, development and progress was to follow. His scientific socialism as well as the political-scientist linkage became handy towards such a cause. Appliance of high scale western industrialisation for the nation's development discourse came under serious condemnation from many. However, the inevitability of the recourse to science and technology to make India self sufficient in every field loomed large in the picture. Collaboration with scientists like Meghnad Saha, S.S. Bhatnagar and Homi Bhabha rocketed India's position opening new doors in the field of atomic energy, scientific and industrial research and education. Private archival papers of these three famous individuals as well as their correspondence with Nehru shows the patronage and aid that the latter gave to them in their efforts towards initiating scientific institutions as well as various developments which strongly affected Nehru's understanding of science and its ramification at the later part of his life.

The second chapter highlights the study of IIT Kharagpur which was the first of the institutes of technologies being erected in the country when emphasis on science and technology was paramount. Being Nehru's dream to generate highly educated technological resources which would supply vital key input for the enormous power plans, dams and other industrial projects, it was important that there was self sufficiency in technical needs too. Evidence of close relationship between education, industry and research was seen. It has been shown that though Nehru's idea, the execution of the theory was done with the help of personalities who had international demeanour like Dalal, J.C Ghosh, S.R Sen gupta etc, though he was there to supervise them at times. Archival documents show various negotiations, deliberation and planning between the central and the state Governments while undertaking such a project. Towards these, endeavour has also been made to give a fully descriptive and informative narration about the step by step development of the Institute from the day its idea was conceived to the day it was actually established formally.

AIIMS, Delhi again being the brainchild of Nehru needs to be focussed at because nowhere could his temperament of science be applied to than in the sphere of health and medicine. Health of the nation was the major obstacle during the time and such an institution was to help in the biggest way possible. Though the idea was conceived of prior to independence, the real hero was the contribution of Rajkumari Amrit Kaur, the first Health Minister of independent India. Through her international network, a permanent position of her presence was being sealed making the execution of the institution happen in no time. Similar to how the development of IIT, Kharagpur had been plotted, this chapter equally has exhaustive account trying to see various communications between the Delhi State Government and the parent central Government. At the same time, attempt has also been made to bring in various debates that went on in the Parliament as far as the dichotomy between modern and indigenous systems of medicine was concerned showing the disinterest meted towards these ancient Indian medical systems by the central Government.

The present study therefore seeks to explore what Nehruvian science actually was. It has been contended that Nehru was not alone. In fact, there were coteries of the personalities teaming up with him which could be seen through the study of the development of the two premier scientific institutes, IIT, Kharagpur and AIIMS, Delhi. What is also fascinating to see is how he chose his partners very well with careful thought. The scientists Saha, Bhatnagar, Bhabha, J.C Ghosh as well as other personalities like Dalal and Amrit Kaur if studied with much forethought, come as persons who had already created a network through their effort in the global arena prior to being appointed by Nehru. They had sealed their positions beyond the boundaries of India which came in handy after independence. By teaming up with these famous individuals, nation building process followed through which a new identity of a self sufficient and dependent India was to be forged.

The period from the 1940s to 1964 saw the organisation of 'new science' or 'big science' around the erection of various scientific institutions of which the study of IITs and AIIMS become inevitable as through this, various policies of the Government during the first few years of independence could be seen. Importance of education and research in technological and medical fields became pressing in the early years. The narrative of



both the institutions is an attempt to create knowledge based society and higher education system employing scientific method in post independence India as developing modern higher technical infrastructure like this was necessary for India to achieve goals in scientific research and development. Individuals who steered the ship of these infrastructures were international and universal in their outlook that they didn't hesitate to take assistance from foreign nations. The technical institute at Kharagpur as well as the medical institute at Delhi after some years since their formal establishment began to show excellence and brilliance in their own spheres transgressing the peripheral boundaries. They went on to break the usual and stereotypical norms defying superiority of science and knowledge emanating from the west. Hence, through such a narration, the contribution of India to the sphere of science and technology after independence could be known.

In retrospect, through Nehru and his collaborators, a universal science was build of which India was very much a contributor. Through the two institutions, the knowledge flow from marginal areas was to be taken seriously. Nehru's attempt was to decolonise science and knowledge as Dhruv Raina has also argued.

## CHAPTER 1

### NEHRU'S VISION ON SCIENCE

*“Science is the spirit of the age and the dominating factor of the modern world...Even more than the present; the future belongs to science and to those who make friends with science”.*<sup>18</sup>

The inevitable importance laid to Science could be conceived from the above excerpt as declared by India's first Prime Minister, Pandit Jawaharlal Nehru. More than anyone else, it was he who realised the fact that India's progress and development rest in Science and Technology hence all the more vital that she go tandem with the same. Moreover, he was of the opinion that not only India but other countries of the world needed the scientific approach to solve all types of problems. But most central of all was the reality of how Science was to become the catalyst of change and this was the highest challenge that a young and budding India had to face. Especially after Independence, the entire responsibility of transforming the freedom movement into a government fell on Nehru's shoulder; the creation of the entire structures of modern nation including state apparatuses like bureaucracy, parliamentary system, etc was to be simultaneously built by him. Therefore, what India needed was a boost in her morale and such a thrust could be propelled by none other than Science. However, one shouldn't get confused with the familiarity of “Science” to just getting acquainted with hypothetical theories of physics, chemistry or any technical terms associated with it but more critical than that was an attitude of rational approach and outlook towards life. In his own words *“Science is not a matter merely of looking at test tubes and mixing different gases and producing things big or small or gadgets. Science ultimately is a way of training the minds and the mind's working and their whole life functioning according to the ways and methods of science”.*<sup>19</sup> Nehru called such an attitude “Scientific Temper”. Educating people to create a spirit of science is what he envisioned throughout his lifetime.

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<sup>18</sup>Singh, *Nehru on Science*, NMML, Teen Murti House, New Delhi, November 1985, p. 1.

<sup>19</sup> S. Irfan Habib, ‘Science as Solution’, *Frontline*, dated 26<sup>th</sup> Nov, 2014, [www.thehindu.com](http://www.thehindu.com). (retrieved on 7-03-14)

## Scientific Temper

The world which we have nested in, has become a deadlier place whereby people have forgotten how to think before they act. Killings, animosities and hatred have come to fill one's mind without having to take on matters rationally but seizing it in an impulsive and reckless manner. A scientific mind could be of much help as a solution to all these issues. Infusing temper of science onto the mental climate of the public was one such subject that he reiterated and laid his heart and soul to, leaving elements of room to the public for self deliberation. What is also interesting is the fact that everybody could relate to it personally. Therefore, it is imperative to ask as to what 'scientific temper' connotes.

The concept of Scientific Temper was expressed first by Pandit Jawaharlal Nehru in 1946 in his book *Discovery of India*, referring to it as a way of life, a process of thinking, a method of acting and associating with one's fellowmen.<sup>20</sup> To state very briefly, it would mean serious brooding and deeply critical about oneself to the understanding and solutions to many of the problems in life. In fact, it requires a rational and logical approach by which one could refuse to accept anything without testing, trial or proof in search for the truth and should be maintained constantly and toughly in the face of disturbing forces that may be at work which would possibly come in the form of superstitious beliefs and religious orthodoxy. Having said that, scientific temper also requires that one should have the capability to thwart previous assumptions and readily adapt new discoveries in the face of new evidence and observed facts thus letting the former preconceived notions to disintegrate. One shouldn't imagine that the truth he seeks is the whole truth, should prepare to admit mistakes, rectify them and learn from them. Of course all these elements could be inculcated provided one has a free and an open mind through which fresh ideas could be welcomed and internalised thereafter. Spirit of Science also meant to be acquainted with the role of science in resolving problems of society. Thus, it must have a social objective to remove the ills of the community. It was the main vehicle through which India would grow into becoming one of the most developed self-reliant and powerful countries in the world. Stressing on the importance of the search for truth, Nehru is seen as stating-

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<sup>20</sup> Scientific Temper Statement Revisited-2011, the Palampur Declaration, [www.jstor.org](http://www.jstor.org) ( retrieved on 10-03-14)

Being a bit of a pagan, my mind is open to all ideas. It does not reject any idea, unless after examination, I do not find it good enough. It is an open outlook. It does not deny anybody's right to search for truth in his own way. It does not deny anybody his life in his own way. It does not try to impose his idea of truth or his way of life on others unless they accept it gladly.<sup>21</sup>

This happens not only to be justified but right for a person like Nehru. Nehru, speaking yet again on 'truth' happens to be deeply concerned about the unscientific way that the Scientists in general behave. He asserts the point of scientists being just scientific in the inner walls of their laboratory rooms but once they are outside, they forget all about the spirit of science. He also states that they shouldn't take their responsibility personally as they at all times shouldn't forget the purpose of their work and for whom they are working for.

As aptly described by Baldev Singh, scientific temper happens to be the world view which enables man to look upon himself, upon society and upon the problems facing mankind with an intellectual rigour that combines sympathy with objectivity in finely balanced proportions.<sup>22</sup>

Nonetheless, one becomes quite dubious when such concepts are to collide with the traditional norms of Indian society. Marked increase in public display of religious and sectarian identities, mounting of irrational cults, religiosity and wielding of religious symbols etc have become the hallmark of the society and still the problem persists. This has provided brutal unscientific actions in both public and personal domains which is really problematic. There is evidence of discrimination among various castes, gender and ethnic identities and this has perpetuated as mentioned above, on the basis of irrational beliefs and superstitions. This has become a blot to the national progress. Keeping all these situations in mind, there has been an increasing scholarly pursuit which emphasise more on the question of if the spirit of Science has been disseminated and maintained through the nerves of every individual in the Post-Nehruvian period. Udgaonkar asks if the new tools of thought represented by science and technology have yet to permeate our society.<sup>23</sup> He ponders if it is because of the fact that, though we are using so many of the

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<sup>21</sup>Singh, *Nehru on Science*, NMML, New Delhi, 1986, p. 60-68.

<sup>22</sup> Ibid, preface ix.

<sup>23</sup> Udgaonkar, 'Science and Public Policy', *India International Centre Quarterly*, Vol. 7, No. 1 (March 1980), pp. 25-38

fruits of science and technology, people want more of them, or our system has yet to absorb the spirit, the essence, the temper of science. David Arnold also asks if Nehruvian Science was a success or it withered after Nehru's death.<sup>24</sup> The answer to such questions is difficult to answer. The fact that India stands amongst the ten most industrialised nations in the world alone could give us a positive view onto such a subject. But by the 1970s and 1980s, the image of Nehruvian Science had become tarnished in part because it had failed to deliver all that had been grandly promised in the name of science, including the eradication of poverty.<sup>25</sup> Such a subject needs thorough exploration.

However, it becomes rather important to now concentrate on how such a scientific temperament of Nehru evolved. How did he come in contact with science? What were the important factors that led to the development of Nehru's scientific attitude? How did such a comprehension of science being the prime mover in India's socio-economic progress come about? These are some of the interesting questions that need to be pondered over.

### **First Introduction to Science**

Nehru was first introduced to science as a subject when he was just a kid of eleven years old by T. Ferdinand Brooks, a theosophist engaged by his father Motilal Nehru for tutorial purposes.<sup>26</sup> In his autobiography, Nehru related that Brooks had initiated him into the mysteries of science and that they had a little laboratory where he used to spend long and interesting hours working out experiments in elementary physics and chemistry.<sup>27</sup>

Brooks being a theosophist, it is hardly surprising to find that theology too was introduced to Jawaharlal Nehru but it was for a very brief period of time. Nonetheless, however short the introduction to theology was, it is interesting to know that such a foreword to theology early during his childhood contributed much to help in his development of a more realistic approach thereafter. He went and attended range of theosophical meetings, metaphysical discussions about various supernatural bodies, on reincarnation, karma, religion etc and began to inculcate the habit of reading, thinking and deliberation of things surrounding him. Juxtaposing his outwardly comfortable and liberal lifestyle with a secular viewpoint too began to have conflicting ideas with the

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<sup>24</sup> David Arnold, 'Nehruvian Science and Post-Colonial India', *Isis*, Vol. 104, No. 2 (June 2013), pp. 360-370

<sup>25</sup> *Ibid.*, p. 369

<sup>26</sup> Jawaharlal Nehru, *An Autobiography*, the Bodley Head, London, 1936, p. 10.

<sup>27</sup> *Ibid.*,

philosophical concepts and ideas of theosophy. He writes “I am afraid that theosophists have since then gone down in my estimation”<sup>28</sup>

He happened to have been tutored in Persian and Arabic by a Maulvi. Equally, a Pandit had tutored him in Hindi. Also he was accommodated at his house with various cooks and helpers from different religious backgrounds like Hindus, Muslims and Christians. His father Motilal Nehru, being a Brahmin didn't hesitate himself from housing and living with them.

Jawaharlal Nehru's lineage was very sound. His family roots had promising and able men occupying various elevated positions. His great great grandfather received a jagir from the emperor Farruksiar during the eighteenth century; his great grandfather was the first Vakil of the East India Company; his grandfather being the Kotwal for sometime in Delhi before the 1857 revolt and of course his father Motilal Nehru, who was a famous and renown lawyer in Kanpur and Allahabad. Motilal earned a lot and spent luxuriously and evenly was very much appreciative of the western thought, culture and mode of living. He vehemently condemned religious dogmas, superstitious beliefs and orthodoxy so much so that he defied various purification processions needed to be undertaken before his community. Therefore, his familial conditions contributed very much to induce on him a pragmatic and a rather scientific approach in which he could segregate what was wrong from what was right.

One should be sceptical at this point of time as it is doubtful that teaching of brooks would have set a deep impact and interest on Jawaharlal Nehru for it is a well known fact that he was “introduced to” or “initiated” to science by brooks, not that he owed his interest in science to brooks.

Ward Morehouse asserts that Nehru's own interest in science goes back at least to his days as a university student in England where he took the natural science tripos in chemistry, geology and botany. <sup>29</sup>It is also written by Michael Edwards that it was to Brooks that Jawaharlal Nehru owed his first interest in science.<sup>30</sup>

His going for Science at Harrow and taking up Science tripos later at Trinity College at Cambridge has been wrongly approached as having been initiated by

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<sup>28</sup> *Ibid.*, p. 16

<sup>29</sup> Michael Edwards, *Nehru- A Political Biography*, The Penguin Press, London, 1971, p. 19.

<sup>30</sup> Ward Morehouse, *Studies on Nehru*, Sterling Publishers Pvt. Ltd., New Delhi, 1987, p. 287.

Jawaharlal Nehru himself or by the influence of Brooks which needs to be corrected. One shouldn't forget the fact that Motilal Nehru had engaged Brooks to tutor Nehru. Also Nehru coming to Harrow or Cambridge was under the supervision of his father. Since the very beginning, Motilal was into this whole notion that Nehru should be exposed to the outside world and hence he took keen interest in the education years of his son in every possible way.

Motilal Nehru was always anxious that Jawaharlal Nehru should take up science as he wanted him to give the Indian Civil Service exam.<sup>31</sup> He writes:

I think it was decided when I was in England that you were to take the science tripos. I am not aware of anything having happened since to induce me to change that decision. . If you find that your knowledge of mathematics falls short of what is required to give you a good grasp of your scientific subjects, go to a coach at once. In selecting your subjects, please do not forget what is required for the Indian Civil Service Exam.<sup>32</sup>

In the same way, what is noteworthy is the fact that having taken the science tripos which his father had wanted him to, he found it considerably difficult to cope up with the subjects. He was evenly disturbed by the exams too. In his letters to his father, he writes about the various problems that he was facing in relation to diverse subjects. He writes "*in chemistry, I know little, in geology, I know less but the geology practical, I have just started and I have to know the names of over hundred fossils....still this doesn't trouble me half so much as physics...*".<sup>33</sup> Lamenting over his not doing well in the exams, he again writes "*I might have a question here and there out of chemistry and geology papers, but I could hardly do a question satisfactorily in physics.*"<sup>34</sup>

Such heartfelt letters were plenty. This clearly reveals that Nehru was neither up for Indian Civil Service exam nor did he see a career for himself out of his science subjects. His father however from the very beginning had high hopes for him regarding the exam. Also, he had never ever spoken about any emotional attachment or inclinations in science.

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<sup>31</sup> Motilal Nehru, *Selected Works of Motilal Nehru*, Vol-1, (ed.) Ravinder Kumar and D.N Panigrahi, Series 1, pp. 94-95

<sup>32</sup> *Ibid.*, pp. 128-129

<sup>33</sup> Jawaharlal Nehru, *Selected works of Jawaharlal Nehru*, Vol- 1, (ed.) S.Gopal, Series 1, p. 51.

<sup>34</sup> *Ibid.*, p. 53

But what he got from his stay at Cambridge, more essentially was the experiences that he gained back then which was to have deep imprints in his future years to come. He joined many debating societies which relied mainly on political matters like the “Majlis”, which was the Indian debating society group.<sup>35</sup> By this time, politics fascinated him and he was disturbed by the political struggle in India. He had the chance to listen to speeches by renowned personalities of the Indian freedom movement like Bipin Chandra Pal, Gokhale and Lala Lajpat Rai who visited England during that time. The notion of ‘*truth and reason*’ was introduced upon him by Edwin Montague. Motilal Nehru used to send him letters on the political situations happening in India and Nehru used to give his views and comments or criticisms regarding the same. Such exchanges happened frequently. These were the plus points that he inherited from his stay at Cambridge independent of his father’s advice.

His job of law was outweighed by his initiation into politics. Early in his political life, during his political engagement under Gandhi, he for the first time had the opportunity to directly see the agrarian upheavals in Allahabad from where a new picture of India rose before him for the very first time and he felt ashamed of his easy going and comfortable life. What is imperative in highlighting this incident is the fact that it broadened his horizon and gave him time to retrospect into the in depth meaning of poverty and provided him with the emotional base to look for the economic dimension in political independence. He wanted to cross the barrier of poverty and reach a stage where growth becomes relatively spontaneous.<sup>36</sup> The necessity of science comes in which he says that it was science alone that could solve these problems of hunger and poverty, of insanitation and illiteracy.<sup>37</sup>

### **Scientific Socialism**

His wife’s illness that drove them to Europe was also to have a deep profound impact in answering various questions inherent in his mind on poverty and science as the remedy for it. He was exposed to many international leaders of left parties and working class organisations from various countries like china, Korea, Syria, the United States etc apart from England and several European countries. He had also visited the Soviet Union

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<sup>35</sup> Jawaharlal Nehru, *An Autobiography*, the Bodley Head, London, 1936

<sup>36</sup> Babubhai Chinai, *Pandit Jawaharlal Nehru- Architect of our Planning*, P.C Joshi Archives, Jawaharlal Nehru University Library.

<sup>37</sup> Singh, *Nehru on Science*, NMML, 1986, pp.1-4.



where he met many scientists and distinguished individuals during the anniversary of the Russian Revolution.<sup>38</sup> He also admired their many accomplishments within short span of time. Seeing these growths in Europe and Russia, he was convinced that large scale development of industry would be a must in India too.<sup>39</sup> His ideology of socialism was also ignited and this was to be placed on a scientific footing.

The role of science for the National cause plus the compatibility of science to Socialism was embraced as the perfect ointment for developmental reason.<sup>40</sup> Scientific socialism as it is called was to be the order of the country where scientific advancement should have predominantly social aim to meet the grievances of majority of the people.

Nehru's incarceration years were spent miserly reading books on wide variety of subjects such as polity, economy and science etc. Like his stay in jail during the Non-Cooperation movement in 1922 where he read around 147 books<sup>41</sup>, his incarceration from 1930-33 provided for various intellectual pursuits, not to forget his stay in jail during 1942-45. *"It was only after I left college that I read some real history. Fortunately, my visits to prison have given me a chance to improve my knowledge."*<sup>42</sup> The full awareness and importance of science could also be known from various letters to his daughter, Indira Gandhi by Nehru in *"Darwin and the triumph of science"* where he states that in conflict with the church and science in the west, science won all along and Darwin happened to be one scientist who showed that human beings were evolving, which meant that man and society and the world as a whole were marching towards perfection and becoming better and better.<sup>43</sup> What is essential here is the idea of progress attached to it. He also sent letters on *"Science goes ahead"* and *"The good and bad application of science"* where he gives primary focus to the fact that scientific methods seems to be the only correct way of approaching a question but that doesn't mean it can't go wrong and if at all it goes wrong one has to rectify and step on it carefully.<sup>44</sup> His deep admiration for science could be known by his statement *"look around you, you will find that most of the things that you can see are somehow connected with science....sanitation and health and*

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<sup>38</sup> Nehru, *Selected Works of Jawaharlal Nehru*, Vol-2, p. 384, NMML.

<sup>39</sup> 'The tragic paradox of our age, *The New York Times*, dated 7<sup>th</sup> Sept, 1958, NMML.

<sup>40</sup> Nehru, *Selected Works of Jawaharlal Nehru*, Series-1, Vol-3, p. 190, NMML.

<sup>41</sup> Nehru, *Selected Works of Jawaharlal Nehru*, Series-1, Vol-1, p. 259, NMML.

<sup>42</sup> Jawaharlal Nehru, *Glimpses of world History*, Penguin Books, Delhi, 1934, p. 9.

<sup>43</sup> *Ibid.*, pp. 539-544.

<sup>44</sup> *Ibid.*, pp. 896-902.

*the conquest over some diseases depends on science... without science, there wouldn't be enough food for the world's population and half of it, or more, would die of starvation*"<sup>45</sup>

The last statement strikes and takes us back to the whole situation in India. Therefore, here was Nehru who truly felt that socialism itself should synthesise with science so that it can be applied on a social plane for solutions of the problems of the society. In other words, he viewed socialism as a scientific theory capable of solving the problems of mankind and was to take a scientific and national approach to all problems.<sup>46</sup> Nehru also says "*I am a socialist because I feel that socialism is a scientific approach to the world's problems.*"<sup>47</sup>

### **Dualism in Development Discourse**

Such an expression of social concerns was also to be part of the larger themes emphasized during the debates that went on during the 1930s. But most of all, anticipating an Independent and a free India after the Government of India Act of 1935, the urgency of Science was seen on the lines of "Development" discourse.<sup>48</sup> Many scientists and technologists as well as politicians came together for such an endeavour. Development was to follow only if science and technology of the country were to be channelled for the industrialisation of the country. Importance of Science and technology was hugely emphasised upon because for a scientific modern and a developed nation, it was important that the country was fully equipped in scientific front. Science was thus increasingly used as a language and was to become the legitimising factor through which concerns related to a possible future India could be achieved. And for this, it was equally imperative that the development had to take not the foreign but the Indigenous or Indian path.

However, obstructions in the path to such deliberations were highly evident. Certain dualism persisted in which one faction of the Congress supported India's journey towards development through large scale western modelled Industrialism, while the other opposed it vehemently. One such opposer was Gandhi who felt that development on the lines of large-scale Industrialisation would deem harmful for the country as far as the

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<sup>45</sup> *Ibid.*, pp. 902-907.

<sup>46</sup> S. Kapuria, 'Fundamentals of Nehru's Economics', *Socialist Congressman*, VIII No. 4-5, New Delhi, June 15, 1968, P.C Joshi Archives, Jawaharlal Nehru University Library.

<sup>47</sup> Nehru, *Selected Works of Jawaharlal Nehru*, Series-1, Vol- 9, p. 616, NMML.

<sup>48</sup> Benjamin Zachariah, *Uses of Scientific Argument: the case of development in India*, c 1930-50, Oxford University Press, New Delhi, 2005.

rural part of the country is concerned. He became a chief rebel of machinery believing in the fact that it was the sole impoverisher of India. In his words, " *It is machinery that has impoverished India...I cannot recall a single point in connection with machinery. Books can be written to demonstrate its evils.*"<sup>49</sup> Machinery and industrialism were for Gandhi a great sin.<sup>50</sup> Capitalism bred on them through which, in the light of huge profit making, poor peasants had to suffer because of unemployment and hence making them idle. However, he was not fully against the appliance of machines as long as it had humanitarian and moral backing for the whole of mankind. Basically, the motive behind its exercise was all that Gandhi looked for. He was not for the mass production but production by the masses and that too with instruments that the masses could afford to possess and repair.<sup>51</sup> Hence, his insinuation for the use of simple spinning wheel like the Charkha or sewing machines could be comprehended on such terms.<sup>52</sup> The blind craze and over-emphasization on modernisation using western lines were not aligned with Gandhi's beliefs.<sup>53</sup> P.C Ray, a very famous Chemist also supported his ideas in his work. His beliefs were contrary with some modernists who advocated that Gandhi's ideas were backward and not favourably up-to-date. In order to bring in the question of indigenous character to their debate, Nehru, a strong advocator of science, tried to bring in some dose of the India's past whereby he opined that "*all the dust and dirt of ages that have covered her up and hidden her inner beauty and significance, the excrescence and aberration that have twisted and petrified her spirit, set in rigid frames and stunted her growth....have to cut away the excrescence and remember afresh the core of the wisdom and adopt it to our present circumstances*" thereby very quickly turning the table.<sup>54</sup> The importance of picking up the rational and true wisdom that India inherited, for applying it for the nation's voyage towards Independence was sought. Equally significant and in need of the hour was incorporating Gandhi's approach into this whole argument keeping in mind his aura and the wide support base, but most of all because Nehru was a Gandhite and was very close to him. Trying to incorporate both Gandhi and his charkha, "*the congress has recommended hand spinning to the agricultural classes of India not because of any*

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<sup>49</sup> Parel(ed.), *Gandhi: Hind Swaraj and Other Writings*, Cambridge University Press, U.K, 1997, pp. 109-110.

<sup>50</sup> Gandhi, *Hind Swaraj*, Navjivan Publishing House, Ahmedabad, 1939, pp. 16.

<sup>51</sup> *Harijan*, dated 2<sup>nd</sup> Nov, 1934, NMML.

<sup>52</sup> "No amount of human ingenuity can manage to distribute water over the whole land as a shower of rain can...the spinning wheel too has got the same power of distributing work and wealth in millions of house in the simplest way imaginable", *Young India*, dated 27<sup>th</sup> Dec, 1923.

<sup>53</sup> Gandhi, *Hind Swaraj*, Navjivan Publishing House, Ahmedabad, 1939, pp. ix-x.

<sup>54</sup> Singh(ed.), *Jawaharlal Nehru on Science and Society*, NMML, 1988, p. 39

*hostility to machinery or science but because of special reasons applicable to the Indian peasant under present conditions. The spinning wheel is not to be a rival of the machinery....nor is spinning...*<sup>55</sup> Even Gandhi himself modified his definition of anti-machinery a couple of times as stated in the preceding lines.<sup>56</sup> Although industrialists weren't that much a part of this debate, scientists like Saha came in support of Nehru discrediting Gandhi regarding the subject of science. The dualism ended in the favour of Nehru and his supporters as the application of science and their applied technologies was inevitably anticipated to free man from the bondage of poverty and channel it into self sufficiency.

### **Politician-Scientist Linkage**

Late 1930s saw scientists increasingly being included in the various discussions and deliberations on development matters. It is very fascinating to see the formal association these scientists enjoyed gradually with the politicians prior to independence and how this bond was further strengthened and crystallised after political freedom. Since emphasis on the connection of Science and technology and Industrialisation and modernisation was mounting, they were to come in the forefront in the succeeding years to follow. The close links that these scientists had with Nehru was crucial to the development of scientific policies and infrastructural institutions. One of them who came in the limelight in 1938 was Meghnad Saha.<sup>57</sup>

Before meeting Nehru, he had with many of the leading scientists from Calcutta already launched a monthly journal called 'Science and Culture' in 1935 which became a medium through which varied topics on science and technology plus scientific advancements were discussed and articulated for the public to understand and have a scientific take on the matters. Various scientific policies of the Governments were also

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<sup>55</sup> Nehru, *Selected works of Jawaharlal Nehru*, Series 1, Vol. 1, p. 16, NMML.

<sup>56</sup> When Gandhi as early as 1924 said that the Singer sewing machine was one of the few useful things ever invented, Mahadev Desai pointed that these machines were produced from the factories using power-driven machines, to which the former replied that that was true but such factories should be state-controlled or nationalised.

<sup>57</sup> Meghnad saha was born in a small hamlet in Bengladesh, before East Bengal on October 6<sup>th</sup>, 1893. Pursuing middle and high school against the wishes of his father, he moved to Dacca at the age of 12 to finish his secondary education but was expelled from the school for some reasons. He came to Calcutta, graduated from the Presidency College in 1913 after pursuing B.A in Mathematics. Further, he enrolled himself in P.G studies in the Calcutta University and was also appointed a lecturer in the same department after. In 1920, he published the first paper on the "ionization theory of gases" which was widely recognized and was elected a Fellow of the Royal Society of London in 1927. His work gave him the chance to go abroad and take up more research on the subject.

deliberated over to which possible suggestions were made and disseminated. Being a scientist himself, he was also an avid believer and promoter of large scale industrialisation for the progress of the country like Nehru. He also believed in the socialist pattern of planned economy and their effort towards progress which Nehru was very keen too.

### *Planning*

Seeing the popularity of Nehru as well as the like-mindedness of both in 1938, he persuaded Subhash Chandra Bose who was then the president of the Indian National Congress to set up the National Planning Committee for India's endeavour towards reconstruction and urged that a national leader like Jawaharlal Nehru be selected as its President.<sup>58</sup> In a letter to Nehru, Saha wrote:

Personally I hold that large-scale industrialisation is imposed upon us by the world conditions, which nobody has the power to control or retard, as also by the exigencies of maintaining a proper standard of life of India's millions. But by accepting industrialisation, we are not necessarily committed to capitalism, bolshevism, fascism or any other possible "isms". It is a skill of social advancement and of social uplift necessitated the laws of evolution and the particular "isms" by which the objective is to be realised may be regarded for the present as a secondary affair, which can be determined by discussion and by the operation of social forces. At present, at any rate, it appears to me and this is strictly a personal opinion that a form of controlled capitalism, in which the profit motive shall be subordinated to the ideal of social welfare and service, will best suit Indian conditions and culture.<sup>59</sup>

The inevitability of large scale industrialisation for boosting the concerns of the society at large could be seen from such a letter. At the same time, more importantly enough, there is also a sense of blind faith in the power of scientific improvement to the length where he feels one could encourage capitalism though in the right way. However, one becomes sceptical of his '*controlled capitalism*' as stated in his quote. The

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<sup>58</sup> Subhash Chandra Bose, *Selected Speeches of Subhash Chandra Bose*, Publications Division, Ministry of Information and Broadcasting, Government of India, 1962, pp. 72-80.

<sup>59</sup> Saha to Nehru, dated 7<sup>th</sup> October, 1938, List no 92/R.R, Saha Papers, NMML.

confluence of Scientism and social justice according to him had a different meaning for him.<sup>60</sup> But, Nehru was to mould it in the right way.

Nehru didn't think hard to plunge into such a chance. The National Planning Committee provided a platform through which the role of science for the new nation was articulated. Nehru was to develop interactions with not only eminent scientists but drew on the advice and guidance of scientists, industrialists and economists forming a common ground where people from different walks of life corroborated to help built a modern nation.<sup>61</sup> He with several leading statesmen like J.C Ghosh, P.C Mahalanobis, Meghnad Saha etc and M.Visvesvareya started studies and made plans for the development of science.<sup>62</sup> A year later, he was to announce that:

Our plan for national development must, therefore, be drawn for free and independent India. This does not mean that we must wait for independence before doing anything towards the development of a planned economy. Even under existing conditions we must take effort to adopt all measures and policies which develop the resources of the country and raise the standard of our people....such efforts must be directed towards the realisation of the plan we have drawn for a free India.<sup>63</sup>

The National Planning Committee (NPC) was one such programme undertaken in which efforts towards an Indigenous Planning was seen. It proposed to make provisions for the development of heavy key industries, medium industries and cottage industries keeping in view national requirements.<sup>64</sup> They also proclaimed Industrialisation to be essential for elimination of poverty and unemployment as well as economic generation and national defence.<sup>65</sup> Special emphasis on large scale Industrialisation was given. What

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<sup>60</sup> Abha Sur, 'Scientism and Social Justice', *Historical Studies in the Physical and Biological Sciences*, Vol. 33, No.1 (2002), pp. 87-105.

<sup>61</sup> The NPC members composed of Nehru as the Chairman, K.T Shah as the Secretary, Visveswaraya, Purshotam Thakurdas, Meghnad saha, A.D Shroff, J.C Ghosh, N.M Joshi, A.K Shah, Dubey, Mookerjee, Nasir Ahmad. List in the list as seen from Shah, K.T( ed) NPC Reports, (Bombay; Vora and Co., 1949), NMML. As could be seen, the composition had members from different and varied professions ranging from scientists to architects to industrialists to educationists etc.

<sup>62</sup> J.C Ghosh was a Chemist from Calcutta known for his role in the building of scientific and industrial research as well as technical education. He later became the head of Department of Dacca University and went on to become the Director of IIS Bangalore and the first director of IIT Kharagpur.

P.C Mahalanobis was the founder of Indian Statistical Institute in Calcutta, 1932. Since 1940, after Nehru visited ISI, Mahalanobis was to play a crucial role in the Planning process. He was possibly the first to develop a calculating machine.

M. Visveswaraya was the Dewan of Mysore, famously known as a civil engineer instrumental in developing infrastructural projects like huge dams and bridges.

<sup>63</sup> Nehru, *Selected works of Jawaharlal Nehru*, series 1, Vol. 9, p. 377, NMML.

<sup>64</sup> Shah, K.T(ed.) NPC Reports, (Bombay; Vora and Co., 1949), NMML.

<sup>65</sup> *Ibid.*

is interesting is Agriculture was also given due weightage, according the status of an industry and latest discoveries were to be applied in the field of animal husbandry, horticulture, fisheries, irrigation etc.<sup>66</sup> Various sub-committees for manufacturing industries were also listed as chemical, mining and metallurgy.

This stage becomes crucial towards a further advancement in Nehru's approach to Science as initially from just recognising science as the prime mover for development, he practically was ready to experiment and convert the abstract term "science" into a physically concrete form. In his message to the Silver Jubilee Session of the Indian Science Congress in January, 1938, Jawaharlal Nehru emphasised on the need for National Planning and stated "*I believe that without such Planning, little that is worthwhile can be done.*"<sup>67</sup> The undeniable relation between economic independence and political liberation thorough planning and coordination could be mirrored from the NPC. However, the disruption caused by the War didn't deter the spirit of most of its members as they remained faithful to science, technology and industrial development in the years that followed. But a seed had been sowed wherein the coordination between scientists, Government and the Planning had to be made after independence.

#### *Council of Scientific and Industrial Research*

Contemporaneous to Saha was another great scientist India had never seen, Dr Shanti Swarup Bhatnagar who was rather very much instrumental in the development of scientific research in the country. Born in Lahore, he received D.Sc in Chemistry from the University of London later to be awarded FRS in 1943 due to his commendable researches in the field of Applied Chemistry. He also taught at Benaras Hindu University before becoming the Director of Scientific and Industrial Research and went on to become the Director of Council of Scientific and Industrial Research (CSIR) in 1942. It was under his captainship that the CSIR flourished, only to be propelled by the patronage of Prime Minister, Nehru post Independence.

The commencement of the Second World War entail India becoming the main supply base for the Allied forces so, the demand for making India industrially self sufficient and an effective base for war supplies thus became insistent. Hence, the Government of India sought the aid of science to make the most of the resources available

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<sup>66</sup> Shah, K.T(ed.) NPC Reports: Animal Husbandry, Dairying, Fisheries and Horticulture( Bombay: Vora and Co., 1948)

<sup>67</sup> Nehru, *Selected Works of Jawaharlal Nehru*, Series-1, Vol-8, p. 807, NMML.

within the country. Accordingly, a Board of Scientific and Industrial Research (BSIR) was set up to advise the Government on what directions the industrial research was to be carried out, in 1940.<sup>68</sup> Two years later, the experience gained in the working of the Board suggested the desirability of setting up of a central organization for planning research, bringing about co-ordination in research activities and promoting the application of research for national development for which Bhatnagar was relegated the chair of the Director.<sup>69</sup> He believed that “*Scientific and industrial research thrives best when it is applied to material benefits of human kind and to existing industries and agricultural enterprises,*” and therefore started plans for establishing a number of laboratories.<sup>70</sup> Within just a year from 1946-47, the foundation stones for the first of the five National Laboratories were laid.<sup>71</sup> Referring to these laboratories, he stated:

There are hardly any new lands which Indian can hope to exploit. The only new lands.....lie in the domain of mind and have to be created in the research laboratory. It is on these sources which will emerge from the national laboratories that we may have to depend now and in the future for the means to maintain and raise our standard of living and to keep abreast amongst the best nations of the world.<sup>72</sup>

Under his directorship, the Atomic Research Commission also was formed giving due importance to the necessity of raising India to the position of a superpower in the field of nuclear research.

Framework of a potential organization had already been emerging for scientific and industrial research before Independence. Nehru’s coming all the more provided a thrust as far as their activities were concerned. His first contact with CSIR was when he laid the foundation stone of the laboratories in 1947. A portfolio of scientific research had been created under his charge in his first Cabinet. In his individual and official capacity, he wished to associate himself with the council since he was interested and was eager to show what importance the new Government would attach to scientific development in

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<sup>68</sup> *Scientific Research*, the Publications Division, Ministry of Information and Broadcasting, Old Secretariat, Delhi-8, August, 1957.

<sup>69</sup> *Ibid.*, p. 3.

<sup>70</sup> *Publicly Funded Research Institutions and the Legacy of Sir Shanti Swarup Bhatnagar*, Inspiration Lecture Series, Venture Centre, Pune, 2014.

<sup>71</sup> Central Glass and Ceramic Research Institute, Calcutta, Central Fuel Research Station, Dhanbad, National Metallurgical Laboratory, Jamshedpur, National Physical Laboratory, Delhi and National Chemical Laboratory, Poona.

<sup>72</sup> *Publicly Funded Research Institutions and the Legacy of Sir Shanti Swarup Bhatnagar*, dated 6<sup>th</sup> April 1947, Inspiration Lecture Series, 2014.



country.<sup>73</sup> Proximity to Nehru gave Bhatnagar the upper hand in the working of the CSIR as stretching on to the time that Bhatnagar died in 1<sup>st</sup> Jan 1955, he had created a chain of twelve magnificent laboratories dealing with different disciplines ranging from physics to chemistry and leather to pharmaceuticals.<sup>74</sup> Presiding over the Governing body of the CSIR in 1949, Nehru furthermore gifted two buildings, one at Cheluvamba Mansion in Mysore and the other at Chattar Manzil in Lucknow to locate two of the national laboratories of the Council.<sup>75</sup> Nehru as the President of such an institution was always present to lay foundation stones at majority of the laboratories. Feeling proud of the achievement through Bhatnagar's efforts, he went on to declare that if it had not been for him, the fine exemplar of such temples of science wouldn't have been possible.<sup>76</sup> Prime Minister Indira Gandhi called such an interaction the "Nehru-Bhatnagar effect".<sup>77</sup> Bhatnagar had also worked under the Ministry of Education in 1948 and later as the Chairman of the University Grant Commission for a short period of time rightly regarded universities as the fountain head of knowledge. Hence, he appealed for a change in the outlook of the Government towards formulating an open and free educational policy. Linking education with industry and prospects of university education, he stated:

The development of science and industry in this country will need a large potential scientific manpower. While national laboratories and research institutions will help in furthering the application of science to industry, it is clear that ultimately we have to depend upon the University for even and constant flow of scientific workers and leaders imbued with zeal and zest for research.<sup>78</sup>

### *Atomic Energy*

On the eve of Independence, India was just like a broken glass. She was weak and fragile physically. But at the same time, there was a fire within, which needed to be propelled. Probably at that time, no one took her seriously but after much hard work in

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<sup>73</sup> Singh, *Jawaharlal Nehru and the CSIR*, NMML, Teen Murti House, New Delhi, 1990.

<sup>74</sup> Gupta, 'A science czar', *Science Reporter*, August 2011.

<sup>75</sup> 'Gift of two buildings for Scientific Research, *The Times of India*, dated 20<sup>th</sup> Jan, 1949, NMML.

<sup>76</sup> "I have always been associated with many prominent figures eminent in other ways, but Dr. Bhatnagar was a special combination of many things, added to which was a tremendous energy with an enthusiasm to achieve things. The result was he left a record of achievement which was truly remarkable. I can truly say that but for Dr. Bhatnagar you could not have seen today the chain of national laboratories" by Nehru, dated 3<sup>rd</sup> Jan, 1955 from *Publicly funded Research Institutions and the legacy of Sir Shanti Swarup Bhatnagar*, 2014.

<sup>77</sup> 'Nehru-Bhatnagar effect gave birth to CSIR, *The Times of India*, dated 28<sup>th</sup> Oct, 1974, NMML.

<sup>78</sup> *The Times of India*, dated 5<sup>th</sup> Jan, 1949, NMML.

the scientific and nuclear arena, the first atomic test in 1974 sealed her position among the top powerful countries in the world opening herself to the international spectrum. India transformed itself from dependence to Independence, from the margins to the techno scientific activities.<sup>79</sup> Perhaps, science is given both local and universal meaning here whereby its legitimacy in Western descent is questioned by producing an Indian science. Post Independence, the Government as well as the scientific community concentrated mostly on achieving goals towards atomic energy.<sup>80</sup> Through these attempts, Nehru goes on to share cordial relations with Bhabha and Bhatnagar particularly thereby, enhancing his understanding of scientific information and knowledge through their associations and advice.

The atomic bombs that had forced Japan's surrender and ended World War II just a few years before had left a powerful impression on the minds of nationalist leaders, reinforcing the power of science for state ends and India's own shortcomings in this regard. But, interestingly, India's aim towards the initiation of a nuclear journey had started much before, as early as 1943.<sup>81</sup> The credit behind this goes to none other than Homi Jahangir Bhabha, a renowned scientist from a wealthy Parsi family from Bombay who graduated in mechanical science tripos, out of choice from Cambridge but went on to attain PhD in theoretical physics at a time when coincidentally there was a great interest and excitement in the world of theoretical physics in Europe amongst top notched scientists like Blackett, Cockcroft, Chadwick, to name a few. By 1933, at just 24, he had started publishing papers on Cosmic Radiation due to which he was elected to an Isaac Newton Studentship in 1934 and travelled to European centres of theoretical physics working under best of the best of theorists and experimenters in Physics, in Neil Bohr's Institute in Copenhagen, which was the Mecca in the same expertise, to Zurich and in Rome.<sup>82</sup> His joint collaboration with his colleague Heitler fetched him the prestigious Adams Prize which according to the latter "secured Bhabha a permanent reputation in

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<sup>79</sup> <https://muse.jhu.edu> (Retrieved on 25-07-16)

<sup>80</sup> "As long as the world is constituted as it is, every country will have to devise and use the latest scientific devices for its protection. I have no doubt that India will develop her scientific researches and I hope scientists will use the atomic force for constructive purposes. But if India is threatened, she will inevitably try to defend herself by all means at her disposal". Norman, Dorothy(ed.), *Nehru the First sixty years*, Bodley Head, London, 1965.

<sup>81</sup> Notes on laying the foundation stone of the Tata Institute of Fundamental Research (TIFR) by Jawaharlal Nehru, dated 1<sup>st</sup> Jan, 1954, Institute of Defence Studies and Analysis documents (IDSA).

<sup>82</sup> Cockcroft and Menon, *Homi Jahangir Bhabha*, the Royal Institution of Great Britain, 21, Albemarle Street, London, 1967, Bhabha Papers, NMML.

theoretical physics.”<sup>83</sup> Just eighteen years younger to Saha, he was to become the right hand of Nehru and the chief architect of nuclear energy in India.

A year before freedom, Bhabha had chaired the first meeting of the Atomic Research Committee stressing the need for atomic research in regards to the importance of security and prosperity of the country.<sup>84</sup> Further, in April, 1948, he proposed that the Department of Scientific and industrial Research be placed under Nehru and effort towards the establishment and composition of an Atomic Energy Commission (AEC) be made and placed directly under his jurisdiction.<sup>85</sup> Bhabha was not alone in this. Bhatnagar was always there backing him in his venture. He also surveyed the efforts of the Government of India in the cause of scientific research and referred to the setting up of the AEC.<sup>86</sup> Consequently, the same year, the proposals were accepted and the Commission was established entrusting its charge to Bhabha himself as the Director, S.S Bhatnagar, scientists and Director of Council of Scientific and Industrial Research (CSIR) and K.S Krishnan, peer of C.V Raman as the other two members under the guidance of the Prime Minister.<sup>87</sup> Absolute secrecy was to be maintained and more than one portfolio was to be conferred to an individual at the same time for the proper organisation.<sup>88</sup> However, Nehru’s scepticism and hope that the country’s outlook in relation to this atomic energy was going to be a peaceful one and not one of war and hatred could be sensed from the following, “*The world today presented a spectacle of tamasha with scientists and technologists wasting their energy on producing better and better A-Bombs and H-Bombs....even people in the best intentions in the world happens to be engaged entirely in pursuits which cannot but usher in the world an era of chaos and instability*”.<sup>89</sup> Later, an autonomous body called the Department of Atomic Energy (DAE) was set up in 1954 and the former, AEC brought under its control. Nehru appointed Bhabha as its director again. Through their efforts, India’s first reactor called “Apsara” was designed

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<sup>83</sup> Anderson, *Nucleus and Nation*, University of Chicago Press, Chicago, 2010.

<sup>84</sup> Notes issued to the Press on the First meeting of the Atomic Research Committee, dated 10<sup>th</sup> May, 1946, Saha Papers, File No.64, NMML.

<sup>85</sup> J. Bhabha to Dr S.S Bhatnagar, dated 28<sup>th</sup> April 1948, I.D.S.A Documents.

<sup>86</sup> ‘Need for rigorous pursuit of scientific research, *The Times of India*, dated 5<sup>th</sup> Jan, 1949,.

<sup>87</sup> ‘Progress of Atomic Research in India, *The Times of India*, dated 10<sup>th</sup> May, 1954,

<sup>88</sup> S.S Bhatnagar to Bhabha, dated 13<sup>th</sup> Sept, 1949, IDSA documents.

<sup>89</sup> ‘Evils to modern science: A challenge to the world, *The Times of India*, dated 11<sup>th</sup> April, 1954, NMML. Also see, ‘The aim of the AEC is to develop atomic energy for peaceful purposes in India, *The Times of India*, dated 10<sup>th</sup> May, 1954, Also, ‘Importance of Atomic Research in India, *The Times of India*, dated 6<sup>th</sup> Jan, 1947, NMML.

and built within a year and had started operating continuously since August, 1956.<sup>90</sup> Since three years, a number of valuable experiments had been made in different aspects of reactor technology and reactor physics. The radio-isotopes produced from the Apsara was successfully able to cater to twenty hospitals and research institutions as well as for irradiating seeds and other biological specimens for the Biology Division of the AEC, the Agricultural Research Institution at Delhi and many other institutions also.<sup>91</sup> The next interesting production of the AEC was the second reactor which they had simultaneously worked on during the time called the “Canada-India” reactor with a heat output of 40 MW, which would give India the upper hand because this would enable her to carve a niche amongst the most powerful isotope producers in the world, even more powerful than isotope and would make India entirely self sufficient in the same.<sup>92</sup> Bhabha was also of the opinion that if this was successful, India might very likely become exporter of isotopes to the rest of the world if any demand arose.

Here, atomic energy has been made the epitome of modern scientific project.<sup>93</sup> The social implications of the latest scientific developments in the field of atomic energy made Nehru increasingly conscious of the social responsibility to the scientists to ensure rightful utilisation of fruits of their work. He constantly reiterated about the two facets of science, one of construction and the other of destruction and repeatedly reminded the scientists of their role against the abuse of science.<sup>94</sup> This is where he disliked their “ivory towers” attitude stating that one must always keep in mind what they are doing and what the results of their actions would be.<sup>95</sup> Science was to harness good for the mankind. He deemed tolerance to be lacking in the world of science. At the inaugural address of the Indian Science Congress at Cuttack in January 1962, Nehru talked about the lessons of tolerance that Buddha and the great Kalinga King Asoka and emphasised that science needs more ethical elements like that of tolerance to undertake the national reconstruction program in a good and constructive way.<sup>96</sup>

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<sup>90</sup> Bhabha and M. Dayal, *Role of Atomic Energy in India's development*, project engineer, Atomic Power Stations, p. 17, Bhabha Papers, NMML.

<sup>91</sup> *Ibid.*,

<sup>92</sup> *Ibid.*, p. 18.

<sup>93</sup> Itty Ibrahim, ‘Science and Power in Post-Colonial Period,’ *Alternatives: Global, Local, Political*, Vol. 21, No.3 (July-Sept. 1996), pp. 321-339.

<sup>94</sup> *The Times of India*, dated 11<sup>th</sup> April, 1954, p. 1.

<sup>95</sup> *The Times of India*, dated 5<sup>th</sup> Jan, 1955, p. 11.

<sup>96</sup> Singh, *Nehru on Science*, 1986, NMML, p. 91.

In a way, Scientists and their institutions were now seen as decisive mechanism of the national move to modernity, both in matters of war and peace. For such a reason he also supported the setting up of a scientific manpower committee taking Sir Alan Barlow's design for the proper and most effective reorganisation and utilisation of scientific manpower and resources available in India besides the formation of Atomic Energy Commission.<sup>97</sup> For latest technological developments and because of the shortage of nuclear energy minerals in the country, foreign help was sought. In fact, Bhabha, Bhatnagar and Nehru used to travel regularly to the foreign countries for frequent dialogue regarding varied matters.

Though Meghnad Saha's involvement seems minimal in such an important project, his contribution cannot be neglected. He had already pioneered research in nuclear physics as early as 1941 and had also written about the possibility of energy production by controlled fission of uranium. A cyclotron at University of Calcutta had also been constructed due to his efforts. However, before embarking on to the Atomic field, he believed India should first expand its industrial foundation like chemical and metallurgical industries due to the paucity of trained technical personnel and infrastructure for the development of nuclear energy, hence he wanted the "Indian Atomic Energy Act" to be completely scrapped off altogether.<sup>98</sup> He was resentful of the over-the-top help sought from the foreign countries as he feared they might meddle into the internal affairs. The secrecy policy was also something that he loathed, arguing that it prevented from the formulation of correct atomic policy. Had it been an overtly affair, discussions and expert knowledge and viewpoints of different groups would enable a good policy to be shaped.<sup>99</sup> He at the end became sceptical of the state of science critiquing Nehru directly and his scientific advisors, for which it is believed he became almost invisible from the picture. *"My request to you is that you do not smother your Desdemonas on the report of men like this particular Yago. I sometimes believe that there are too many Yagos about you, as there have been in history about every person of power, and prestige"*.<sup>100</sup> The decision of Nehru to locate the AEC and DAE with Bhabha as the chairman of the former and secretary of the latter must have caused some disappointment to Saha. A growing estrangement with the Prime Minister with some of

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<sup>97</sup> Nehru, Selected Works of Jawaharlal Nehru's, Vol-2, NMML

<sup>98</sup> [www.vigyanprasar.gov.in](http://www.vigyanprasar.gov.in). (retrieved on 15-05-16)

<sup>99</sup> Sur, 'Scientism and social justice', *Historical Studies in the Physical and Biological Sciences*, Vol. 33, No.1 (2002), p.101.

<sup>100</sup> From Saha to Nehru, dated 27<sup>th</sup> Dec, 1954, Saha Papers, NMML.

the latter decisions may have been one of the factors which decided Saha to enter politics in 1952.<sup>101</sup>

This was not all, when the nations of the world were going gaga over venturing to the moon, India didn't lack behind. During the last years of his term, Nehru contemplating the need for the same, embarked onto a new journey of space science wherein Vikram Sarabai, a young scientist came in the public eye. The development of space research institutes and organisations like Indian Space Research Organisations (ISRO) and others could be credited to both of them.

The unceasing and consistent effort towards supporting scientific and industrial research at every instance was one such element of the Nehruvian era. What is imperative here is the fact that he was not alone. In fact, Nehruvian science was not Nehru's effort alone. Teaming up with the availability of science leadership under Saha, Bhatnagar, Bhabha, Sarabai etc who had the required skills, Nehru very sharply steered the ship of science towards self-reliance and self-sufficiency. While the political leadership could provide administrative and material support, it was the task of scientific leadership to bring into account the scientific and technological infrastructure.<sup>102</sup> The "politician-scientist linkage" or alliance was to become fruitful and this was something that Nehru passionately trusted. He delivered "*there is no doubt that in India, there is a growing realisation of this fact that the politician and scientist should work in close cooperation. The solution to all our social and economic problems depends on this cooperation and no state can afford to ignore this fact*"<sup>103</sup> The political leadership in the first half of the twentieth century of progressive nationalists drew upon science as a narrative of freedom and the scientists responsible for the post independence organisation of science offered it as an activity that would herald the economic millennium, in this manner, the institutional frame for big science was established in the country.<sup>104</sup>

Nehru's enthusiasm with science took many forms and this included continuously attending annual sessions of the Indian science congress from 1947 onwards, not to forget

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<sup>101</sup> [www.vigyanprasar.gov.in](http://www.vigyanprasar.gov.in). (retrieved on 15-05-16)

Also see the condolence speech given by Education Advisor Maulana Abul Kalam Azad on the death of S.S Bhatnagar, dated 3<sup>rd</sup> Jan, 1955, *The Times of India*, NMML.

<sup>102</sup> Baldev Singh and Parathasarthi, *Science in India: The first ten years*, New Delhi, 1992, NMML.

<sup>103</sup> Singh, *Nehru on Science and Society*, pp. 16-19, NMML.

<sup>104</sup> S. Habib and Raina, *Domesticating Modern Science: A Social History of Science and Culture in Colonial India*, Tullika Books, New Delhi, 2004.

the message he sent in 1938 for the silver jubilee celebration of the congress.<sup>105</sup> Such opportunities were aimed at making the public to have a clear notion of the personal attachment he had to science and its application and the commitment and support of his government for its advancement. Most of all, such occasions became handy to reach out to the scientific communities of various institutes and to the general public reminding them of their responsibility to develop the spirit and temper of science and to always think towards the attainment of progress all along. Thus “*scientific mobilisations*” could be possible in such a way. By such meetings and sessions, Nehruvian Science lashed out the barriers or boundaries of science. In the words of Nehru himself, “*I am very glad that distinguished foreign scientists have come here, both because we profit by meeting distinguished people, by hearing to them, by talking to them, we broaden our own horizon and also...the Republic of Science knows no frontiers or boundaries.*”<sup>106</sup>

His association with the inauguration ceremonies of various national laboratories, atomic energy establishments, scientific academies, educational institutes or technical institutes like the five of the Indian Institutes of Technology built during his time, Medical institutions like All India Institute of Medical Sciences (AIIMS), Indian Institute of Management (IIM) etc till the end is a testimony of the support he gave to science for he wanted India to stand on her own terms.

Attack on Nehru regarding the fact that he had neglected agriculture and favoured heavy industries have made rounds for quite some time. While partly it is true, he didn't neglect agriculture whole together. Nehru held that industry and agriculture were interdependent.<sup>107</sup> Industrialisation would have a very large role in raising the condition of agriculture in the country. In the first Five Year Plan, primary emphasis was given to Agriculture in which India gained eleven million tons food grains over the base year 1949-55 as against the planned agricultural production to pre-war levels.<sup>108</sup> Wheat loan of 190 million dollars had also been taken from the United States during early planning by Nehru's Government.<sup>109</sup> The Construction of enormous and gigantic dams for which he reiterated the necessary availability of trained engineers and technicians in the country also had its connection with agricultural augmentation. A total of 87,000 acres of jungle

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<sup>105</sup> except a few of them in 1948 and 1961 due to political situations

<sup>106</sup> Singh, *Nehru on Science*, 1986, pp.60-68.

<sup>107</sup> 'Nehru's contributions to planning hailed, *The Times of India*, dated 15<sup>th</sup> Nov, 1977, NMML.

<sup>108</sup> 'India got \$460,000,000 aid for First Plan, *The Times of India*, dated 9<sup>th</sup> May, 1956, NMML.

<sup>109</sup> *Ibid.*

land was reclaimed for cultivation during the first year of the Second Five Year Plan. As a result of completion of some of the projects in the year, approximately 3,100,000 acres of land came under irrigation. The govt has also started growing cotton on the basis of a five year program and by 1961, it was expected to produce 225,000 bales valued at \$63,000,000.<sup>110</sup> Production of food grains rose by 1,400,000 tons to 66,200,000 tons in the Second Five Year Plans.<sup>111</sup> Although dependent on foreign countries for raw materials, effort on agricultural front was made in a considerable way in the Nehruvian period.

In retrospect, it could be pointed out that Nehru inculcated fragments of scientific ideas at different points of time throughout his life, whether it be his western attitude to life, his studies at Cambridge, the incident which exposed him to the deplorable conditions of rural India which gave him emotional base to look into the economic dimensions of the poor; his going to Europe and attending various meetings with left parties or to Russia bringing back ideas of Socialism and putting it with science for social purpose; his incarceration period which introduced him to plethora of books and references of different fields. Again, putting science onto the planning aspect, giving it shape and ultimately reaching the last stage of consciousness of science after independence by situating it into practice seems very noteworthy. Through different stages of his life, science was inculcated with a factor.

All in all, Nehru regarded Science as a program for socio-cultural change intended to transform society and the prevalent mind set. Science was crucial to Nehru because he wanted to administer radical change in India without any kind of violence or state authoritarianism. Being an ardent Democrat, he fostered upon the Government and the public the true meaning and advantages of Science without any instruments of tyrannical regulation.

The planning process which was interrupted by war during the end of 1930s resumed with the formation of a National Planning Commission in 1950. Planning was the equivalent of a Peaceful revolution and represented “*science in action*” according to him.<sup>112</sup> Science thus becomes the means by which modern nation could free itself from

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<sup>110</sup> ‘India Five Year Plan is Pus and Minus, *The New York Times*, dated 29<sup>th</sup> June, 1957.

<sup>111</sup> *Ibid.*

<sup>112</sup> *Jawaharlal Nehru’s Speeches*, Vol. 3, Publications Division, Ministry of Information and Broadcasting, Government of India, New Delhi, 1958, p. 374.



the clutches of custom and conquer deficiency and backwardness. Under Jawaharlal Nehru's leadership, it was to become an institution building project as we could see many scientific institutions being flourished under his aegis. It was hope of building something new for advancement of the country that kept the fire of science burning. As rightly stated by S. Irfan Habib, For Jawaharlal Nehru, science was an "*enzyme of hope*", a romance, a dream, and a constructive way of imagining the nation, which he wanted to experience.<sup>113</sup>

Is Nehruvian science just the history of Nehru and his contribution towards developing India through scientific endeavours? Is it just as simple as that? May be, not. One needs to have a microscopic lens in order to go in depth into the ocean of one's mind to get a closer picture of such a phenomenal figure. His contributions and achievements are many and they point towards a completely different argument altogether. Nehru was someone who strongly believed that science is universal, that science has no boundaries whatsoever. Nehru himself stated that science and technology had no frontiers and nobody ought to talk about English science, French science, American science, Chinese science as science is something that is bigger than countries. He also added that there ought not to be an Indian science, so also with technology too.<sup>114</sup> So, by forging a Nehruvian science, he becomes rather a rebel, challenging the usual norm of science being a European descent or origin, enunciating a definite non-western science. Dhruv Raina sees this as part of Nehru's international policy where he saw the vision of science to be a part of wider Asian resurgence. Now, this might come as a surprise because he, in his autobiography saw science as a gift from the British and appreciating them for bringing it into India, "*to the British, we must be grateful for one splendid gift of which they are the bearers, the gift of science and its rich offspring. Without this great gift, India was doomed to decay.*"<sup>115</sup> The authority that science enjoyed under Colonialism according to Nehru could not be neglected even though the nature of their administration for the colonised was loath worthy.

Nehruvian Science was an effort at forging a local science whereby Indian science becomes a part of the universal science. Science was deployed as a means to forge an indigenous identity. Or in other words, it was a non-western contribution to modern science. However, in endorsing a local "Indian Science", it was necessary that science be

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<sup>113</sup> Habib, 'Science as solution', *Frontline*, dated 26<sup>th</sup> Nov, 2014,

<sup>114</sup> Speech at the Central Board of Irrigation in New Delhi, dated 5<sup>th</sup> Dec, 1948, *Jawaharlal Nehru Speeches*, Vol-1, p. 90.

<sup>115</sup> Jawaharlal Nehru, *Glimpses of World History*, Penguin Books, New Delhi, 2004, p. 175.

open or all encompassing as far as possible, as a country wouldn't progress in isolation. This is where the idea of "Internationalism" comes in. Nehru, if not entirely trained, was mostly trained as a science student from Britain, then came back to India and became a forerunner in India's journey towards Independence. He was not a scientist per se but his being graduated from Cambridge; his western demeanour gave him the upper hand in forging an internationalist figure through science. This holds true for many of the scientists involved in the formulation of science policy in the government like Meghnad Saha, Bhatnagar, Bhabha, Satyendra Bose, Sarabai etc. Most of them were European trained, in the sense; they came in contact or worked with various renown and world famous scientists like Einstein, Bohrs during the 1920s, a period too early to even conceive of such brilliant minds in wildest dreams possible. Some of them also were awarded the Fellow of Royal Society (FRS) in their respective specialisations for their involvement and contribution towards global science. Their papers were even published in British and other European Journals. Reference on Meghnad Saha's work on theoretical physics was enormous. Approximately 200 journal citations were referred to Saha's work by the end of the 1920s. It is equally mesmerising to know Saha along with Satyendra Bose were the first in the whole world to translate Einstein's classical work on Relativity in English. We also have an instance on how 'Bose- Einstein Effect' was born in which Satyendra Bose sent his paper to Einstein to which the latter praised the former for his commendable work and asked him to work with him.<sup>116</sup> Bhatnagar, Bhabha etc were equally illustrious in their own fields forging an international presence of their own felt through their various commendable works. This gives us a wide comprehension of the multifarious discussions and dialogues involved in initiating, producing as well as disseminating scientific ideas and information from the margin to the global showground. A much larger canvas of national and international dynamics had already thus been invoked much before the country's freedom as a result of these scientific communities.

In spite of this, they sometimes were neglected or ridiculed. To give an instance, Saha frequently met with incredulity that his earliest work was done in India not abroad and sometimes projected among foreign scientists an image of neglected and isolated genius ignored by western scientists; Few in the astrophysics establishment understood that he had done the essential work in Calcutta because it was commonly thought, except among his friends that his creative thinking and writing had occurred only after he went

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<sup>116</sup> Anderson, *Nucleus and Nations*, the University of Chicago Press, Chicago, 2010.

abroad.<sup>117</sup> How could an astrophysicist at the periphery invent new hypothesis and theories that surpassed insights available at the centre? In India and the colonial world, scientific claims emerging from the periphery were least problematic once scientists from the periphery gained entry into the visible colleges at the centre.<sup>118</sup> The pattern of emulation set up by the centre triggers efforts at the periphery that may surpass the centre.<sup>119</sup> A central postulate that the centre is a privileged site for the generation of influence could be questioned. This becomes symptomatic of the fact that scientific ideas doesn't have to travel from core to peripheral areas but could be other way round. Hence, centre always shifts. Incorporating these famous scientists and various others through Nehru, efforts were being made to decolonise or decentralise science from the British clutches and make it international and universal as possible.

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<sup>117</sup> *Ibid.*, p. 31.

<sup>118</sup> Raina, *Images and Contexts*, Oxford University Press, New Delhi, 2003, p. 159.

<sup>119</sup> *Ibid.*, p. 167.

## CHAPTER 2

### THE BIRTH OF THE IIT SYSTEM: IIT, KHARAGPUR

#### **Introduction**

The Indian Institutes of Technology popularly known as the IITs in short embody India's pride in the global arena. They have had a special position in the higher education system of the country which by now surpassed onto taking on the whole technological world of science. One cannot possibly think of any world famous and renowned Companies like Microsoft, Apple, Google and many more which do not have an Indian, who passed out from one of such prestigious technological Institutes, taking them by storm. One of the toughest of the exams to clear though, in fact, now, it has become like a tradition in the psyches of the majority of the parents living in the country to enrol their children to such premier Institutes. Hence, preparation starts once they get passed their Board exams. These Institutes were established during the time when emphasis on science and technology was paramount in taking the country to a whole different level from the issues of poverty and malnutrition character of India during the early years after the Independence. Who knew that such a modest commencement of the Indian Government in its budding years would later unfurl as a long anecdote in the history of Independent India's test with higher scientific and technological education?

Irrespective of the development of the IITs and their formidable position in the intellectual arena of the country and elsewhere, hardly any attention has been given to its systematic study mainly on the origin and growth of these institutions, at least in the field of social science researches.<sup>120</sup> There are very few scholarly pursuits undertaken as far as the underlying dynamics of how these institutions were developed or what propelled such Institutions to start off. Minimal work on IIT, Kanpur and IIT, Bombay are seen once in a while. One phenomenal study is done by Indira Choudhury whose work highlights the importance of oral tradition in the study of IITs. What is even more exciting in her paper is the significance of subaltern study whereby a mistri's or a brick worker or glass maker's say becomes an important medium of expression in historical study of any Institution. Innumerable numbers of IITs have also been established in the last couple of

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<sup>120</sup> Indira Choudhary in her '*Historian among Scientist*' also speaks on similar lines.

years, thus all the more important that endeavours be made on the organized study of specific Institutes of Technology of particular regions, so as to highlight the internal politics and the complex partnership of various players involved in their establishments both within and outside of the country in the form of assistance as well. Taking these factors in mind, this chapter tries to highlight the IITs in a socio-historical context. Main emphasis has been laid particularly on the study of the inception of Indian Institute of Technology, Kharagpur due to the reason that it was the first of the several IITs being developed, thus it would be interesting to have an idea about the elaborate arrangements being made by the Government regarding its genesis in the light of the primacy given to science and technology to boost the country's position. This is an attempt at creating a post-Independence knowledge society which was to exceed national as well international standards whole together. Through such an attempt, the dominance of the West in terms of knowledge transfer becomes an issue. Increasing migration of the graduates from these Institutions abroad or the question of brain drain also comes up whereby in a positive light, the constant character of the linear diffusion of knowledge from much advanced western country to an under developed or peripheral region is questioned. The boundaries of knowledge dissemination could thus be bargained.

Kharagpur's model was eventually used in the establishment of succeeding Institutes in various regions of the country. Initially established in the city of Calcutta, already a hub of knowledge creation, such an Institute became the "heart" of engineering nucleus, the "model" of which others were to emulate. To add to this, there is always a hint of excitement associated with studying the first, fresh, new projects.

The Indian Institute of Technology, Kharagpur known originally as the Eastern Higher Technical Institute formally established in 1951, happens to be an Institution aimed at providing facilities on a large scale for advanced work and research in the various branches of engineering and technology and to train students in specialised fields for which facilities didn't exist in the country.<sup>121</sup> Briefly, it was devoted to post- graduate studies and research for imparting advanced technical education to the future technocrats of modern India. Anticipating the inevitability of higher and technical education as a critical component to the nation's target of rising as chief participant in the universal knowledge economy, the Institute of National Importance started taking shape in a small

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<sup>121</sup> Draft notice to the Cabinet Secretariat, undated, National Archive of India (NAI thereafter).

set up in 5, Esplanade Row, in the east of Kolkata before it was moved to a place 125kms away from Kolkata.<sup>122</sup>

The development and planning for post war reconstruction programme on the lines of science and technology had started before India gained freedom. IITs reflected Nehru's dream. Central to the establishment of IIT, Kharagpur was Pandit Jawaharlal Nehru's vision to generate highly educated technological energy which would supply vital key input for the enormous power plans, dams and other industrial projects that he had undertaken. This would ultimately guarantee the country's freedom and reliance to other nations in the realm of science and technology. His vision that the early development of the country towards science and technology would help save herself from drainage of her resources to other nations and bring about self reliance and self sufficiency was pressing. In the famous Scientific Policy Resolution on the 4<sup>th</sup> of March, he viewed that:

the key to national prosperity, apart from the spirit of the people, lies, in the modern age, in the effective combination of three factors, technology, raw materials and capital, of which the first is perhaps the most important.....technology can only grow out of the study of science and its applications.<sup>123</sup>

He was also of the opinion that if the wealth and prosperity of a nation were to grow, it needed the effective utilisation of its human and material resources through Industrialisation and the use of human material for Industrialisation would demand its education in science and training in technical skills.<sup>124</sup> As could be seen, equally anxious he was to the question of mass education, at one point even gave the example of Japan whose lifestyle changed after they were introduced to mass education and training of people stressing that "*we must have scientific education comprising not everybody, but large numbers and technical education.*"<sup>125</sup> Technical education assuming mass movement in order that more people get access to it so they would take full advantage of the facilities was instrumental. Also, the rate of economic growth of the country was

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<sup>122</sup> Dharam Vir, Dhruvajyoti sen, Priyadarshini Patnaik and Arnab Kumar Hazra (eds.), *Sixty years in the service of the nation*, Orient Blackswan Pvt Ltd, NuTech Print Service, New Delhi, 2011, p. 1.

<sup>123</sup> Science Policy Resolution, dated 4<sup>th</sup> March, 1958, Government of India, New Delhi, F.NO. 131/CF/57, NAI.

<sup>124</sup> Ibid.

<sup>125</sup> Singh, *Nehru on Science*, 1986, pp. 75-82, NMML.

increasingly dependent upon the rate of technological development and since the latter depends upon the availability of technical and skilled occupations, technical education becomes a prime factor in increasing the growth rate of national enterprise and quality of life. All attempts were to be channelized upon achieving technological self sufficiency at the earliest even though it was important at the outset to take help from other nations in filling up the loopholes that already existed. 1940s progressively saw the urgency of technical education in modern India.

Close collaboration between Education, Industry and Research was to be maintained.<sup>126</sup> The State was entirely in favour of the organisation of research. In addition to it, the direction of basic research and manpower training effort had to be closely associated with the socio-economic goals of the country. Engagement in research would develop the nation towards self reliance in her technological needs. However, there was something lacking in the policies of the Government. *“We suffer today from the lack of trained personnel- engineers and the like....they are hardly used enough...we have plenty of unemployment in our country...that shows a lack of proper organisation and planning.”*<sup>127</sup> Scientific research work and its practical application had not properly been coordinated with the big plans of development thus necessary coordination between Scientists, Government and the planning commission needed. Engineers were more important than the administrators in so far as the progress of the nation was concerned.<sup>128</sup> Right preparation and arrangement were needed for such concerns. Nehru’s Government true to their efforts gave supervision and political as well as financial support to the establishment of the five IITs built during his lifetime. A systematic Plan through the Planning Commission was to be incorporated so that equitable sources were distributed to the remotest and widest place<sup>129</sup> as possible. The Implementation of three five year plans during the Nehruvian times placed heavy demands as well as sketched soaring arrangements for highly qualified technician and engineers for the country’s renovation programmes in all fields, in industry, technology, power, agriculture, communication and what not. During 1947-64, expenditure on technical education went up to Rs. 32 crores in the first five year plan, Rs 48 crores in the second and Rs 41 crores in the third.

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<sup>126</sup> A Comprehensive Science and Technology Plan, no date, F.NO. 10/61/73-SR, NAI.

<sup>127</sup> Singh, *Nehru on Science*, 1986, pp. 60-68, NMML.

<sup>128</sup> *Ibid.*, pp. 46-50.

<sup>129</sup> Sabil Francis, 'The IITs in India', *South Asia-Chronicle* 1/2011, pp. 293-326.

Simply put, IITs were premeditated to supply the new independent nation with group of engineers. India asserted two things simultaneously through such scheme i.e., the independence of the nation-state from foreign technology (though not foreign experts and shared technological know-how) and the ability of the nation-state to create its own scientific manpower. This paper is also a documentation of how great institutions originate in the imagination of great men with foresight and concern for humanity and of how unique personalities may interact in their political and social setting and succeed in initiating and nurturing a great tradition.<sup>130</sup>

### **Technical Institutions during Colonial India**

The evolution of the Eastern Higher Technical Institute could be traced back to the peak hours of the 1940s when heated deliberations were being embarked on amongst various players in and outside the Government as far as the condition of technical education was concerned in the backdrop of Industrialising and modernising India. This threw open the problem of how post independence Scientific or technical institutions were to be framed in order to differentiate and put a wider gap in comparison to the fate of the Institutions during the colonial period.

During the colonial period, India possessed some of the finest of the technical Institutions. Arun Kumar talks about the Engineering College at Roorkee, also famously known as the Thomson College of Engineering believed to have been the first engineering college in the country established as early as 1847.<sup>131</sup> Engineering education was not just a coincidence but intended to meet the requirements of the metropolitan operation as and when their necessity arose. To import British engineers from Britain for larger works posted difficulties in the expenses hence a separate department called the Public Works Department or PWD was developed in the colony in 1854-55 for which trained personnel in lesser posts were needed on a large scale. Students from this College were appointed to the Engineer Branch of the PWD.<sup>132</sup> Even students from Calcutta Civil Engineering College were similarly appointed there once they graduated. Hence, colleges were established for their selfish objectives of generating cadres for manning the

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<sup>130</sup> Ramdas, 'A success in India', *Science*, New Series, Vol. 262, No. 5133, Oct 22nd, 1993, pp. 591-92.

<sup>131</sup> Arun Kumar, 'Colonial requirements and Engineering Education: the Public Works Department, 1847-1947' in Roy Macleod and Deepak Kumar (ed.), *Technology and the Raj*, Sage publications India Pvt. Ltd., New Delhi, 1995.

<sup>132</sup> R. Strachey to the Secretary to the Government of North Western Provinces in the Public Works Department, dated 7<sup>th</sup> Aug, 1863, Shimla, PWD, General Department, No. 41 Part B, September, NAI.



department. The courses taught in the Institution were centred to encourage students towards the attainment of posts like sub-engineers, overseers, junior lower staff, upper, lower subordinates etc.<sup>133</sup> Civil engineering, the only programme taught as it corresponded to the works taken up by the raj. Aparna Basu looking into the same matter sighted the rare case of Indians advancing in the educational and scientific arena. She also goes parallel to what Kumar had argued stating the prestigious posts being reserved for the Europeans while Indian occupying subordinate posts. One sees the same situation while examining the Engineering College at Madras whereby education was corresponded to the needs of the alien administration instead of going in par with regards to the socio-economic needs and development of the people. There were several other similar Institutions as well erected in the Calcutta, Bombay, Poona etc as well but the motive behind their establishment remained the same as could be summed up in the following quote: “*to give theoretical and practical Institution in Civil Engineering to Europeans and Natives with a view to their employment in the public works*”.<sup>134</sup> This quote says it all. The requirements of the PWD (Public Works Department) were to be met by employing students who came out from these colleges created by them. In a sense, Education perpetuated colonial hegemony. Like Science acting as the tool of Imperialism, Education became a tool through which indigenous population were fooled. Fundamental to these arrangements were the idea of “white man’s burden” associated with it. The purpose of education for the colonial state was “character formation” and “moral upliftment” which according to them were lacking in the natives, whose character was considered defective, immoral and superstitious.<sup>135</sup> Only scientific and logical knowledge would correct them of their defects.

Opposite to such Institutions were others established by Indian visionaries’ with an underlying quest for an Indian identity with an object of entrusting research facilities for the indigenous people as opposed to the appalling condition of Institutions built by the British for their selfish ends. Chitabratta talks about one such Scientific Institution which bags special attention i.e. the Indian Association for the Cultivation of Science (IACS)

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<sup>133</sup>Upper Subordinate Class, Thomason Engineering College, Roorkee, PWD Pros. (General), F. NO. 216-220, March 1896, NAI.

Also see under Annual Report of the Thomason Civil Engineering College for 1879-80, PWD (General-B), June, 1880, F.NO-114-119, NAI.

<sup>134</sup> Arun Kumar, ‘Colonial Requirements and Engineering Education’, in Kumar and McLeod (ed.) *Technology and the Raj*, Sage Publications India Pvt. Ltd. 1995, New Delhi, p. 218.

<sup>135</sup> Deepak Kumar, ‘Techno-scientific education in 19<sup>th</sup> Century India’ in Thakur V.K and K.K Mandal (ed.), *Science, Technology and Medicine in Indian History*, Janaki Prakashan, Patna, 2003, p. 310.

which flourished under the aegis of Mahendralal Sarkar. Since 1869, Sarkar had desired for a scheme of a national science society or an association which gradually transpired by 1876. Anticipating a national science institution he speaks:

We want an institution...for the masses where lectures on scientific subjects will be systematically delivered and not only illustrative experiments performed by the lecturers but the audience should be invited and taught to perform themselves. And this Institution should be under native management and control...simply that we may begin to learn the value of self reliance....<sup>136</sup>

Hence, scientific spirit was to be advocated to fight against these traditional forces. This could only be made possible by establishing an institution by the natives for the natives, for fuelling nation-building process. Another enterprise on education in India was the Indian Institute of Science (IISc) which owed its inception to the vision of Jamshedji Tata, the late-19th-century industrialist. Like IACS, it was to be an institute of science and technology wholly faithful to postgraduate research and teaching. Tata, anticipating the requirement of India as a modern nation, the idea was conceived and he backed it with all his might. Though started with high hopes, these establishments by the indigenous votaries were always under the purview of the Raj, thus finding it hard to steer clear of their gaze. However, they did leave an impact for the succeeding establishments to follow.

By the late 1930s, leniency in the British's policy towards India anticipating their weakening power gave fruits to the National Planning Committee of 1938 which for the very first time brought up the agenda of technical education and research in the hope for the country's reconstruction in every field possible. Here too, support for industrialisation remained overpowering. Under Meghnad Saha as the head of the sub-committee for general and technical education as well as developmental research, suggestions were to be offered to recognise endeavour for the nation's all round progress, self sufficiency and national regeneration in the context of education.<sup>137</sup> First, it favoured a scheme for technical education at the secondary level offering theoretical as well as practical work over a period of three to four years to the students to be trained in arts, crafts and

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<sup>136</sup> Chittabrata Palit, 'Mahendralal Sarkar, 1833-1904: The quest for National Science', in Deepak Kumar and S. Irfan Habib (ed.) *Science and Empire*, New Delhi, p. 155.

<sup>137</sup> NPC Reports: Education: General Education and Technical Education and Developmental Research, Vora and Co., 1948, Bombay.

industries.<sup>138</sup> Second, after the completion of secondary education, university education was to follow wherein taking the Soviet reference a deep grounding in general sciences and mathematics plus emphasis on industrial and technical applications was to follow.<sup>139</sup> Furthermore, no engineering educational institution in India had research as part of its academic program and so, the sub committee recommended that professors at the engineering colleges be given contracts and that every institution of university standard be equipped with men, machines and instruments for carrying out advanced research.<sup>140</sup> It recommended technical training on a vast scale.<sup>141</sup>

### **Early Developments**

Post-Independence developmental plans reflected national aspiration trying to challenge and change the very foundation that the colonisers had left. Equally captivating is how government's plan sways and persuades science plus how the particular visions and dreams of the nation are being hooked up to scientific resolutions of the state. One could sense the power of indigenous elites that had accepted and adapted certain mode of development thwarting other methods, recognizing and acknowledging western method as the way towards modernisation and progress, actively involved in creating the IITs. Foreign-trained elite or Indian elite educated in the finest universities in Britain were important in this, including Nehru himself. This was also evident from members associated in the setting up of the IITs.

The history of IIT, Kharagpur narrates the broad Indian policy which was to echo national goals through industrial research, integrating it within the wider trajectories of a planned economy. Though it was formally established in the 1950s, elaborate arrangements had been made even before India got her freedom. How did she do it? Well, one has to be patient to know the full answer to the question.

Prime Minister Nehru even though has been attributed to have been the sole benefactor and a facilitator behind the idea of creating his dream, there were others who could equally be credited for. Ardeshir Dalal was one of them. Born on April 24<sup>th</sup>, 1884 and educated at the Elphinstone College, Bombay and St. John's College, Cambridge, he entered the Indian Civil Service in 1908 and occupied various positions before being

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<sup>138</sup> *Ibid.*, note 38, pp. 138-143.

<sup>139</sup> *Ibid.*, pp. 147-148.

<sup>140</sup> *Ibid.*, p. 150.

<sup>141</sup> *Ibid.*

appointed the Secretary to the Government of Bombay in the Finance Department; was also member of Bombay legislative council and later became the director of Tata Iron and Steel Company.<sup>142</sup> But most notable of all was the fact that he was elected as the member in charge of the new Department of Planning and Development created in 1944 as a part of the post war reconstruction program.<sup>143</sup> A noted Industrialist and an administrator, he had countless tasks up his shoulders. Talking about his department's planning in the first press conference since assuming office, he added, " *the war is coming to an end and we will be confronted with a slump. We want to safeguard the country from its evil effects. There are certain things only a national government can do, but on that account, we cannot afford to stand still!*"<sup>144</sup> No time was to be wasted in proceeding with the groundwork for a planned India, even if the main changes have to wait a national government. He was of the opinion that whatever plans were to be finally adopted and whatever agency needed for the execution, the country must have men capable of carrying them out.<sup>145</sup> The most urgent need, of course, was acceleration in the training of the personnel. The view that India's main difficulty in the sphere of industrial planning and development didn't arise out of supply of capital goods but was due to the lack of sufficient technical personnel was expressed by him from time to time.<sup>146</sup> Simultaneously, plans were in hand for providing similar facilities for training within the country itself. The focus of planning and surveys gradually shifted from the needs of the metropolitan economy to those of India, with an all India perspective and long term goals. Self sufficiency in education and research was emphasized.

Around the same time, the Education Ministry too geared up for their bit to prepare plans for reconstruction. Education Commissioner, John Sergeant called for a scheme for national system of education which would cost 277 crores and more, furthering his point to elaborate on the fact that the post war educational development

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<sup>142</sup> 'Sir A. Dalal Dead: Noted Industrialist and administrator, *The Times of India*, dated 9<sup>th</sup> Oct, 1949, NMML.

<sup>143</sup> Deliberations on the "development" discourse within the Congress are known. The leading Industrialists and technocrats too including Dalal were to put up a development strategy called the "Bombay Plan" in 1944 which was received with mixed feelings in the public opinion. It also came in sharp opposition from the Gandhian front. Except for the latter faction, the plans that were laid in the late colonial period underlined the help that modern science and technology could usher in material progress and all round development in the country. While the Bombay Plan was never adopted officially, yet, the fact that Dalal was offered to be the officer in charge of the Planning and Development department meant in a way that the Government was considerate to their plans.

<sup>144</sup> 'Progress in Reconstruction plans for India, *The Times of India*, dated 15<sup>th</sup> Sept, 1944, NMML.

<sup>145</sup> 'Planning goes ahead, *The Times of India*, dated 16<sup>th</sup> Sept, 1944, NMML.

<sup>146</sup> 'Technical personnel main need of India, *The Times of India*, dated 16<sup>th</sup> March, 1946, NMML.

should be the greatest task to reckon with.<sup>147</sup> He also proposed a scheme for providing basic, primary and middle education for the adults and women, training, salaries for teachers etc.<sup>148</sup> This was not enough, an advisory Board called the Central Advisory Board of Education (CABE) was also established in 1943 which started making broad arrangements for developing higher technical educational development in the country through which a council called the All India Council of Technical Education (AICTE) was formulated with the approval of the Viceroy's Executive Council whereby supreme charge for proper planning and coordinated development of all technical education system was to be enjoyed within their jurisdiction.<sup>149</sup>

The next development that needs due attention is the visit of prominent scientist Prof. A.V Hill to India at the government's request to the Royal Society in 1943 to send a distinguished scientist to advise the Indian Government on the organisation of scientific research as part of the India's post war reconstruction plan.<sup>150</sup> He visited several universities, discussed the state of research with a large number of scientists, teachers and policy makers and submitted his report on "scientific research in India". In respect of technical education in undergraduate level, he was generally satisfied with the quality of education in various departments of engineering and technology of the country but cautioned that there was no institution which could be measured up to the quality of teaching and research work in the United States. Comparing the state of education at higher levels in Britain with those of U.S, he stated," *there is no institution as yet in the U.K comparable in magnitude, in the quality of equipment and in excellence of teaching and research work with the Massachusetts Institute of Technology at Cambridge (M.I.T) or indeed with several similar institutions in the U.S.*"<sup>151</sup> The future of Indian industrial and agricultural development must depend upon the supply of first class technical brains, trained in an atmosphere of both original research and of practical experience. He suggested that a few colleges of technology on a really great scale like the MIT should be set up in India as well.<sup>152</sup>

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<sup>147</sup> 'National Education Scheme of India, *The Statesmen*, dated 18<sup>th</sup> October, 1943, NMML.

<sup>148</sup> *Ibid.*

<sup>149</sup> *The Times of India*, dated 30<sup>th</sup> Nov, 1945, NMML

<sup>150</sup> 'Closer contacts with Indian Scientists, dated 25<sup>th</sup> November, 1943, *The Sunday Statesmen*, NMML.

<sup>151</sup> A.V Hill, *A Report to the Government of India: Scientific Research in India*, The Royal Society Burlington House, London, April 1945, NMML, p. 29. Also see under Bhatnagar Papers, Sl. No. 69, List No. 96, P.A. Acc. Nos, 361, NAI.

<sup>152</sup> Bhatnagar Papers, F/361, list no. 96, NAI.

Meanwhile, Dalal had gone on missions to U.S and Britain to discuss plans for industrial development as well as plans for the Indian students whereby a large number of them would in the future be sent to these countries for training.<sup>153</sup> Nehru had yearned for sending students and teachers abroad for experiencing firsthand knowledge:

I am entirely in favour of a state organisation of research. I would also like the state to send out promising Indian students in large numbers to foreign countries for scientific and technical training. For we have to build India on a scientific foundation, to develop her industries ...for all this we require a trained personnel.<sup>154</sup>

This was fulfilled by Dalal. He also had the privilege of taking a trip to M.I.T while his visit in the U.S and was completely enthralled by it. Considering all these developments taking place, commencement of Technical Institutions for the country's path towards modernisation and progress is not surprising. Arrangements along this line were initiated by Dalal; a committee of twenty three members under Nalini Ranjan Sarkar, a well known politician and industrialist who was also a member then at the Viceroy's Executive Council, was being set up at the earliest.<sup>155</sup>

#### *Sarkar Committee*

In the interim report appointed by the Honourable Sardar Sir Jogendra Singh, member of the Viceroy's executive Council, Department of Education, Health and Agriculture, for consideration, the Sarkar Committee adopted, "*In view of the certainty of an appreciable increase in the demand for higher specialists in Industry, a rapid expansion in facilities of higher Technical Education is a pressing necessity.*"<sup>156</sup> The committee reported the inadequacies of the existing facilities for the higher technical education during the time both in quantity and quality, to suit India's post-war needs for high grade technologists. It was necessary that surveys and examinations of the existing facilities were conducted before the final decision was outlined. After thorough discussion, the Committee came to the conclusion that in view of the size of India and the location of her industries, the provisions of several higher technical institutions, on

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<sup>153</sup> 'Dollar loans to aid India, *The Times of India*, dated 18<sup>th</sup> Aug, 1945, NMML.

<sup>154</sup> Baldev Singh, *Nehru on Science*, 1986, p. 3, NMML.

<sup>155</sup> *Development of Higher Technical Institutions in India: Interim Report of The Sarkar Committee Report*, The Government of India Press, Simla, 1946, NO. 10D/-378.990954 SAR-D, Central Secretariat Library, Shastri Bhavan.

<sup>156</sup> *Ibid.*, p. 1.

regional basis was the solution most likely to satisfy the post war requirements.<sup>157</sup> The Sarkar Committee which was the blueprint for India's foray into the world of scientific and technical education thus recommended the establishment of four regional higher technical institutions, one each in North, South, East and West and the setting up of the Eastern institution in or near Calcutta as early as possible and of the Western institution near Bombay concurrently or soon thereafter.<sup>158</sup> This division would come to terms with the geographical positioning of industrial areas together with the existing technical institutions and would be the most equitable and efficient in the interest of the country whole together. This Institute was to take the model of MIT, Cambridge considering the strong science base, integration of both teaching and practical training in their strategy, recognition of humanities and social science in engineering courses and finally cooperation with Industry, properties never before seen in the history of India. It is interesting to see that the model for the proposed institution was MIT and not a British institution like the Imperial College, even though their assistance was sought later. A year away from Independence, India was already beginning to cast aside the Raj legacy.<sup>159</sup> Ross Bassett also argued that by opting for such a model, young Indians chose an alternative version of modernity, one that, to their eyes, countered British Imperialism.<sup>160</sup> A committee set up in March 1945, with Nalini Ranjan Sarkar as chairman and S.R Sengupta as member secretary came up with the objective of providing facilities on an extensive scale for advanced work and research in the various branches of engineering and technology. The members greatly varied, coming from different occupations, highly illustrious in their own field.<sup>161</sup> Out of the twenty three members, fourteen consisted of

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<sup>157</sup> *Ibid.*, p. 3.

<sup>158</sup> *Ibid.*, p. 2. Also see under Notes on Department of Education, dated 10<sup>th</sup> Feb, 1947, File No. 20-111/50-T6, NAI.

<sup>159</sup> Sandipan Deb, *The IITians: The Story of a Remarkable Indian Institution and How its Alumni are Reshaping the World*, Penguin Books India Pvt. Ltd, 2004 p. 28.

<sup>160</sup> Carol E. Harrison and Ann Johnson, 'Introduction: Science and National Identity', *Osiris*, Vol. 24, No.1, pp. 1-14.

<sup>161</sup> This committee consisted of N.R Sarkar as the Chairman; Dr S.R. Sen Gupta, Assistant Educational Adviser to the Government of India, New Delhi as the Secretary; Dr Nazir Ahmed, Office of the Indian Tariff Board; Dr S. S. Bhatnagar, Director of C.S.I.R, New Delhi; Major General D.R Duguid, Director of Military Engineering, Master-General of Ordnance Branch, New Delhi; P.J. Edmunds, Chief Engineer, Posts and Telegraphs Department, New Delhi; Dr J. C. Ghosh, Director of IISc, Bangalore; H.K. Kirpalani, Industrial Adviser to the Government of India, Planning and Development Department, New Delhi; W.W Ladden, C/o Messrs. Simpson & Co., Madras; S. Lall, I.C.S., Additional Secretary, Labour Department, New Delhi; G.L. Mehta, Calcutta; Dr A.H Pandya, Calcutta; Dr M.D Parekh, Delhi Cloth and General Mills, Ltd. Co., Delhi; C.E Preston, Principal, Osmania Technical College, Hyderabad; W.G.W Reid, Director, Mechanical Engineering, Railway Board, New Delhi; John Sargent, Educational Adviser to the Government of India, New Delhi; A.D Shroff, Bombay; Sardar Bahadur Sir Sobha Singh, New Delhi; J.K. Srivastava, The New Victoria Mills, Kanpur; Frederic Tymms, Director of Civil Aviation in India, Posts

Indians while the remaining nine of them were British. Many arrangements were also being considered regarding the scope and size of the institute or the various institutions; the control and management of the institutions; qualifications and conditions of the service of the teachers to be employed therein and the best way of recruiting them; the preparation of the necessary plan and specification for buildings and equipments; other relevant questions relating to the establishment of such institutions and their future development and finally the budgetary cost to be incurred in all these preparation.<sup>162</sup> Training in Civil, mechanical, agriculture and electrical engineering plus architecture, geology and geophysics were to be adopted. In keeping up with the ideals of broad human outlook, subjects like humanities, economics, mathematics and statistics, chemistry, physics were also recommended for inclusion in the curriculum. In addition, emphasis in workshop and practical training was stressed. After majority of the committee members accepted the recommendations, the report was presented to the Viceroy's Executive Council for approval on December 1945. This was the first time that the government had started such a systematic exercise to establish higher technical institutions in India. On the contrary, the bizarre fact about such a committee was that they were created on the basis of an interim report which never became a final report. Still, their recommendation was accepted and endorsed by the AICTE at its first meeting held in May 1946.<sup>163</sup> Accordingly, the first of the four technical institutes to be built in Calcutta was to start taking shape soon.

### **Foundation of Eastern Higher Technical Institute**

In 1952, the Education Minister, Azad in his inauguration speech of the institute was optimistic that the institution would one day rise above in its standards so much so that the other nations of the world would look up to them. His prophecy has turned out to be true. The IITs now stand testimony to what he had anticipated for a centre of excellence transgressing knowledge barriers along national as well as international lines. Our first Prime Minister, had he been alive would have been really pleased by what had

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and Air Department, New Delhi; Dr K Venkatraman, Director, Department of Chemical Technology, University of Bombay, Bombay; Dharma Vira, I.C.S., Deputy Secretary, Department of Industries and Supplies, New Delhi; W.W. Wood, Principal, Delhi Polytechnic, Delhi; Brigadier R.D.T Woolfe, Controller General of Inspection, M. G. O. Branch, G.H.Q., New Delhi.

<sup>162</sup> NO. 10D/-378.990954 SAR-D, *Development of Higher Technical Institutions in India: Interim Report of The Sarkar Committee Report*, The Government of India Press, Simla, 1946, Central Secretariat Library, Shastri Bhavan, p. 2.

<sup>163</sup> Sites of the Proposed Institute, dated 14th May, 1946, F.NO-20-111/50-T6, NAI.



taken shape of his own doing. The students from these hubs have also become global leaders in science and technology. Hence all the more vital that the narrative of such an Institution like the IIT, Kharagpur be let known because such an elaborate organisation and planning had never been encountered by young India. Though naive by experience, Nehru's Government extended its hands, watched and nurtured it like a parent. The organization and development of the Eastern Higher Technical Education had an exceptionally fascinating backdrop.

### *Hijli Detention Camp*

The location became the major hurdle as to develop an institution, land was needed. But, where would land be available? Where would it be located? These were serious questions. The search for the location of such a National Institute, that too, the first of the series, had its perks. It involved the help and assistance of various departments of the government, let alone the diverse issues relating to the hunting and investigation of many sites. Early and quick action was sought for acquiring necessary land and buildings even though for temporary use. However, nearly four years went by, trying to find a suitable convergence point from different views to have a consensus of the site finally at Hijli.

The whole idea of building a technological institute would have been pointless if right relationship between the public, industry and education was not maintained hence, in the interim report of the committee appointed to consider the development of higher technical institutions in India, it was advised that the proposed institute should be located within easy reach of large industrial areas.<sup>164</sup> Initially 600 acres but later, 900 acres of land at the radius of 20 miles and preferably on the Hooghly river for conducting hydraulic experiments at an estimated cost of 4,05,000 was also being recommended.<sup>165</sup> Availability of electric power plus railway siding within the campus was also desirable. Since the Institute was to be erected at Calcutta, there was correspondence between the Central Government and the Government of West Bengal at all possible times. As early as 1945, a small Committee had been formed and efforts had been made, still, any temporary building in Northern part of the state couldn't be spared for the starting of the engineering nucleus of the Institute. The only buildings available to explore the

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<sup>164</sup> [www.iitsystem.ac.in](http://www.iitsystem.ac.in) (retrieved on 6-06-16)

<sup>165</sup> S.R Sen Gupta to Humberstone, the Chief Purchasing Advisor, dated 12<sup>th</sup> Aug, 1946, F.NO-20-111/50-T6, NAI.

possibilities were in the Shell and Gun Factory at Dum Dum near Calcutta.<sup>166</sup> Since, it didn't adhere to the requirement as stated above, the site was rejected. At the same time, J.C Ghosh, a member of the Committee and soon to be the first Director of the Institute, inspected about twelve to thirteen sites around Calcutta plus proposed that the Institute be located at the US army installation near Kanchrapara site on the Bengal-Assam Railway line.<sup>167</sup> This was a site that the Bengal Government was willing to accommodate and anxiously waiting for the Central Government to approve. The Department of Education on the other hand held:

We are unanimously of the opinion that the site immediately to the north of the new T.B hospital of the Government of Bengal would be more suitable. Immediately on the south, we would have the advantage of having two lakes which will provide adequate supply of water for laboratory experiments and also facilities for boating. On the west, the area is bordered by the main Bengal and Assam Railway and on the south west corner of the proposed site, proposed to have a new railway station which will serve the entire area. In the east, there would be a new locomotive workshop.....the ground is high, well drained and will require no major preparation before building operations.<sup>168</sup>

The plan of the Railways department to set up a workshop for the locomotives served as the most important basis for the training of the students for the Institute. Considering the factor, Question of location when raised, an overwhelming majority decided in favour of a site near Kanchrapara on the Bengal and Assam railway. At their last meeting, the higher technical Committee also approved this.<sup>169</sup> While, a proposal had been put forward to C.R. Rajagopalachari, Minister for Industry, Supply, Education and Finance in the Interim Government headed by Nehru earlier in the month of December, 1946 to which the answer was negative as could be seen from what he had mentioned: "*the higher technical Institutions should be one near Bombay and one to the East of Delhi, near an industrial area...my own inclination is the latter should be near Jamshedpur.*"<sup>170</sup> The Ministry of Railways after Independence too decided not to locate the Locomotive Workshop at the site due to some reasons which left the decision to be

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<sup>166</sup> *Ibid.*, dated 9<sup>th</sup> Nov, 1945, NAI.

<sup>167</sup> *Ibid.*, dated 14<sup>th</sup> May, 1946, NAI.

<sup>168</sup> Notes of the Department of Education, dated 23<sup>rd</sup> Jan, 1947, NAI.

<sup>169</sup> F.NO. I698/46-E-III, dated 14<sup>th</sup> May, 1948, NAI.

<sup>170</sup> File No. F.20-1/50 T.1, dated 8<sup>th</sup> Jan, 1947, NAI.

doubtful. Further, seeing the possibility of friction between the two borders, Sen Gupta let known John Sargent the occurrence of mild press agitation in Calcutta urging the government not to locate either the locomotive factory or the institute in Kanchrapara site.<sup>171</sup>

The education department didn't limit their hunt only within Bengal itself but to the neighbouring provinces as well like Bihar in places such as Jamshedpur, Ramgarh, Hazaribagh and Ranchi but in view of the fact that the Government of India had already approached the Government of West Bengal for a site near Calcutta and also in view of the Sarkar Committee's recommendation to locate the institution within 20 miles of Calcutta the Government of India have not yet addressed the Bihar Government for a suitable site.<sup>172</sup>

Following series of failures, the Government of India requested the Bengal Government to assist in hinting some choices regarding the issue. Sen Gupta discussed the issue with Mr SK. Gupta, Secretary to the Bengal Government, Department of Education on the 24<sup>th</sup> November the possibility of securing in West Bengal an alternative site for the Institute. Accordingly, Mr Gupta proposed two alternatives. The first site being the Hijli camp which was the property of the state government and he anticipated no difficulty in handling the site to the central Government and the Panagar site, not the property of the Bengal Government but it might prepare to buy it and hand it to the Central Government if necessary.<sup>173</sup>

Sen Gupta had examined the sites. The Hijli Detention camp turned out to be the most desirable of all the sites. The Bengal Government had actually wanted to make it the headquarters of a new district. However, the scheme abandoned following their decision of not splitting Midnapur district into two. The main building of the Camp also known as the Collectorate building was once upon a time, used as a detention camp for prisoners during the 1930s.<sup>174</sup> During the war, a number of temporary hutments were built on the

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<sup>171</sup> S.R Sen Gupta to EA-John Sargent, dated 17<sup>th</sup> June, 1947, File No. F 73-53/45-E-III, NAI.

<sup>172</sup> S.R Sen Gupta to EA-John Sargent, dated 27<sup>th</sup> Nov, 1947, File No. 7567/47-E-III (P), NAI.

<sup>173</sup> S.R Sen Gupta, Assistant Educational Advisor to the Government of India to MK. Gupta, Secretary to the Bengal Government, Department of Education, dated 27<sup>th</sup> Nov, 1947, NAI.

<sup>174</sup> Commenced around 1913, the Hijli Detention Camp was built originally as a large district collectorate building in the Midnapore district (later divided into two districts, the name Midnapore remained for the first and the second was named hijli). However, around the same time, works for the building of a district court, jail, and police station etc was taken up which came to a halt in 1920s. No proper reason could be found but these buildings were disused and abandoned. It was reopened in the 1930s to house political prisoners during the civil disobedience movement. Mention could be made of eminent public figures like Ajoy

site and the whole area was being used by the American Air Force to serve the Salwa Aerodrome nearby.<sup>175</sup> However, a small problem persisted as a portion of the area was under the temporary occupation of the eastern frontier rifles who had shifted from Dacca during the partition of Bengal which later was resolved as they were shifted to some other site in two-three months.

The whole site happened to be well drained and the soil quality fared well from the point of view of construction of buildings and drainage. It was 2 and 1/2 miles away from the kharagpur junction which was just 73 miles from the Howrah station and had facilities for frequent mail, express, passenger train which took 2-3 hours to cover the distance.<sup>176</sup> Even though there happened to be no rail connection with Calcutta at first, it was hoped that it would be linked to Jamshedpur which was 60 miles away from kharagpur. Nonetheless, the Asansol industrial area and coal fields were connected to kharagpur by railway.

What was even more exciting was apart from the Collectorate building, there were a range of other buildings which could be of good use for housing various staffs and their families. Around ten pucca buildings were readily available which could be used as staff quarters. Along with these, four small pucca building to be used as senior ministerial staff and the junior teaching staff as well as a number of out-houses and six quarters for the inferior staff were available.<sup>177</sup> It had the added advantage that with the few existing buildings, they would be able to start the post-graduate classes immediately when they had the few required men for commencing work at the site.

Electric connection, though very poor, was taken from the kharagpur railway workshop power station. The Bengal Government had started a scheme which would be over in two years where electricity would be provided. For the proposed development of the surrounding area, S.N Ray of the Bengal-Nagpur Railway workshop had agreed to

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Mukherjee, Prafulla Ghosh or Prafulla Sen etc who became the chief ministers of Bengal later. Women prisoners like Kamala Das, Bina Das, Binita Choudhuri etc remained captive too. Gandhiji had also visited the place with Dr sarat Chandra Bose( one of the nephews of Netaji Bose) to meet the prisoners. In the words of Nehru," the Hijli firing has shaken Bengal from end to end. There, in a camp, was detained a band of educated and respectable young men whose only fault was patriotism."

Later, extended to Buxar and Berhampore due to serious overcrowding in Hijli. Also see letter from A.E Porter, Additional Secretary to the Government of Bengal to the Secretary of the Government of India, dated 26<sup>th</sup> July, 1943. Also see under *Jails*, F.NO 62/14/43, NAI.

<sup>175</sup> Notes of the Ministry of Education regarding the Site at Hijli Detention Camp, dated 11<sup>th</sup> Feb, 1948, NAI.

<sup>176</sup> *Ibid.*

<sup>177</sup> *Ibid.*

supply to the Government of Bengal about 1000 kilowatts, to be taken off from three points, of which one was Hijli.<sup>178</sup> With the consultation of S.K Chatterjee, Secretary of the department concerned and N.R Sarkar, hardly any difficulty for electricity would be posed regarding approval of the Bengal Government. Rates for transformers and cables were cheap and the state government only had to pay.

Further, Kharagpur although within West Bengal happened to be near Orissa, just 50 miles away from the sea which meant no problem whatsoever regarding the availability of water. But possible disadvantages were posed thereafter. Out of the four tube wells already available, two- three were in good working conditions each capable of yielding 2000 gallons of water per hour. There was difficulty in securing an adequate supply of water because when the Institution fully started in operation in about 8 years, about one million gallons of water would be required per day.<sup>179</sup> At least 30 tube wells for optimum supply of water was needed. However, to be on the safe side, help was sought from Dr West, Director of the Geological Survey of India for his report on water and soil and it turned out fine as they did not anticipate problems in regard to adequacy of water from tube wells or strength of soil for foundation for buildings.<sup>180</sup>

Accordingly, When Sen Gupta contacted the honourable Nalini Ranjan Sarkar, the chairman of AICTE, he agreed with him but the latter once again proposed that the Institution should be situated near the proposed locomotive workshop at Mihijam-Rupnarayan site to which the former opined, *“although the site would be attractive from many points of view, I am personally not in favour of going to a site in the acquisition of which and in the building of even temporary quarters on which it would mean delay....in favour of the Hijli site which is a healthy spot.”*<sup>181</sup> Many copies had been sent to various other departments asking for approval of the site. The Education Minister of the time Maulana Abul Kalam Azad too supported it. Finding profound connotation in the IIT's location, Pandit Nehru during the institute's convocation ceremony in 1956 remarked-

Here I stand at this place and my mind inevitable goes back to that infamous institution for which this place became famous...not now but twenty or thirty years ago- the Hijli Detention Camp. Here, in the place of that Hijli Detention

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<sup>178</sup> Correspondence with the Bengal-Nagpur Railway Department, dated 17<sup>th</sup> March, 1948, NAI.

<sup>179</sup> Notes of the Ministry of Education regarding the site at Hijli Detention Camp, dated 11<sup>th</sup> Feb, 1948.

<sup>180</sup> Correspondence with the Bengal-Nagpur Railway Department, dated 17<sup>th</sup> March, 1948, NAI.

<sup>181</sup> Notes of the Ministry of Education regarding the site at Hijli Detention Camp, dated 11<sup>th</sup> Feb, 1948, NAI.

Camp stands this fine monument of India (IIT) today, representing India's urges, India's future in the making.<sup>182</sup>

Considering the Hijli detention camp had the required prerequisites for the commencement of the Institute, there was no way that it would be turned down. It truly turned out to be the most suitable one for the Eastern Higher Technical Institute.

### *Construction*

Once the location had been secured, the responsibility for its construction had to be relegated to some organisation. The Central Public Works Department (CPWD) under the Ministry of Works, Production and Supply was solely given the responsibility of building and other construction works of the institute.<sup>183</sup> Question for the utilisation of their services for the same had been discussed in the presence of two members of the Board i.e. Brij Narayan and Ghosh.<sup>184</sup> For an early start, the Department was predicted to take over from the Bengal Government the site of Hijli in November 1948 to begin necessary works but it took another three years to finally set off. With the help of Dr Moser, a renowned architect of Switzerland, building for three student's hostels, residential bungalows and quarters were under construction. Services like roads, water supply, sewage and drainage was in full swing. Having expired their validity till the end of the year, continuance of their participation was sought again for further work. In a letter to the Secretary to the Government of India, Ministry of Works, Production and Supply, the Chief Engineer (CPWD), B.S Puri briefed him of the many works being carried on during the year and requested him for further continuance of their work for which the government had to make additional sanctions.<sup>185</sup> The allotment of sanction for the year 1950-51 came up to twenty five lakhs but expected to reach sixty five lakhs by 1951-51. The letter highlighted the reason for such hike to be difficulties faced by the workers as Hijli apparently happened to be a barren piece of land, possessing no social amenities. Also, difficulties in obtaining labour and materials were posed for which the staff had to be augmented. Consequently, C.S Edward, approved of the request.<sup>186</sup> As promised, thirty two technical staffs were increased as a result. The connection between

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<sup>182</sup> [www.scholarsavenue.org](http://www.scholarsavenue.org). (retrieved on 7-06-16)

<sup>183</sup> Ministry of Works, Production and Supply, F.NO. E.2(106)1951, NAI.

<sup>184</sup> Annexure-I, dated 6<sup>th</sup> April, 1950, NAI.

<sup>185</sup> Ministry of Works, Production and Supply, dated 12<sup>th</sup> March 1951, F.NO. E.2(106)1951, NAI.

<sup>186</sup> *Ibid.*, dated 6<sup>th</sup> April, 1951.

CPWD and the Government of India was to extend till all the required amendments and construction were finished in the future.

### *Administration*

After necessary plans on the issues regarding location and secure of the site for the establishment of the Institution, the subject matter of the administration for the smooth running of the Institution sprang up. The need for establishment of Board of Governors in order that the institute may start functioning effectively at an early date was resolved by the Central Government.<sup>187</sup> It was going to be an apex body of important men required to perform over the top notched functions. Consequently, its composition and terms were discussed at great lengths and with utmost significance. The Board would consist of the Chairman, an eminent person connected with Industry or Commerce or Government Department nominated by the Central Government; a non-official member to be nominated by the Central Government; a nominee of the AICTE; the Director of the Institute, Director General of Supplies and Disposals, Government of India; a representative of the Ministry of Education, a representative of the Ministry of Finance, and the Director of the Scientific and Industrial Research, CSIR, India.<sup>188</sup> Evidently, soon enough, B.C Roy (Chairman), Jehangir ghandy, N.R Sarkar, Brij Narayan, Tarachand, R.S Bhandarkar, G,C Ghosh (soon to be Director of the institute) were appointed for the required posts.<sup>189</sup>

Their functions included advising the Government on policies relating to the administration and working of the Institute; making proposals to the central govt regarding the courses of study at the Institution; preparing the budget estimates in consultation with the Director of the Institution who shall be appointed by the Central Government; appointing teaching and non-teaching staff other than the Director and Head Of various Departments etc; initiating and executing projects approved by the central government within the limits of the budget provision made thereof; creating posts on the ministerial establishment carrying a maximum salary of 500 and below and posts on the teaching staff below the rank of professors which may be considered necessary for the

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<sup>187</sup> Resolution for the Establishment of Board of Governors for the Indian Institute of Technology, Kharagpur, dated 24<sup>th</sup> Feb, 1950, F.NO-10-2/49-T.2, NAI.

<sup>188</sup> *Ibid.*, dated 1<sup>st</sup> April, 1952.

<sup>189</sup> Ministry of Education, undated, F.NO F.20-43/50 T-1, NAI.

efficient running of the Institute etc.<sup>190</sup> The Board were to meet at least four times a year and the notice of the meetings had to be made three weeks before its commencement plus the agenda to be submitted for meeting should be done a week before.<sup>191</sup>

Most crucial of all was the appointment of the Director who was to be at the top of the administrative hierarchy of the Institute. Around the same time the Board of Governors were appointed, steps had been already been taken to hunt for someone who would be compatible with the required grounds laid for being the most desirable Director. The Government of India had invited applications for such a position in the country as well as abroad like U.K and U.S but the result was disheartening and hence someone from within, who had been well accomplished academically, a scientist as well as a professor at the IISc, Bangalore, Dr. J.C Ghosh who was always associated formally or informally with the decision-making process relating to the establishment of the Eastern Institute was appointed the Director finally.<sup>192</sup> He was to enjoy unfathomable power.<sup>193</sup> It is believed that Bengal Chief Minister B.C Roy was the force behind pursuing Nehru to appoint Ghosh as the director.

Following his appointment, the Director of the Institute, J.C Ghosh had settled down in the former location of the east of Calcutta. Despite the fact, classes were not conducted at the same place. Classes for the first session had started at the new location Hijli with 224 freshmen and 42 faculty members even though layout of classrooms and laboratories had not been planned and executed.<sup>194</sup> Besides the common courses of Geology or Civil, Electrical and Mechanical engineering which were taught during the colonial times, new additions in the under graduate courses were made on fuel economy, naval architecture, chemical, metallurgy etc. It was also interesting to see how the students were selected. Originally, expected with 210 students on its rolls, the IIT at Kharagpur about 72 miles from Calcutta, hoped to start functioning from July or August in 1951. Starting from June 10<sup>th</sup> of the same year, the students were initially selected through interviews held by the state-wise selection committees at centres like Bangalore, Delhi, Nagpur and Calcutta. The Board of Governors of the Institute later in 1954

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<sup>190</sup> Resolution for the Establishment of Board of Governors for the Indian Institute of Technology, Kharagpur, dated 24<sup>th</sup> Feb, 1950, F.NO-10-2/49-T.2, NAI.

<sup>191</sup> *Ibid.*, Bye- Laws of the IIT-Kharagpur, undated.

<sup>192</sup> Vir, Sen, Patnaik and Kumar Hazra (eds.), *Sixty Years in the Service of the Nation*, Orient Blackswan Pvt. Ltd., NuTech Print Service, New Delhi, 2011, p.18, NMML.

<sup>193</sup> Notes on the powers of the Director of the Eastern Higher Technical Institute, dated 5<sup>th</sup> Aug, 1950, NAI.

<sup>194</sup> [www.iitkgp.ac.in](http://www.iitkgp.ac.in) (retrieved on 20-05-16)



resolved that by the next year, students would be admitted through competitive exams held at various centres in the country followed by an interview and medical examination for those who had cleared the written test. Initially, admissions were to be sought strictly on merit but since education was meant for all to pursue and keeping in due the necessity of diffusion of knowledge and education to the remotest of regions in the whole of the country, some proportion of the seats for the backward classes were to be reserved. The question on liberalisation of admission requirements in the case of backward candidates, of Schedule Caste and Tribes before the Board of Governors were taken up thereof and discussed. However, the latter refused stating, “*These students with lower qualifications wouldn’t be able to follow up with the prescribed course...in addition to that they were at the disadvantage end as compared to the rest of the students who uniformly have qualifications far above the minimum prescribed limits.*”<sup>195</sup> To this, Deputy Educational Advisor, Chandiramani in a letter to the Registrar, IIT, Kharagpur reminded him of the obligations placed on the Government by the Constitution for ameliorating the condition of the these backward classes so as to bring them to the level of more advanced sections of the community. He also stressed that education, general as well as technical is bound to be a potent factor in their upliftment and so all possible facilities should be afforded to enable them to gain admission to educational institutions.<sup>196</sup> He urged increment of 20% from 121/2% and 5% relaxation at the end to which the Board agreed upon finally at 15%.<sup>197</sup> Deliberating over the same issue of reservation, on their eighteenth meeting on 13<sup>th</sup> October, 1954, the Board of Governors decided 20% reservation of seats to be allotted to them plus lowering of the minimum qualifying marks by 5% was made in favour of the SCs and the STs.<sup>198</sup> Also, the maximum age limit for their appearance in the exams were to be 21 years of age in comparison to 20 years for others. 50% of the seats were also reserved for students from Assam, Tripura, Bihar, Orissa, Vindya Pradesh, Himachal Pradesh which had no facilities for training in engineering and technology.

IITs now have a depressing documentation of admitting less women students. Murali feels diversity of the IIT student intake and improving social access is an issue that needs to be faced squarely today. Their alumna ought to do something about encouraging women students, SC, ST students, students from the backward regions,

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<sup>195</sup> Question of Liberalization of Admission Requirements in the Case of SCs and STs Candidates, undated, F.NO.F.20-68/54T.6, NAI.

<sup>196</sup> G.K Chandiramani to the Registrar, I.I.T, Kharagpur, no date, NO. T20-68/54-T.I, NAI.

<sup>197</sup> *Ibid.*, p. 2

<sup>198</sup> *Ibid.*, pg 32.

minorities etc.<sup>199</sup> Even so, it is remarkable to note that by 1960, IIT, Kharagpur already had women in its faculty and as students. Jyotsna Banerjee was the first woman faculty in the institute who taught psychology; the first girl student Shahajan Begum Rehman joined in 1959 from Burma; this was not all Neera Banerjee joined the institution in 1960, graduated in 1965 and Savitri Nigam was awarded a PhD degree in 1962 later joined as a faculty in the Department of chemistry.<sup>200</sup>

For such a new Science and Engineering Institution whose focus was to project for itself an international vision and outlook, faculty became the most crucial resource for any Institution. With utmost priority and care, steps were taken to appoint teachers of highest calibre by the Director and other members of various departments. International engagement was noticeable for the same.

One could take the example of President Campton's take on the Harvard University, who stated, " *Harvard's success has depended and will depend almost entirely on our ability to procure men of the highest calibre for our student body and our faculty....if we have in each department of the University, the most distinguished faculty, which it is possible to obtain, we need to have little worry about the future.*"<sup>201</sup> Director J.C Ghosh too laid emphasis on "getting promising men and training them for teaching job" when he wrote to Bhatnagar on the same issue.<sup>202</sup> So also according to the Sarkar Committee, quality of the teachers occupied primary importance in their wish list.

Opportunities were thrown open to both experts within and outside the country. In fact, Ghosh toured various important cities for education like U.K, France and Italy etc in the light of securing eminent scientists and engineers for the job. At the outset, the Policy of the Education Ministry demanded that appointment of non- Indian Professionals or scientists to be discouraged as far as possible but if this was impossible, an Indian should be deputed just under him so that he may replace the foreigner.<sup>203</sup> As far as the age of retirement was concerned, the Union Public Service Commission conceded 55 years as the maximum limit with an extension of 3 years more was sought. Being graduated in Cambridge and having gained experience abroad, Ghosh saw a problem in this setup and

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<sup>199</sup> Arun Murali, 'The IIT story: Issues and Concerns', *Frontline*, Vol. 20-Issue 03, Feb 01-14, 2003.

<sup>200</sup> Vir, Sen, Patnaik and Kumar Hazra eds., *Sixty Years in the Service of the Nation*, New Delhi, 2011, p.127, NMML.

<sup>201</sup> Report of President Campton on Harvard University 1951-52, dated 25<sup>th</sup> May 1953, F.NO F.20-87/50-T-1, NAI.

<sup>202</sup> *Ibid.*

<sup>203</sup> Ministry of Education, dated 20<sup>th</sup> Jan, 1951, F.NO-F.20-1/51-T-1, NAI

proposed extension up to 60 years as below such age limit, no good professors would be readily available. German Technologists were being recruited as academicians of Departments in subjects where suitable Indians were not available.<sup>204</sup> Contracts for five years in the beginning were to be given to which if required the period would be extended according to their performance. Kraus was the first professor to be recruited.<sup>205</sup> Other faculties were to tag along thereafter following Nehru's policy of collaboration with various organisations and schemes with different nations of the world. By 1954, there were about 1,200 under graduates, 300 post graduate students, 250 teachers and 13 departments.<sup>206</sup>

### *Change of Nomenclature*

The Institute was slowly and gradually taking shape. Along with it, arrangements for the Western and Southern Institutions were simultaneously being going. Perceiving an issue with the names, the first institute of the eastern region was to change its name.

The Sarkar Committee had in their interim report stated that four technological Institutions would be set up named after their respective regions and since the first happened to be raised in the eastern part of the country, it was named the Eastern Higher Technical Institute. Now, the difficulty persisted when in the light of giving these Institutes an all-India character, the regional character became problematic. If these projects had to be raised on an all India basis, it was indispensable that nomenclature signifying the essence of unity was given from the very first Institute onwards. Hence, work on such a scheme kick started soon.

On 9<sup>TH</sup> may, 1950, the Board of Governors, in their second meeting resolved that the earlier name of 'Eastern Higher Technical Institute' to be converted into 'Higher Institute of Technology (East)'. Then three months later, in the third meeting on 15<sup>th</sup> august, they further decided it to be named 'Higher Institute of Technology, Kharagpur' but were equally opened to the suggestion of the Government if they wanted another name provided they place it before the Board for reconsideration.<sup>207</sup> The most fascinating part of this whole issue was how each and every important officer made it a point to incorporate his idea into the matter of the new nomenclature to be given. This shows how

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<sup>204</sup> *Ibid.*, p. 3.

<sup>205</sup> *Ibid.*

<sup>206</sup> F.NO.20-87/50-T-6, no date, NAI.

<sup>207</sup>Notes on Ministry of Education, dated 11<sup>th</sup> Sept, 1950, F.NO. F.20-43/50 T-1 NAI

this subject was very important and conducted with great enthusiasm. Considering the recommendation, the ministry suggested the Institute be renamed “Kharagpur Institute of Technology”.<sup>208</sup> Tara Chand personally proposed the name “Indian Institute of Technology (Kharagpur)”. On the other hand, J.C Ghosh proposed two names, firstly, “Indian Institute of Technology, Kharagpur” and secondly “Higher Institute of Technology, Kharagpur” and felt that any other name will not be suitable for an All India Institution of such character.”<sup>209</sup> Tara Chand agreed to this but the matter had to be discussed with the Education Minister, Maulana Abul Kalam Azad. Thereafter, Sen Gupta wrote a letter to Ghosh stating that the Government of India had accepted the recommendation of the Board of Governors held on their second meeting with the modification that “Kharagpur” will be substituted in the place of “East” at the end of “Indian Institute of Technology” as suggested by Ghosh himself.<sup>210</sup> For the words “Eastern Higher Technical Institute, Hijli”, wherever they occur, the words “Indian Institute of Technology, Kharagpur” was to be substituted.<sup>211</sup>

An institution when build, ought to have a motto, symbol or an emblematic significance to which it would hold on to; an ideal or a principle to follow which would instil in the hearts and minds of the students as well as the staffs a never ending spirit of what it would stand for. Keeping this in mind, the Director sensed the time was ripe to set a goal, to remind everyone of the deepest values of themselves, what this institution would stand for, for the nation as well as for the whole world. Therefore, he wrote to the education secretary, Tara Chand,” *I have been thinking for sometime that the Eastern higher technical Institute should have a motto of its own*”, asking his view on the quotation he sent him from the Bhagawat Gita “ *Yogah Karmasu Kaushalam*” which meant “ *True yoga is efficiency in action.*”<sup>212</sup> Interested Deputy Educational Advisor, G.K Chandiramani also put in his say onto this matter. He suggested another alternative “*Nahi Gyanena Sadrusham*” which meant “*Knowledge is Supreme*” and asked for Education Secretary’s opinion.<sup>213</sup> As a reply Tara Chand assumed that the Institute of Technology is more a place for “Action than Knowledge, Practise than Theory” consequently, the

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<sup>208</sup> *Ibid.*, dated 30<sup>th</sup> Sept, 1950.

<sup>209</sup> J.C Ghosh to Tara Chand, dated 7<sup>th</sup> Oct, 1950, NAI.

<sup>210</sup> Sen Gupta to J.C Ghosh, dated 18<sup>th</sup> Nov, 1950, NAI.

<sup>211</sup> Notification by the Ministry of Education, dated 2<sup>nd</sup> April, 1952, NO. F.10-2/49-T.2, NAI.

<sup>212</sup> J.C Ghosh to Tara Chand, undated, F.NO 20-/54/50 T-1, NAI.

<sup>213</sup> *Ibid.*, dated 13<sup>th</sup> Sept, 1950.

Director's proposal was approved.<sup>214</sup> Perhaps, Nehru's vision of an Institution which would excel not just in knowledge but also in its capacity to use and act according to it for a mighty purpose is reminded.

In the year 1951, IIT, Kharagpur was formally opened by the Education Minister Maulana Abul Kalam Azad.<sup>215</sup> Mention could be made of many notable visionaries who were associated with such an establishment from the very beginning present at the inaugural function. Kailash Nath Katju and B.C Roy who were Governor and the Chief Minister of Bengal respectively plus Joint Secretary of the ministry of education, Tara Chand was there to sanctify the day. In his speech, Azad earnestly hoped that the Institute would cater to the needs of the country as a whole and students drawn from different part of the country by their close association in a fellowship of study and research would develop a consciousness of their common Indian nationality and culture.<sup>216</sup>

In an unbelievable fast pace of activity, four more IITs were set up in the next four years. Unlike Kharagpur which had the exception of rising purely from national and indigenous efforts (though at the end minor help was sought), foreign assistance in a larger way was sought for these four succeeding IITs at Bombay, Madras, Kanpur and Delhi from other nations. Nehru was quick to realise the inevitability of collaboration with some western partners owing to the inadequacy of national resources. Such help would only be of advantages to India because she could teach herself different methods of training high level technical personnel through them. A range of aid programmes were to follow which helped the Institute in a number of ways. Resources and finances for tools and instruments, equipments, guest faculty from patron nations abroad as well as fellowship to faculty members in advanced research and training came in the form of assistance. These institutes were backed by U.N.E.S.C.O, Colombo Plan (support of U.K), Technology Cooperation Mission (a U.S Government initiative), Indo-French Technical Cooperation Scheme and Indo-USSR Agreement etc.<sup>217</sup> Professor Kraus in the department of agriculture in IIT, Kharagpur was the first foreign faculty being sent through

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<sup>214</sup> *Ibid.*, dated 14<sup>th</sup> Sept, 1950.

<sup>215</sup> 'Azad opens Institute of Technology at Kharagpur, *The Statesmen*, dated 19<sup>th</sup> August, 1951, NMML.

<sup>216</sup> *Ibid.*

<sup>217</sup> Vir, Sen, Patnaik and Kumar Hazra eds., *Sixty Years in the Service of the Nation*, 2011, p. 70, NMML.

such plans. It also received foreign equipment worth \$530000 in the form of financial support.<sup>218</sup>

Hence, the seed of a productive tree which would bear abundant fruits to even get passed neighbour's fence or boundary had been implanted. New courses and departments were opened; new collaborations as stated above had been officialised. Professor Ghosh was very much active and involved in formation of most of the departments in addition to creation of new buildings. He was relinquished from his position in 1954, only to join the Planning Commission after an invitation from Nehru, which he took up with utmost ecstasy devoting himself to the development of sciences and technology. Prof Sen Gupta<sup>219</sup> joined as the second director.<sup>220</sup> He had the privilege of watching the rest of institutes at west, south and north grow under his tenureship. The first batch of sixteen post graduate students received their degree in 1954 and provision for Ph.D and D.Sc degrees were made by the institute in 1956.<sup>221</sup> Others were to follow. In this way, IIT, Kharagpur was to consolidate itself finally to become a full fledged brand from just an academic route.

### **Attainment of Autonomous Character**

Now that IIT, Kharagpur had taken shape, it was important to decide if it would come under a University or remain as an autonomous body free from interference from the Government. This issue was being debated on a much larger scale. From the Director's side, it was suggested that the Institute be under the administration of their Board of Governors itself functioning as an autonomous body.<sup>222</sup> Such a decision was accepted by the Board of the Institute in their third meeting. However, negotiations and debates in the AICTE showed that Sarkar Committee had recommended that the higher technical institutions be developed as a unitary teaching university once they were established. Hence, IIT, Kharagpur being the first to have been fully established by then was advised to erect itself as a Technological University.<sup>223</sup> Dr Tara Chand and other members of the Education Department rooted the decision of the AICTE. Ghosh didn't

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<sup>218</sup> Deb, *The IITians*, Penguin Books India Pvt. Ltd, 2004.

<sup>219</sup> A graduate from Glasgow, was the ex-principal of the Bengal engineering college. Also, he served as the Deputy advisor in the Ministry of Education.

<sup>220</sup> [www.iitkgp.ac.in](http://www.iitkgp.ac.in) (retrieved on 20-02-16)

<sup>221</sup> *Ibid.*

<sup>222</sup> Proposal from the Director of IIT, Kharagpur, undated, F.NO.20-87/50-T-6, NAI.

<sup>223</sup> *Ibid.*, p. 12.

understand why in the manner in which the Institution had developed so far, the question of its conversion to a technological University was taken up.

The University Education Commission was opposed to both the idea of converting the Institute into a technical University or even existing it as an autonomous Institute apart from the Universities. They viewed that the autonomous character of the MIT in America or the Technische Hochschulen in Germany grew not by choice but out of necessity. MIT though was to be integrated under the Harvard University; the Institute's large endowments required its continuing as a separate Institution.<sup>224</sup> According to the Commission, it was better that engineering schools and colleges should not be isolated but should be departments of universities so that faculties of science, economics, industrial relations and language shall be available and may have the advantage of an all round cultural atmosphere as could be evident in, "*A university is more than a technical school. Unless an institution aims at providing such an all round training, it should continue as a technical Institute and shouldn't aspire to be a university.*"<sup>225</sup>

If supposedly, condition arose whereby the Institute become a University, there was a possibility that conflict in some way or the other between the Central Government and the technological Universities become evident. The wide powers enjoyed by the B.O.Gs of the Institute would come in collision with the executive bodies of the Universities as the Government would have a controlling hand in their compositions or in any other direction possible. The central government being the principal financial supporter of the universities would mean seeking Government's guidance on academic policy matters. Nonetheless, the Government had all along considered it important to retain central control of policy in the matter of higher technical education. The first five year plan emphasised the same. So also, the report of the Technical education by Mr. Wood in the sergeant report on the post-war educational development, the Sarkar Committee Report plus the University education Commission Report and recommendations of the AICTE highlighted the same.<sup>226</sup> T.C Ajmani came forward and opined that I.I.T, Kharagpur should be given an autonomous character as this would free the Institute from the usual Government drill. They could carry on with their academic

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<sup>224</sup> *Ibid.*, p. 15.

<sup>225</sup> *Ibid.*, pp. 13-14.

<sup>226</sup> *Ibid.*, pp. 16-17.

programmes of training and research free and unfettered only if it was relived from the rules and regulations of the Government.<sup>227</sup>

Starting early 1950s, a sub-committee had been appointed by the AICTE and proposed that Institutions not forming part of the Unitary Regional University should be affiliated to one Central Organisation which could be the AICTE itself.<sup>228</sup> Following this, the council resolved unanimously that a bill be introduced in the parliament for grant of status recognising them as a Statutory Body having the powers to confer degrees in Engineering, Technical Institutes and awards to students undergoing courses in affiliated Institutions. In addition to this, they were to coordinate facilities in technical education in the country and ensure proper standards plus develop technical Institutes in the country by giving suitable grants. This was taken as a measure designed to secure proper recognition for courses already conducted under their aegis. The government didn't implement their proposal as the Institute at Kharagpur had already started their degrees courses hence the issue became pointless. However, considering the other higher institutes taking shape, it was important that they when established would be able to award degree and diplomas. But this could be possible only when they were established by the statute as Corporate Bodies, though this didn't establish the case for a technological University. Besides this, if IIT, Kharagpur wanted to build up a reputation of its own, it could be free like the Indian Institute of Science in Bangalore. Deputy Education Advisor, G.K Chandiramani believed what Ghosh had hoped that by time the five year plan expired, the Government would grant the status of Corporate Body to I.I.T, Kharagpur by Statute.<sup>229</sup> Ghosh was also sceptical about the problems raised concerning the conferment of the degrees to the PhD students as well as other issues regarding delay in the appointments and posts in the Institute.<sup>230</sup>

Even when the Institute be awarded such a Statutory status, sharply divided was the answer as to if the institute was to come under the provision of the University Grants Commission (UGC) or would it override the UGC Act provision. Dr Bhatnagar, the then Secretary of the UGC didn't like the idea of placing the Institute under UGC. He wrote, " *if the Institute was converted into a University, it would automatically come under the*

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<sup>227</sup> *Ibid.*, dated 16<sup>th</sup> Jan, 1953.

<sup>228</sup> *Ibid.*, dated 24<sup>th</sup> Jan, 1951.

<sup>229</sup> Simplification on IIT, Kharagpur converting into a Technological University, dated 18<sup>th</sup> May, 1953, NAI.

<sup>230</sup> *Ibid.*, dated 20<sup>th</sup> August, 1953.



*UGC and the latter would then treat it as a junior subordinate University and would spent less.*<sup>231</sup> Hence, it was not desirable according to him. Similarly, he addressed that in relation to the Institute converting into a University, the Prime Minister Nehru was not in favour of adding to a number of Universities.<sup>232</sup>

The statute of Corporate bodies would enable these institutions to grant degrees and diplomas. Therefore by an executive order of the government, IIT, Kharagpur was authorised to confer degrees. To make this more permanent, introduction of a separate Bill deemed necessary in the Parliament to incorporate the Institute and thus enable it to maintain its individuality and purpose. By then, since the entire expenses of the Institute were being born by the Central Government, this step would lessen the burden from their shoulders. Donations from private benefactors as well as utilisation from the students' fees could be of help to the institute so there would be no unlimited liability. Fulfilling the criteria of an institution of "national importance," IIT, Kharagpur was thus declared so under the Article 246, 7<sup>th</sup> Schedule, List 1, Entry 64 of the Constitution and incorporated by the Act of the Parliament.<sup>233</sup> Regardless of the fact, the Ministry of Education proposed some provisions in the act in favour of the central government as they had been financing the institute since its inception. Even after its incorporation by the act of parliament, the institute would continue to depend upon the government for finance. Hence, the govt was to have a certain amount of control on the Institution. The chairman of the BOGs and some other members would be nominated by the Government; key appointments in the institute would be approved with their advice and any change in the provisions like the course plan would have to require their approval as well.<sup>234</sup> Prof Indiresan, former IIT Madras Director articulated that the IITs had done well as they had benefitted from the three main fundamental liberties of a technical education: liberty to desire or prefer whom to teach, who will teach and what to teach. Opposed to this was Amrik Singh who believed that there should be interaction between technical sectors and the mainstream universities. He said that by breaking the isolation, they could become partners in the whole educational endeavour.

Further in 1961, after all the five technical institutions had been established, The Institutes of Technology Act came into force declaring each and every one of the

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<sup>231</sup> Lok Sabha Debates, Serial no.12, dated 7<sup>th</sup> Sept, 1954, p. 40, NAI.

<sup>232</sup> Dr S.S Bhatnagar to J.C Ghosh, dated 19<sup>th</sup> May, 1953, F.NO. 20-87/50-T1, NAI.

<sup>233</sup> Draft Notice to the Cabinet from Ministry of Education to the Cabinet Secretariat, undated, NAI.

<sup>234</sup> Ministries of Law, Education, Finance, dated 28<sup>th</sup> March, 1955, NAI.

institutions as institutes of National Importance. Each of the institutions were identified as corporate bodies but were to have common seal.<sup>235</sup> These chains of technological Institutes became nodal points linking themselves across the country from all directions, producing the best of knowledge the country could ever generate. This knowledge overflowed to other territories of the world, going beyond the limits of the Indian periphery.

## Conclusion

The narrative of IIT, Kharagpur is an attempt to create knowledge based society and higher education system in post independence India. Developing modern higher technical infrastructure like this was necessary for India to achieve goals in scientific research and development. Various lobbying undertaken for such a project is remarkable “The task involved is really planning the promotion of science and technology and their application to the development and security of the nation.”<sup>236</sup> By employing science, a potential basis for producing National Identity was ensured. In the words of Pandit Nehru, “*the IITs are expected to provide scientists and technologists of highest calibre who would engage in research and development to help building the nation towards self-reliance in her technological needs*”.<sup>237</sup> Through collaboration with western nations, ideas were exchanged; boundaries of knowledge in frontier area of national and international relevance were negotiated. That Indians were capable of running successfully any industry however large, difficult or complicated it may be was sealed for the very first time in front of the world.

IITs became symbolic figure for the nation. It has become an international brand altogether. On January 17<sup>th</sup> and 18<sup>th</sup> of 2003, IIT alumni based on different continents including high profile cast from the world of technology management converged on northern California to mark the golden jubilee of IIT, Kharagpur, the first in the IIT system and delivering the keynote speech on the first day of the event, was Microsoft Chairman Bill Gates who described the IITs as “an incredible institution’ with a worldwide impact.”<sup>238</sup> However, there has been a considerable outflow of highly qualified manpower from the country for years, the process termed as “brain drain” which has

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<sup>235</sup> The Institutes of Technology Act, 1961 ( as amended by the Institutes of Technology, Amendment Act, 1963)

<sup>236</sup> A Comprehensive Science and Technology Plan, File no 3/61/73-SR, sec-A, NAI.

<sup>237</sup> Vir, Sen, Patnaik and Kumar Hazra eds., *Sixty Years in the Service of the Nation*, 2011, p. 107.

<sup>238</sup> ‘The IIT Story: Issues and Concerns’, *Frontline*, Vol-20, Issue-03, Feb 01-14, 2003.

become a subject of considerable deliberations. Nehru was disappointed at this. He was “a little hurt” when he came to know that “some of the best scientists” preferred to remain abroad and even settle down in foreign because those countries provided them “better inducements and better scientific facilities” for work.<sup>239</sup> Perhaps it was a fact, India was not able to provide similar inducements and facilities but Nehru felt this doesn’t become the case for them to settle abroad, the country needed them. It was just like the fruits of India’s blood, sweat and hard work had been sucked like a magnet by others. Huge corpus of literature on the subject is available in large numbers which shows the causes behind such an outflow from India. P Sukhatme and I Mahadevan, Indiresan and many others have worked on this front. Whatever be the reason for the escape, in this context, what is of utmost necessity is breaking the stereotype of common mentality that whatever best that could be produced is from the west, isn’t it a thing to ponder upon that the knowledge produced from such centres of distinction in a non-west entity like India could produce such knowledge?

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<sup>239</sup> ‘Tendency for Our Experts to Settle Abroad: Premier disappointed, *The Times of India*, dated 5<sup>th</sup> Jan, 1950, NMML.

## CHAPTER 3

### RAJKUMARI AMRIT KAUR AND FOUNDATION OF A.I.I.M.S, DELHI

#### **Introduction**

Envisioning a country instilled with a temper of science, Nehru went on erecting his grand designs trying every bit to sculpt them into the finest art never been created before. Among these was a centre of excellence in the sphere of medical sciences which came to be known as the All India Institute of Medical Sciences (AIIMS). One of the temples of modern India, AIIMS was the first of the medical institutions being established post-independence which was to set a very high standard in formulating medical education in undergraduate and post graduate teaching as well as research. It was to have a Nursing as well as a Dental College attached to it. Like IITs, this particular institution at Delhi was to have various branches in all parts of the country in the periods to follow thus fulfilling the goals of attaining self-reliance of the highest order in medical knowledge as well as training of personnel in all important branches of health activity.

When India attained her freedom, she was faced with a grave situation. The immediate problems of partition and migration; the destructive economy plus the depletion of the administrative machinery, all threatened to amputate the budding infant democracy. She realised she had to fight another important battle, this time to win the hearts of her own people faced with weighty problems of health. Under these circumstances, it was not an easy task for any Government, let alone a new one to curb these menace in a short period of time. The new Government took careful steps, bit by bit clearing the way to heighten the confidence and spirits of the people.

Nehru, being the head of the independent nation knew the possible burden of work up his shoulders. The health of the nation was much more important than anything else as a nation's riches, prosperity and progression whether in the intellectual area or economic sphere happened to be measured by the condition of its physical as well as mental well being. A positive state of a nation's health is conceivably the most compelling single aspect shaping the nature and degree of its development and progress. Therefore, utmost priority was needed to be straightened whereby the health of the people in the country was checked on a frequent basis.

The data of 1941 placed the expectation of life for males and females at 32.09 and 31.37 respectively.<sup>240</sup> Comparatively, India had the lowest life expectancy rate in the whole world. Her infant mortality rate had 145.6% in comparison to 54 in U.S, 58 in England and Wales and 64 in Germany.<sup>241</sup> She had become a hunting ground for many endemic and epidemic diseases. Malaria accounted for 15-20 lakhs deaths per year; Tuberculosis had 5 lakhs deaths per year while others like dysentery; diarrhoea etc amounted to 2 lakhs deaths per year. Small pox, cholera, plague etc added another 2 lakhs deaths per year but these had been partially brought under control. Yet, these pointed towards the insanitary conditions of the Indian health picture. There was inadequate nutrition, lack of environmental hygiene, food, safe drinking water, shelter etc. But, the central problem of all was the lack of medical facilities, medical personnel and medical institutions. Not forgetting the population during the time which was 350 million, the total number of hospitals in the country was 6,669 out of which 4,617 were located in rural areas and 2,052 in urban areas.<sup>242</sup>

MEDICAL PERSONNEL	INDIA	U.K
1 Doctor	6,300 (70% doctors are in the urban areas and their distribution is very sparse in the rural areas)	1000
1 Nurse	43,000	300
1 Health visitor	4,00,000	4,700
1 Midwife	60,000	618
1 Dentist	3,00,000	2,700
1 Pharmacist	40,00,000	to 3 doctors

Table: Proportion of medical personnel to population.<sup>243</sup>

The above table shows the proportion of medical personnel to population in India as compared to the U.K and we see a wide imbalance in the same. Hence, increasing training facilities to escalate the number of these personnel were necessary.

<sup>240</sup> First Five Year Plan, Vol. II, Publications Division, Ministry of Information and Broadcasting, Government of India, Planning Commission, NMML, p. 209

<sup>241</sup> Borkar, *Health in Independent India*, Ministry of Health, Government of India, New Delhi, 1958, p. 31.

<sup>242</sup> *Ibid.*, p. 34.

<sup>243</sup> First Five Year Plan, Vol. II, Planning Commission, NMML, 1951-56, p. 209.

Considering these innumerable dilemmas at hand, a thorough restructuring and exploitation of the country's resources and their supervision was required. Nowhere can Nehru's temper of science be evident more than in health and medical sciences of the country as he always reiterated, "*we want science to be used for the betterment of the human beings or humanity.*"<sup>244</sup> Scientific approach or rational outlook was the only supposed resolving balm that could literally erase the problems of the society.

Hence, priority was set straight. Health became one of the major departments that were undertaken under the series of Five Year Plans respectively as a part of the country's reconstruction programme. Apart from the sums provided by the centre and the states for their normal health activities, the Planning Commission in the first and the second five year plans allotted a sum of Rs 140 crores and 274 crores respectively for the health development schemes.<sup>245</sup> The State similarly saw an inevitable connectivity in medical education, research and relief as the presence of a medical college and hospital factually meant a probability of improved quality of medical relief and again with earnest atmosphere of medical research, the quality of medical education had the propensity to advance greatly. This was when the inevitability of launching a medical institution of such high calibre as AIIMS came to the surface. It was to become one of the pioneers of scientific institutions taking pride in its medical researches not only in the South-East Asia but around the world.

AIIMS started its journey during the 1950s. What is appealing about its story is the locale and setting of the period, it was a period of chaos, a ruckus amongst many struggling to find a path to come out of the backdrop of foreign rule, to set up new machinery for the Indian people through modern scientific means. It was highly impracticable for the Prime Minister to work alone towards this end. In the speciality of Health, Rajkumari Amrit Kaur was his right hand. More than that, she was the visionary who moulded the dream of AIIMS into practicality. It is impossible to visualise AIIMS without Amrit Kaur. Nehru in a speech at the Second Convocation of AIIMS on April 15, 1964 remembering her spoke, "*In my mind, this institute is so intimately connected with her that I can hardly think of one without the other.*"<sup>246</sup>

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<sup>244</sup> Singh, *Nehru on Science*, pp. 60-68, NMML, New Delhi, 1986.

<sup>245</sup> Report of the Health Survey and the Planning Committee (also popularly known as the Mudaliar Committee)(August 1959-October 1961), Vol. 1, Government of India, Ministry of Health, p. 30.

<sup>246</sup> Singh, *Nehru on Science and Society*, 1988, NMML, p. 264.

## **Rajkumari Amrit Kaur's Networking**

Rajkumari Amrit Kaur was the first Minister of Health to the Government of India, appointed in Nehru's Cabinet for the first ten years following independence, from 1947 to 1957.<sup>247</sup> During the course of her captainship, a great deal of work had been done in various fields of health organisations, grasping every opportunity that she could get of working within as well as with the delegates of various foreign countries for the same purpose she was fighting for, as a result of which she had been widely acknowledged in the entire globe. Besides various agencies abroad, she equally guided The Indian Red Cross Society, Tuberculosis Association and St. John's Ambulance Corps till her death in 1964. She was also the lone driving force, besides Nehru's patronage, behind championing the establishment of the AIIMS which later on became a centre of excellence in the field of medical sciences. Though she was relinquished from the post of Health Minister in 1957, she remained the President of the Institution throughout her lifetime doing everything she could to take the Institution to yet another level. All these were possible because of the International links that she embodied. But, before plunging into this sphere, it is imperative that a larger picture, more or less of her be drawn.

A princess by birth, born to the house of the Ahluwalia royal family of Kapurthala State in Lucknow in February 2<sup>nd</sup>, 1889, Rajkumari Amrit Kaur was the only daughter of her parents, Raja Harnam Singh and Rani Harnam Singh who were blessed with seven sons.<sup>248</sup> With such an upbringing, one could quickly assume that she must have led a pompous, joyous and a majestic lifestyle without worries and fears of any sort. But, this becomes equivalent of what is very famously quoted, that is, 'one should not judge a book by its cover'. The same quote applies to such a magnificent human being who though had the choice to rightly opt all the grandeur and glittering adornments of life, voluntarily threw away everything and sacrificed her life hearing the cries of not one but thousands and millions of downtrodden people, especially women.

Having spent some of her time in England for studies in Sherborne School for Girls and later in Oxford, she returned to India still in her teens, enjoying the carefree aristocratic set up. However, it just took a while to gear her onto a whole different attitude of politics and social work. A sincere Gandhian with the purest sense of term, she was to

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<sup>247</sup> Borkar, *Health in Independent India*, Ministry of Health, Government of India, 1958, NMML.

<sup>248</sup> Indira Gupta, *India's fifty most illustrious women*, Iron publications Pvt. Ltd, Ansari Road, Daryaganj, New Delhi, 2003, p. 87, NMML.

lead the rest of her life in the Sevagram ashram working for her guru and becoming an active political worker. Her real interest in politics was roused when she heard of Gandhi and his phenomenal works from his father and Gokhale's frequent conversations.<sup>249</sup> Since then, she had a serious fascination of working with Gandhi. She wrote, "*What drew me to Bapu was his desire to have women in his non-violent army and his faith in womankind. This was an irresistible appeal to women in a land where women were looked upon as only fit for producing children and serving their lords or masters.*"<sup>250</sup> She was one of the very few who were closest to Gandhi, being her personal secretary in the public life but like his own daughter in the private. One could be apparent of such a relationship from the many correspondences that they shared whereby Gandhi would address mostly to her as 'My dear Idiot.'<sup>251</sup>

She could find solace in her work through voluntary social service. Her contribution to women's emancipation is a singular example of selfless work among millions of women of India enlightening them into issues beginning from education to health, from marriage to prostitution, from purdah to polygamy, from communal unity to the right to franchise. As deeply engrossed she was with the plight of women, the All India Women's Conference (AIWC) became a medium or a national voice through which social reform works were taken up at full pace. A hardcore feminist, she urged men to help women in their private capacity by insisting at their homes that sisters and daughters be given the same opportunities for education like their sons; by refusing themselves to early marriages; by helping towards the early abolition of 'purdah' and polygamy; by enrolling themselves for the cause of women, denouncing from public platforms all the evils in the society retarding the national progress.<sup>252</sup> Through her fight for freedom, she also urged her womenfolk to rise to the call of Gandhi. To quote her, "*I felt an irresistible call to my sex.....on how whilst fighting for our freedom, we would also under his leadership, be able to fight against many of the excrescences that had crept into our society, including subjugation of women.*"<sup>253</sup>

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<sup>249</sup> *Woman with a Mission: Rajkumari Amrit Kaur*, A Centenary Volume, All India's Women's Conference, 1989, p. 73.

<sup>250</sup> *Ibid.*, p. 66.

<sup>251</sup> *The Collected Works of Mahatma Gandhi*, Vol. 81, 18<sup>th</sup> Aug, 1941- 8<sup>th</sup> Feb, 1942. Also see under Amrit Kaur Papers (correspondence with Gandhi, M.K), dated 28<sup>th</sup> May, 1936, NMML.

<sup>252</sup> Amrit Kaur, *Challenge to Women*, Allahabad Block Works Ltd, Allahabad, New Literature, 1946, p. 16, NMML

<sup>253</sup> *Woman with a Mission: Rajkumari Amrit Kaur*, A Centenary Volume, All India's Women's Conference, 1989, p. 67.



Further, as a devoted believer in women's equal role in public life, she didn't even pause to criticise Nehru over the composition of the working committee formed by him as the Congress President in 1936. She was to charge that he did not include a single woman member in the committee. On 30<sup>th</sup> of May, the same year, condemning the fact, she not as her personal self but representing the AIWC sent a letter to him "*deploring the fact that a woman had not been appointed a member of the Working Committee.*"<sup>254</sup> She went on further telling him that no one but women could make the woman's question within the Congress lively and this needed the sponsorship of a person like Nehru himself. Gandhi writing on the same matter to her told her "no one including himself would have the courage to break the convention of having a woman member" but also reminded her "*you went so far as to say that you did not believe in the tradition or convention of always having a woman and a certain number of Mussalmans on the Cabinet.*"<sup>255</sup> However, Nehru paid heed to her woes hence, out of the twenty nine sub-committees of the National Planning Committee in 1938 of which he was the President, the sub-committee of the 'Women's role in Planned economy' was included whose members were all women.<sup>256</sup> Summing up about her, he wrote:

There is always a touch of distinction in what she says or writes, the mark of a sensitive person who has fought her way through many of life's problems, is enlarged as the ugliness and poverty and degradation that she sees, and yet is fortunate enough to have attained certain poise and equilibrium which enables her to direct her energy and righteous indignation into fruitful channels of constructive effort...she has been one of builders of women's movement in India.<sup>257</sup>

Considering the fact that she personified the perfect mixture of both the East and the West, inheriting the best of both the concept of Sikhism and Christianity by birth, Amrit Kaur had broad and far reaching outlook. Also being a good orator was a plus point as she at the utterance of a single word could put the hearts of millions into a standstill. Though caged under the foreign rule, she urged that nations cannot afford not to look beyond one's borders as the actions of one nation would have repercussions far beyond its

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<sup>254</sup> Jawaharlal Nehru Correspondence Files, Part I, Vol-II, dated 30<sup>th</sup> May, 1936, NMML.

<sup>255</sup> *Ibid.*,

<sup>256</sup> National Planning Committee Series, Sub-Committee National Health (ed.) Vora & Co., Publishers Ltd. 3, Round Building, Kalbadevi road, Bombay 2.

<sup>257</sup> This was the forward that Jawaharlal Nehru wrote in Rajkumari Amrit Kaur's book, *Challenge to Women*.

neighbours.<sup>258</sup> She also reiterated the idea of rising above the walls of narrow nationalism. Emphasis on international cooperation was highly sought by her. Even before India's independence, her services thus excelled beyond boundaries, working for various international organisations like FAO, WHO and other agencies of the United Nations, bringing people of the world closer to each other. After positioning the portfolio of Health Minister in her hands, the association with these organisations grew even more. At the UNESCO, in London, as one of the Vice-Presidents of the Conference, she remarked, "*We must try to visualise our work as part of the larger network of international organisations that are being established simultaneously...*"<sup>259</sup> Also, in the third International conference of WHO, she drew attention to the innumerable programmes that had been undertaken keeping in mind the consequences that befell humanity after the Second World War, advocating delegates of different nations the importance of international conferences as apart from the knowledge gained of conditions in other countries as well as their solutions, personal contacts were forged.<sup>260</sup>

Her achievements were also acknowledged by many. John Bowers from the University of Wisconsin recognising the services of Amrit Kaur in the health and welfare of India and in appreciation of her leadership in world health progress sent her a token of deep regard in 1956.<sup>261</sup> Edith F. Ineson, the Secretary of Women's International League for Peace and Freedom too wrote, "*our warm appreciation in recognition of your splendid work as India's Minister for Health...in the international field also, we admire the notable part you have played in the WHO as a delegate for India for a number of years, in 1950 attaining the honour of being elected President of its Assembly for that year.*"<sup>262</sup> Only two women were elected as President of the World Health Assembly during the first twenty five years of WHO, one of them was her. This was not all. For the meritorious and indefatigable services in medical and social field with special reference to Health, she was honoured internationally with the 'Rene Sana Award' which was one of the most prestigious awards during the time.<sup>263</sup> She toured over almost the entire globe, to

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<sup>258</sup> Borkar, *Selected Speeches and Writings of Rajkumari Amrit Kaur*, Archer Publications, 1961, p.176, NMML.

<sup>259</sup> Kaur, *Challenge to Women*, 1946, pg 156, NMML.

<sup>260</sup> Grover and Arora (ed.), *Great Women of Modern India: Rajkumari Amrit Kaur*, Vol. 5, Deep and Deep publishers, Rajouri Garden, New Delhi, 1993, pg 200, NMML.

<sup>261</sup> John Bowers to Rajkumari Amrit Kaur, in Rajkumari Amrit Kaur Correspondence Files, dated 18<sup>th</sup> June, 1956, Serial no. 150, List no 14, NMML.

<sup>262</sup> *Ibid.*, Edith F. Ineson to Kaur, dated 13<sup>th</sup> May, 1957.

<sup>263</sup> *Ibid.*, Dorabji of Student Nurses Association to Rajkumari Amrit Kaur, no date.

parts of Australia, New Zealand, Japan, Canada, Germany, Czechoslovakia etc as the Brand Ambassador of WHO for the cause of Malaria Eradication Programme after a request from WHO as could be known from,” whether you are interested in visiting as the Director General’s personal representative....*can’t think of a better Ambassador for the WHO who could plead the cause of Malaria Eradication more eloquently and effectively.*”<sup>264</sup> She was hence looked up to and recognised globally. Therefore, through her service, she had woven a network herself crisscrossing and interconnecting people along boundaries. In such a way, India was projected in the international arena time and again. It was only through these networks that she was able to get a whopping grant of one million pounds from the Government of New Zealand for her dream Institution at Delhi.<sup>265</sup> Padma Balasubramanian in remembering her wrote,” *May India produce many more such universal and invaluable people...*”<sup>266</sup>

It is imperative to know that Amrit Kaur’s network brought AIIMS to the position where it has reached till date. History has its charm of connecting the past with the present and hence the route of development or the trajectory of the Institute becomes an important study in the light of its historicity. The presence of branches of this institution in the different regions of the country gives one a glimpse of the production of medical knowledge creating network-like informative towers and connecting the entire country, at times transgressing her boundaries. The initiative that the Central Government took even if such development came under the transferred subject was phenomenal. Before Kaur, the idea of the establishment of AIIMS had already been conceived of by 1943.

### **Earlier developments**

#### *Hill*

The notion of an up-to-date Central Medical Institution of a high standard for the training of teachers and research workers of the medical profession was first put up by Prof. A.V Hill after his tour in India as early as 1943-44.<sup>267</sup> There was a crying need in the country for full time workers who were well trained and capable enough to devote themselves to the practice of medicine by education and research for the advancement of

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<sup>264</sup> *Ibid.*, M.G Candau to Rajkumari Amrit Kaur, dated 28<sup>th</sup> Aug, 1958, Subject File No.1, NMML.

<sup>265</sup> ‘Elaborate arrangements for great reception: Queen Elizabeth’s visit’, *The Times of India*, dated 20<sup>th</sup> Jan, 1961.

<sup>266</sup> *Woman with a Mission: Rajkumari Amrit Kaur*, A Centenary Volume, All India’s Women’s Conference, 1989, p. 75, NMML.

<sup>267</sup> A.V Hill, *Scientific Research in India*, Bhatnagar Papers, NAI.

science. Hence, he pondered as to how a scientific attitude of mind could be produced through medical education. For this purpose, the most effective way of producing a change was to set up an institution with the staff of the highest quality to train teachers and research workers. In his own words:

A great All India Medical Centre should be established, an ‘Indian Johns Hopkins’ staffed in all departments by the ablest people available anywhere, employed full time and adequately paid...the intention would be to produce the future leaders of Indian medicine and public health, the teachers and research workers.<sup>268</sup>

Other than this, he also drew attention to the need of students, importance of financial help to them in the form of scholarships considering the high cost of medical education and maintenance plus the possibility of location of the Institution at Delhi, its running, funds etc. Hill’s suggestion was referred to the Health Survey and Development Committee which ultimately incorporated the proposal in its recommendations. We could thus locate Hill as the common factor in the idea of establishing in his own words “Indian Johns Hopkins” like he did regarding the development of IIT, Kharagpur.<sup>269</sup>

Jagdish N. Sinha throws light to what Hill points towards the urgency of emphasis on health and nutrition particularly those of women, food production and population explosion for which he had pleaded for a new approach towards planning and liberal state initiative.<sup>270</sup> To him, the fundamental problem of India was a complex and biological one referring to do with population, health, nutrition, agriculture etc acting and reacting together with another.<sup>271</sup> The Bhore Committee took notice of all these, incorporating within its report a survey and possible measures to curtail the problem of health.

#### *The Bhore Committee*

The Health Survey and Development Committee had been recommended the establishment by the Indian Government of an “All India Medical Institute” in 1943,

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<sup>268</sup> A.V Hill, *A Report to the Government of India on Scientific Research in India*, the Royal Society Burlington House, 1945, pp. 17-18, NMML.

<sup>269</sup> Vir, Sen, Patnaik and Kumar Hazra eds., *Sixty Years in the Service of the Nation*, Orient Blackswan Pvt. Ltd., NuTech Print Service, New Delhi, 2011, p. 117, NMML.

<sup>270</sup> Jagdish Sinha, *Science, War and Imperialism in the Second World War*, Brill Laiden, Boston, 2008.

<sup>271</sup> *Ibid.*

which submitted its report in 1946.<sup>272</sup> The Committee made a survey of the existing facilities in India, to give an accurate and faithful picture of the conditions as they existed in the country at that time in relation to all queries pertaining to public health and medical care, and also recommended lines of improvement and development for future plans. That this committee was wisely and ably constituted is evident from the historic document which records its findings and recommendations. Also, popularly known by the Bhore committee report, it is remarkable for its wide-ranging and broad character, its factual coverage, and its straightforward presentation of fundamentally sound proposals for meeting health needs irrespective of possible political implications.<sup>273</sup> An overall number of twenty one members constituted of the Committee yet it is of further interest to note that though the membership of the committee was predominantly Indian, a figurative number of foreign members were also represented in it, thus presuming almost an international health committee as the comprehensive scale at which such discussions were held had never been seen before in the record of the country's history.<sup>274</sup> The National Planning Committee of the 1938 of course did a commendable job on the same matter but the Bhore Committee was extensive, elaborative and much more upgraded than the former.

As the committee observed the trouble of developing a comprehensive health service for India, it became obvious that a considerable expansion of existing facilities for the training of doctors and other health workers would be necessary to provide the personnel required for the proposed program. In this direction, the report states:

These institutions will naturally have to concentrate on the production, in as large numbers as possible, of the different types of health workers required for the health services we have proposed. Side by side with these developments,

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<sup>272</sup> Report on Department of Health, dated 27<sup>th</sup> Dec, 1945, NAI.

<sup>273</sup> The Health Survey and Development Committee consist of two elaborate volumes which discuss all the issues relating to health and planning.

<sup>274</sup> The members of the Health Survey and Development Committee were Sir Joseph Bhore as the Chairman; Dr Amsur, President of the Indian Medical Association; Dr Banerjea, Director of Public Health, United Province; Dr Butt, Director of Public Health, Punjab; Dr Chandrachud, Chief Medical Officer, Baroda state; Col. E. Gotter, Public Health Commissioner with the Government of India; Dr (Mrs) Dadabhoy, ex-president of the All India Association of Medical Women, Bombay; Dr J.B Grant, Director of the All India Institute of Hygiene and Public Health, Calcutta; Dr Hameed, member of the MCI; Lt. Gen Bennet Hance, Director General of IMS; Sir Henry Holland; Sir Frederick James, member of Central Advisory Board of Health (CABH); N.M Joshi, Esquire, M.L.A; Lt. Col Miss Lazarus, Chief Medical Officer, Women's Medical Service; Pandit Maitra, member of CABH; Dr B. Mudalair, Vice-Chancellor, Madras University; Dr Narayan Rao, President of All India Medical Licentiates Association(1935-45); Dr Vishwanath, member of MCI; Major Gen Paton, Surgeon General with the government of Bengal(1941-45); Dr R.C Roy, president of MCI; The Hon' P.N Sapru, member of CABH.

however, we consider it of the first importance that at least a few institutions, which will concentrate on quality, should also be established at suitable centres in different parts of the country. We realize that considerations of cost and the need to staff these institutions with the most highly qualified persons available will, in all probability, make it extremely difficult to start with more than one such training centre. But no time should be lost in developing one such centre, for which we would suggest the designation 'All India Medical Institute (AIMI)'.<sup>275</sup>

Such an institution would profoundly influence medical education in India whose objective would be to bring together in one plan, educational facilities of the highest order and to promote research of the highest type thereby coordinating both training and research to provide post graduation training of the most advanced character.<sup>276</sup> Though a centre particularly for modern medicine, the Committee felt the need to also have a Chair of History of Medicine owing to the importance of attaching humanising factor or wider outlook to the students and the staff, which will enable them to interpret health and disease in relation to the social background of the life of the community.<sup>277</sup>

The Bhore committee was deeply aware of the importance of preserving freedom of action for the institute and evidenced this feeling thus "*Although it may appear somewhat novel in this country, we suggest that the technical work of the institute should be developed and directed not by an outside body...which will impose its ideas on the director and professors of the institute, but by the latter themselves acting as a medical faculty.*"<sup>278</sup> Hence, the organisation and control of the Institute was to be vested upon its above mentioned administrative bodies specifically of the Institute itself, soon to be developed. The 1956 legislative act provided for this freedom. The committee, in proposing the establishment of the All-India Institute of Medical Sciences, derived much of its inspiration from the example of the Johns Hopkins Medical School and Hospital at Baltimore in the United States as envisaged by Hill so that the Medical centre could set new standards for medical education in the country just like it did in the U.S. Besides these, planning, organisation, administration and financing of the Medical centre were

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<sup>275</sup> Report of the Health Survey and the Development Committee, Vol-II, Manager of Publications, Delhi, printed by the Manager, Government of India Press, Calcutta, 1946, p. 431.

<sup>276</sup> Notes on Department of Health, dated 27<sup>th</sup> Dec, 1945, FILE NO. F.6(2)-PII/46, NAI.

<sup>277</sup> *Report of the Health Survey and the Development Committee*, Vol-II, Manager of Publications, Delhi, Government of India Press, Calcutta, 1946, p. 433.

<sup>278</sup> *Ibid.*, p. 435.

also discussed. All in all, the Bhore Committee became the ultimate blueprint through which the All India Medical Institute was to be erected in the years to follow.

### **Towards the Establishment of All India Institute of Medical Sciences**

Ever since I was called upon to serve the cause of health, it has been one of my ardent desires to bring into being an Institute which would not only provide first class post-graduate training to our medical personnel in their own environment and afford facilities for the highest type of research in the extensive field which our country offers but which would also set and maintain high standards of medical education and above all, inspire in our trained personnel that lofty idealism without which those who adopt the noble profession of ministering to humanity cannot really rise to their full stature.<sup>279</sup>

Rajkumari Amrit Kaur was very much electrified as could be identified from the above quote, when her dream for a central medical institute for the country was coming into shape. As the Minister for Health following freedom, she had for long yearned for the same and couldn't contain her excitement during the foundation stone laying ceremony in the presence of many foreign dignitaries including Mr Watts, ex-Minister of Health of the New Zealand Government who provided her the grant.

Rajkumari believed that Science meant the search for truth. Medical science was no less a search for truth than any of the other vital sciences. In fact, it was much more crucial because it touched the human being in a special way.<sup>280</sup> According to her, medicine like every other science more than any other was the servant of mankind and transcended all barriers of race and climate. Society had to place health and education as services of supreme importance to promote the development of man to the fullest possible extent and it was to be approached in a scientific manner. It had to take account of the needs of the country. Extremely important and vital to the progress of modern medicine according to her was through Research. The right hand of Nehru in the sphere of health, one could mirror his vision in her thoughts and speeches.

Though Health being a State or a Provincial subject, the Central Government's assistance in every possible move throughout the development of AIMI was detectable.

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<sup>279</sup>Borkar, *Selected Speeches and Writings of Rajkumari Amrit Kaur*, 1961, p. 278, NMML.

<sup>280</sup> *Report of the Health Survey and the Development Committee*, Vol-II, Manager of Publications, Government of India Press, Calcutta, 1946, p. 1618.

Also, a Central Council of Health had been formed whereby Health Ministers of States were to have a coordinated approach towards health policies and issues with the Centre. There were constant communications and engagements visible between the Central and the Delhi State Governments during the process. Amrit Kaur actually did her best to find the best resources for the Institute and towards this end, Nehru was always there to check and provide necessary supervision and help for the same.

### *Location*

S.H.Y. Oulsnam, Secretary to the Department of Health had earlier apparently sent to the Department of the Ministry of Supply a proposal regarding the setting up of an All India Medical Institute as proposed by the Bhore Committee. By early 1946, AICTE member Joginder Singh reminded Permanent Secretary to the Ministry of Supply, Archibald Rowlands of this and was anxious to make a beginning as early as possible to secure its acceptance in principle as he believed that it would take years before the Institute such as the Bhore Committee projects would take shape and materialise.<sup>281</sup> Immediately replying the next day, Rowland wrote, "*My dear Joggy, obviously something of this sort is required in India and I find no difficulty in agreeing in principle to its establishment.*"<sup>282</sup> The scheme of the establishment of the AIMI had already been accepted in principle by the Development Board and approved by the Coordinating committee of the Cabinet by the end of 1946. However, it was advised that a probable budget for the whole design as well as all actions towards the acquisition of the land was made as the first step.

According to the recommendation of the Bhore Committee, plans had started coming to shape in hunting a site for the All India Medical Institute to be established in Delhi. It was a gruesome task to search for a location but, the anticipation of such a central institute was too much that there was no taking back from such an experience. A.V Hill considered Delhi the perfect site for this because he believed that if the All India medical centre was to play the national part it should in advancing medicine and public health, and to gain the international repute which will put Indian medicine 'on the map' and attract first class teachers and research workers from any part of the world, it was to be given the national recognition and status which was only possible by its establishment

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<sup>281</sup> Joginder Singh to A. Rowlands, dated 17<sup>th</sup> Jan, 1946, NAI.

<sup>282</sup> Rowlands to Joginder Singh, dated 18<sup>th</sup> Jan, 1946, NAI.



at the capital city of India.<sup>283</sup> Moreover, Delhi, in some year's time would become the headquarters of a future national academy of sciences and of other specialist national scientific bodies. The Health Minister too found Delhi the perfect place hence, arrangements were to be made accordingly. At this rate, the provision for the purchase of land was kept at approximately 12 lakhs for the year 1947-48.<sup>284</sup> This was not enough. Provisions were to be made yearly.

At the invitation of Mr. Oulsnam, the Joint Secretary to Government of India, Department of Education, Health and Lands, Delhi's Chief Commissioner A.V.S Askwith went one fine morning to view possible sites for the proposed new Medical institute and its connected institution in the Kingsway neighbourhood, also accompanied by the Director General of Indian Medical Service, General J.B Hance.<sup>285</sup> This site was considered suitable for the time being. But, it was essential that verifications be made on the rights on various parts of the land being held and in the case of each part which was privately owned, various advises were needed if there appeared any legitimate objection to the acquisition. Also, the presence of a village called Malakpur posed difficulties as they were juggling as to what ought to be done for it. Advice was in addition necessary if the village was to be excluded and if left where it was, it had to be re-planned as a model village. However, the Chief Commissioner of Delhi after Askwith, William Christie didn't like the idea. He himself had proposed a new 1000 bedded hospital for Delhi without knowing about the new hospital proposed by the Government of India. Writing to Oulsnam he said:

If my proposed new 1000 bedded hospital is to be eliminated on the ground that the Government of India are themselves proposing to go ahead with a large new hospital, I would ask that the site of the latter be reconsidered, as the present site would not please the requirement of Delhi city as it is too far away from any part of the city to be of real benefit to the citizens, particularly the poorer class. The development of Delhi city and the industrial development of Delhi as a whole are going to be to the West of the city and not to the North of the civil lines. In my opinion, therefore any big new hospital should be so sited that it will really serve the requirement so of the city, and the hospital part of the All

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<sup>283</sup> A.V Hill, *A Report to the Government of India on Scientific Research in India*, April 1945, p. 18, NMML.

<sup>284</sup> Budget Provision, dated 11<sup>th</sup> Nov, 1946, FILE NO.F.1/98/46, NAI.

<sup>285</sup> Selection of Site, dated 15<sup>th</sup> April, 1945, FILE NO.F-1/96/46PR, NAI.

India Medical Institute should be far more in the Western or North-Western side of the main city.<sup>286</sup>

To this, Narahari of the Planning Department replied, “*Surely if a hospital must be constructed, it should be located suitably in order to suit the convenience of the patients. The Government of India wouldn’t be senseless so as to locate the hospital without due regard to its utilitarian aspect.*”<sup>287</sup> This arrangement had to be dropped after much consideration.

The scheme whole together for the establishment of the Institute was put to a halt in view of the heavy cost involved for a short period of time.<sup>288</sup> But after the grant of a million pounds from the Government of New Zealand, the plan was resumed. The Irwin Hospital was very generous to have given some space for the development of the Institute. Though probably seeing the associations that Amrit Kaur had earlier with the establishment of the Lady Irwin College and one of the powers behind forming the All India Women’s Education Fund Association through which the college came into being, it is hardly surprising that such an arrangement was being made in no time. Everything was moving smoothly. In fact, on the 4<sup>th</sup> of April, 1952 even the foundation stone was laid at the site by Watts.<sup>289</sup> But later, a Committee under Dr. L. Mudaliar as a chairman was set up to examine the organisation and general planning of the Institute who suggested that the site near the Irwin hospital was too cramped and unsuitable for a large scale project which not only had to house the two main institution buildings but also ancillaries like the Dental and Nursing Colleges, hostels as well as staff quarters.<sup>290</sup> Also, the Health Minister decided to shift the site away from the Irwin Hospital with Prime Minister Nehru’s compliance “*because of Dr Sushila Nayar’s*<sup>291</sup> *strange attitude in the matter of the Irwin Hospital becoming part of the All India Medical Institute.*”<sup>292</sup>

On the 7<sup>th</sup> August, 1952, the Joint Secretary to Government of India, Ministry of Health, Menon sent a letter to Dr. Chakravarti, the Joint Secretary to the Government of

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<sup>286</sup> Government of India, Finance Department, Planning Branch-II, dated 15<sup>th</sup> Jan, 1946, FILE NO F.6(2)-PII/46, NAI.

<sup>287</sup> *Ibid.*, dated 23<sup>rd</sup> Jan, 1946.

<sup>288</sup> ‘All India Medical Institute: Establishment postponed, *The Times of India*, dated 20<sup>th</sup> March, 1949, NMML.

<sup>289</sup> ‘Medical Institute in Delhi, *The Times of India*, dated 5<sup>th</sup> April, 1952, NMML.

<sup>290</sup> ‘Medical Research Centre in Delhi, *The Times of India*, dated 14<sup>th</sup> March, 1947, NMML.

<sup>291</sup> Sushila Nayar was the sister of Pyarelal, Nehru’s Secretary. She held the portfolio of Health Minister from 1960 following Karmarkar.

<sup>292</sup> Rajkumari Amrit Kaur to Swaran Singh, dated 8<sup>th</sup> Sept, 1952, NAI.

India, Ministry of Transport, New Delhi, reminding him of the decision of the location of the proposed institute in Safdarjung with the existing Safdarjung hospital at its nucleus.<sup>293</sup> Equally disturbed that a busy road would run through the middle of the plot required for the institute as the Ring road was passing through the area, the latter was requested to divert the Ring Road suitably so that the land required for the institute was not traversed by the Ring Road. A resolution was however passed later the same month whereby the Delhi Development Sub-Committee pointed out that the Advisory Committee of the All India Medical Institute recommended about 150 acres of land be made available around the Safdarjung hospital for the construction of buildings of the institute, the Nursing and Dental colleges and other institutions attached that may have to be developed later and the plan showed an area of about 200 acres to be reserved.<sup>294</sup> Finally, transfer of 150 acres of land near Safdarjung hospital was made to the Ministry of Health. It was also recommended to ask the town planning officers to submit a plan showing the layout.

### *Construction*

To hasten the pace of the Construction work of the buildings in the campus, primarily on the main block, but also in the other buildings of the campus, wide powers had been delegated to the Ministry of Works, Housing and Supply to enable them to coordinate and speed up the work of the various agencies engaged in this enterprise. The Construction of such an institute which had a nursing as well as a dentist college attached to it was no joke. Besides the main buildings, herculean task for various hostels and accommodations for the students, faculty members and other staff members was awaited. A careful and active engagement between the Ministries of Health, Finance and Works, Housing and Supply were seen throughout such groundwork. Since 1952, step towards construction work was started which continued till 1960 as the inauguration of the institute was done the next year. Hence, various discussions and deliberations towards such arrangements cannot be neglected.

On the 16th of October, 1954, P.M Menon, sent the recommendations of the meeting held by the Advisory Committee of the Institute with K.C.E Raja as the president to the Ministry of Health where in the work relating to housing

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<sup>293</sup> F.10-5/52/MI, dated 7<sup>th</sup> Aug, 1952, NAI.

<sup>294</sup> *Ibid.*, dated 26<sup>th</sup> Aug, 1952, NAI.

accommodation including hostels and development of land was to be entrusted in the normal manner to the Central Public Works Department (CPWD) which was responsible for most of the construction works of many other institutions, for execution while the construction work of the teaching institutions and the hospital was to be entrusted to one or two selected architects of outstanding ability with considerable ability and experience in designing and constructing up-to-date hospitals and medical institutions.<sup>295</sup> This was considered necessary so that new ideas in regard to ward and laboratory construction may be incorporated in the construction. The Committee also recommended that the selected architects should be employed on full time salaried basis and for the same purpose, they recommended two British architects Mr Maxwell Fry and Miss Jane Drew who were employed at that time by the Government of Punjab on their works in Chandigarh.<sup>296</sup> After some informal discussions with them by The Health Ministry, it was understood that they were prepared to undertake the work if the Punjab Government with whom they were under contract at the moment permitted them to do so, but at the same time, they are not willing to accept it on a salaried basis as they prefer to work as individual architects on terms to be agreed upon. These recommendations were sent to the Ministries of Finance and Works, Housing and Supply for approval.

Since both the architects were unwilling to work on a salaried basis, the Ministries approved to the fact that a limited competition among the selected number of architects be adopted. For this, a copy of tentative lists of the architects suggested by Dr Jivraj Mehta, one of the members of the Advisory Committee was placed so that they would be allowed to compete with the others.<sup>297</sup>

Meanwhile, on the other hand, as early as July, the same year, the Health Minister Rajkumari Amrit Kaur herself had planned out a scheme to adopt a private architect Durga Bajpai for the planning of the Nursing College attached to AIMI. In the words of Benjamin Polk of the American Institute of Architects, *“I am delighted to learn of your desire to place the architectural work for the hospital project with such a thoroughly first class architect as the one you have chosen.”*<sup>298</sup> She had also sent a letter to Swaran Singh of the Ministry of Works, Housing and Supply excitedly briefing him of

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<sup>295</sup> Construction of Building of the All India Medical Institute at Safdarjung Site, New Delhi, dated 16<sup>th</sup> Oct, 1952, F.NO-WI-3(I)/VOL-1, 1955, NAI.

<sup>296</sup> *Ibid.*

<sup>297</sup> *Ibid.*, P.M Menon to Ministry of Works, Housing and Supply, dated 20<sup>th</sup> Oct, 1952, NAI.

<sup>298</sup> *Ibid.*, Benjamin Polk to Rajkumari Amrit Kaur, dated 12<sup>th</sup> July, 1952.

what she had told him earlier of her desire to appoint a private architect, “*My dear Swaran Singh, some time ago I spoke to you personally about my desire to ask young Bajpai who is a well qualified architect to draw up a plan for me for the AIMI, you had told me you had no objection provided the Finance Ministry agreed to it.*”<sup>299</sup> The Finance Ministry had agreed to give the expenditure in fees to Bajpai. She was even willing to have an interview conducted on him by the Senior Architect, the Directorate General of Health Services, J.D Shastri and K.C.E Raja, Officer in Duty, Ministry of Health in the presence of Nehru when they go to Shimla sometime soon.<sup>300</sup> Hearing this, Swaran Singh, very much in alarm wrote:

While I entirely agree that it may be advisable in very special cases to engage outside architects who may be specialists in particular lines to advise us on certain individual schemes, I feel that to make it a regular practice of it would be detrimental to the larger interests of the Government. Partly as we have several highly qualified architects in the CPWD some of whom are fellows of the Royal Institute of British Architects and have also received training in England. From a technical and professional point of view, I am not at all sure that we could hold that the architects of the CPWD are not adequately qualified or competent to design the Nursing College building. I doubt if Bajpai could be held superior to them.<sup>301</sup>

Rajkumariji replied saying that there was no need for such an apprehension as “*Bajpai was simply asked to prepare a plan for the Nursing College to test him out*” also adding that the earlier design sent by the CPWD was not up to the mark.<sup>302</sup> The matter was discussed with various high personnel of the Ministries concerned. C.C Desai, Secretary to the Government of India, Ministry of Works, Housing and Supply was of the opinion that it was wasteful to employ private architects and pay them special fees, when they had got a team of competent architects.<sup>303</sup> M.S Mathur, Chief Engineer of the CPWD also agreed to what Desai had said furthering the point that the CPWD architects were fellows of the Royal Institute of British Architects which happened to be the highest qualification of an architect in England. Many of them had also got training from

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<sup>299</sup> *Ibid.*, Rajkumari Amrit Kaur to Swaran Singh, dated 1<sup>st</sup> Aug, 1952.

<sup>300</sup> *Ibid.*, Rajkumari Amrit Kaur to Swaran Singh, dated 21<sup>st</sup> Aug, 1952.

<sup>301</sup> *Ibid.*, Swaran Singh to Rajkumari Amrit Kaur, dated 2<sup>nd</sup> Sept, 1952.

<sup>302</sup> *Ibid.*, Rajkumari Amrit Kaur to Swaran Singh, dated 8<sup>th</sup> Sept, 1952.

<sup>303</sup> *Ibid.*, Notes on the Ministry of Works, Housing and Supply, dated 13<sup>th</sup> Aug, 1952.

England and designed the Irwin hospital plus other minor hospitals of the rehabilitation ministry therefore, they were quite competent.<sup>304</sup> More than the reason stated, it was also important according to them that prior to proceeding with the engagement of Bajpai, the various queries pertaining to the cost of his assistance be met. Equally essential was the information as for what items he was going to be utilised and in relation to which units or aspects of the whole scheme of the Institute. Finally, it was understood from the Health Ministry that the earlier proposal of securing drawings and designs from Mr Bajpai had been dropped and instead he had been allowed to compete along with other architects.<sup>305</sup>

Now, since the responsibility of the building was given to the CPWD as well as the architect to be chosen after an all-India competition, rules had to be formulated so that by the time, he was chosen, there would be no confusion with their particular assignments. A meeting was held for certain matters concerning arising out of the proposed architectural competition and the suggested Government Agency, CPWD for the construction of the AIMI at Safdarjung site. The respective functions of the architects thus chosen had been defined in some detail. The architect would be responsible for designing the Institute and for producing drawings to fit in with the progress of the works.<sup>306</sup> He would also participate in addition in supervision to the extent of ensuring the incorporation of designs in the buildings as they are constructed and in association with CPWD, in keeping a check of quality and on cost. As regards the architect's fee, its amount would have to depend to some extent on the degrees to which repetition of the same design take place, that is, wards and classrooms in the different buildings that are put in. Also a Building Sub-Committee had to be established.<sup>307</sup> Sanction of the Government was also requested for allowing the Building Sub-Committee to select tenders to avoid unnecessary delays in arriving of decisions. The total anticipated outlay on the project was estimated at 1,74,00,000 and it was likely that this project would take approximately a term of five years to complete.<sup>308</sup>

In the intervening time of all these, preparations had already started for the all India Competition to choose the ablest architects from a list of many. Candidates

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<sup>304</sup> *Ibid.*, Notes of the CPWD, dated 25<sup>th</sup> Aug, 1952.

<sup>305</sup> *Ibid.*, dated 25<sup>th</sup> Nov, 1952.

<sup>306</sup> Notes of Health Ministry, dated 6<sup>th</sup> May, 1953, FILE NO. 2-1/AIMI/53, NAI.

<sup>307</sup> *Ibid.*

<sup>308</sup> *Ibid.*, dated 29<sup>th</sup> May, 1953.

participating submitted their designs by 15<sup>th</sup> of February, 1954 to be assessed thereafter by two of the joint assessors whom the Ministry of Works, Housing and Supply had co-opted, namely Walter George and Jeanneret.<sup>309</sup> After much delay, the result was finally declared when the Secretary of the AIMI Committee opened the seal award of the assessors and the sealed envelopes containing the names of the competitors, in the presence of Fernandes, President of the Indian Institute of Architects and the assessors. H.J Brown and L.C Moulin of Madras came in the first place followed by A.P Kanvinde and Shaukat Rai of Delhi in the second and K.A Parelkar, V.S Gore and A.R Parpia of Bombay in the third place.<sup>310</sup> A Doctor's Committee was also being appointed for which well known doctors from different medical institutions all over the country were being constituted so that there would be consultations between them and the chosen architects from time to time as they go on designing different parts of the AIMI.<sup>311</sup> Dr R.L Mehra and Dr N.G Gadekar of the Irwin Hospital were two of them.

Having chosen the architects, the Construction works were soon to begin but the land had to be handed to the CPWD legally for the purpose of construction of the Institute and its residential quarters.<sup>312</sup> The Ministry of Finance proposed that 150 acres of land near the Safdarjung site be allocated to the CPWD as they would be responsible for the construction of the building. Presumably, the buildings would also be maintained and administered by the CPWD after construction.<sup>313</sup> As against this tension, the Ministry of Health ultimately decided that as the buildings of the AIMI will be constructed at the expense of the Ministry under the CPWD, their administrative control would be vested in the Ministry. It was also decided to transfer the control of the buildings to the CPWD so that they would then assume full responsibility for their upkeep and maintenance also for provision of funds for the purpose. It was however contemplated that in due course, the Institute and the allied institutions under it, if it becomes a statutory corporation, the administrative control of the buildings would have to be re-transferred to the corporation, after which the chief engineer of the CPWD may maintain the buildings at the cost of the corporation.<sup>314</sup> Hence, sanction of 150 acres of

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<sup>309</sup> *Ibid.*, Notes of Ministry of Health, dated 9<sup>th</sup> June, 1953, NAI.

<sup>310</sup> 'Exhibition of building designs: Delhi Medical Institute, *The Times of India*, dated 26<sup>th</sup> Sept, 1954, NMML.

<sup>311</sup> K.C.E Raja to M.S Chada, Director of Health Services, Delhi State, dated 7<sup>th</sup> July, 1954, FILE NO. 20(213)1954, Delhi State Archives (D.S.A thereafter).

<sup>312</sup> Notes of CPWD, dated 3<sup>rd</sup> July, 1953, FILE NO. L-3(191)/55.Pt.1, NAI.

<sup>313</sup> *Ibid.*, dated 13<sup>th</sup> July, 1953.

<sup>314</sup> Notes on Ministry of Health, dated 24<sup>th</sup> July, 1953, F.NO-WI-3(I)/VOL-1, 1955, NAI.

land near Safdarjung hospital to the Chief Engineer, CPWD for the construction of the buildings of the AIMI was made at last from where the construction work commenced.<sup>315</sup>

Following these arrangements, a simultaneous need was felt to change the name of the Institute. A proposal to promote legislation in the Parliament for the All India Medical Institute was discussed by the Health Minister with the Education Minister, Abul Kalam Azad and Secretary to the Education Ministry who was at that time S.S Bhatnagar in which the name of the Institution was to be changed to All India Institute of Medical Sciences (AIIMS).<sup>316</sup> Rajkumari Amrit Kaur stressed very strongly the fact that the All-India Institute's branches would gradually come into being in all over India thus, it was essential not only to lay down a uniform standard of medical education for the entire country but also to create within all limbs of the medical profession a feeling that they did not belong to any particular State.<sup>317</sup> The Institute with its location in the Central city was to turn out to be one of its kind, setting principles, becoming the core centre or forerunner parent body from where medical ideas were to flow to other branches. Consequently, seeing the seriousness of such a change, the name was modified to AIIMS after all. At the same time, the issue of the administration of the Institute came into the forefront.

### *Administration*

For an Institute deemed to set standards, its organisation and management was supreme. The Bhore Committee, in its recommendation put forward that for the growth of academic freedom, it was essential to ensure that the institution be free from the routine administrative control of a Department of Government and hence proposed that its administration be vested in a Governing Body of suitable composition.<sup>318</sup> But, the Government could exercise very minimal powers of being an advising body in the early years of the development of the Institution. Therefore, such a framework was being followed giving the administrative control of the institution to a Governing Body consisting of eleven members. The Board would consist of the Vice Chancellor of Delhi

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<sup>315</sup> Manmohan Kishan, Under-Secretary to the Government of India to the Secretary of the Delhi State Government, Ministry of Rehabilitation, New Delhi, FILE NO. RHB/55(7)/54, dated 19<sup>th</sup> May, 1954, NAI.

<sup>316</sup> Notes on Ministry of Health, dated 14<sup>th</sup> Jan, 1955, FILE NO. F.33-79/55A, NAI.

<sup>317</sup> Borkar, *Selected Speeches and Writings of Rajkumari Amrit Kaur*, 1961, p. 279, NMML.

<sup>318</sup> Report of the Health Survey and the Development Committee, Vol-II, Government of India Press, Calcutta, 1946, p. 434.



University (ex officio); A representative of the Ministry of Finance of the Government of India; A representative of the Lok Sabha; A representative of the Rajya Sabha; The Director General of the Health Services, Government of India (ex officio); The Director of AIIMS(ex-officio) and the remaining four members were to be nominated by the Government of India, one of whom shall be a non-medical scientist to represent the Indian Science Congress Association.<sup>319</sup>

The First Director of the AIIMS, B.B Dikshit was to be made the Secretary of the Governing Body. Furthermore, among the remaining ten members, the Government of India would nominate the Chairman of the Governing Body. The Ministry of Law approved of the fact that the ex-officio members would retain their places on the Governing Body during the tenure of their respective offices, while the remaining members would serve a term of 5 years and further to ensure continuity of the Body, one half of the members except the ex officio member had to retire at the end of the first 5 years and the other half at the end of the 6 years.<sup>320</sup> The Government with the Governing Body were to frame rules to regulate the procedure for the lapse of the membership at the end of the first 5 year period for the filling of the vacancies thus created.

At the meeting of the Cabinet held on Monday, 28<sup>th</sup> march, 1955 at 5pm in the presence of Prime Minister, Nehru; Maulana Abul Kalam Azad, Minister of Education and Natural Resources and Scientific Research; Jagjivan Ram, Minister of Communication; Rajkumari Amrit Kaur, the Minister of Health; C. Deshmukh, Minister of Finance and many others, the Health Ministry's summary was considered and approved but they viewed that the proposed AIIMS need not be a Corporation. The cabinet desired that besides the Governing Body of the Institute in which the representative of the Education Ministry should also be included, there should be an Advisory Council of not more than twenty five members represented by the various medical faculties of India.<sup>321</sup> Such a decision distressed the Health Minister as could be seen from a memorandum put forward by V.K.B Pillai:

The Health Minister feels, on reconsideration, that the decision of the cabinet, at its meeting on 28<sup>th</sup> march 44, that an Advisory Council should be created for the A.I.I.M.S in addition to the proposed Governing Body, will result in limiting

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<sup>319</sup> Summary for the Cabinet, dated 12<sup>th</sup> Jan, 1955, FILE NO. 10-34/53-MI(HII), NAI.

<sup>320</sup> *Ibid.*

<sup>321</sup> *Ibid.*, dated 28<sup>th</sup> March, 1955.

severely its autonomy, which is essential for enabling it to develop patterns of teaching in undergraduate and post-graduate medical education so as to demonstrate high standards to other medical colleges in India.<sup>322</sup>

In the light of the above stated reason of the Minister, it was suggested that, instead of establishing a separate Advisory Council, the strength of the Governing Body could be increased from eleven to sixteen, the additional four members being filled by the representatives of medical faculties of universities to be nominated by the Government of India. Nehru thus approved of the Health Ministry's summary circulated under the Cabinet Secretariat.<sup>323</sup> With this consideration, the Governing Body were to exercise wide powers pushing the Institute to achieve great success ahead.

### *Students*

Teaching work wasn't neglected as advantages of the completed buildings were used for setting off classes instead of waiting for the completion of the whole project. Such a centre of quality needed students who would become future leaders in their respective professions. Hence, the selection of the students to be admitted to the medical and nursing colleges attached had to be made very carefully, merit being the sole criterion for the admission.<sup>324</sup> However, 10% seats were reserved for the SC/ST and Backward students later.<sup>325</sup> 5% seats reserved for the foreign students nominated by the Government of India. By 1956, a number of departments arose even though students were minimal. The course of M.B.B.S began on the 25<sup>th</sup> September, 1956 with 50 students including 9 women and 5 students belonging to Schedule Caste and Backward communities; a 2 year post-graduate training course in Orthopaedic Surgery was started in April with just two students, one student being similarly admitted to this course in September the next year; 20 candidates registered their names for M.Sc in September in 1957 in the basic subjects of Anatomy, Physiology, Pathology, Bacteriology and Pharmacology; 20 candidates registered themselves for M.Sc Degree in 1957.<sup>326</sup> The Ministry of Health also considered that the Institution should also deal with Humanities as a subject not only just the technical branch of education in order that students who passed out from such a grand centre would in

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<sup>322</sup> Memorandum of the Ministry of Health, dated 31<sup>st</sup> March, 1955, FILE NO. 3082H.II/55, NAI.

<sup>323</sup> Note of the Cabinet Secretariat, dated 14<sup>th</sup> April, 1955, FILE NO. 12/CM/55, NAI.

<sup>324</sup> Rajkumari Amrit Kaur emphasized this in most of her speeches.

<sup>325</sup> *Medical Colleges and Training Institutions in India*, Directorate General of Health Services, New Delhi, Government of India Press, Faridabad, 1961, p. 68, NMML.

<sup>326</sup> *Ibid.*, p. 66.

addition to special knowledge and skill inculcate something of that humanising influence which would equip him or her with a broad outlook on life and a sense of responsibility to the community.<sup>327</sup> Inclusion of the Department of Preventive and Social Medicine was likewise stressed.

The requirements of the rural areas stood paramount to a backward country like India as it was vital that the population there got the best of the medical facilities because without progress there, no possible development could be visible in the urban areas. Accordingly, on April 13<sup>th</sup>, 1952, Prime Minister Nehru had sent a letter stating to Rajkumari the importance of sending the new medical graduates to the rural areas as criteria before they could start practice or taken into service in the towns.<sup>328</sup> Rajkumari who believed that “*the health and sanitation of the village is a matter of national importance*”<sup>329</sup> was quick to nod actively to Nehru’s decision. A resolution was as a result passed at the third meeting of the Central Council of Health at Trivandrum regarding the proposal which required the medical graduates to put in a minimum of one year service in the rural or tribal areas before entry into Government service. Despite the fact that suitable residential accommodation of Rs 12,258 and adequate compensatory allowance of 25% were to be provided to all medical officers as well as ancillary staffs posted in rural areas, the Council held that experience in rural areas could be considered instead as an additional qualification for employment in Government service.<sup>330</sup> One section was opposed to the idea of providing allowance:

The rural area has advantages and disadvantages which goes for urban areas also. Living in rural area is free from all the ornamental encumbrance of urban life as is far cheaper...if we were to give every facility, accommodation, transport and extra pay. What is left that would be lacking in rural area? The idea is that by working in a rural area, a doctor should develop a more sympathetic and humanitarian outlook and become more confident and self reliant professionally...should cease to look for or offer monetary reward for everything out of the ordinary. Normally, doctors should volunteer for rural area in maternal

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<sup>327</sup> Summary for the Cabinet, dated 12<sup>th</sup> Jan, 1955, FILE NO.10-34/53-MI(HII), NAI.

<sup>328</sup> Jawaharlal Nehru, *Selected Works of Jawaharlal Nehru*, Vol. 18, (ed.) S. Gopal, Second Series, (1<sup>st</sup> April- 15<sup>th</sup> July, 1952), p.111, NMML.

<sup>329</sup> ‘Rajkumari Amrit Kaur and the Indian Village’, *The Hindustan Times*, dated 8<sup>th</sup> Oct, 1936, NAI.

<sup>330</sup> FILE.NO. 6(33)/55, dated 12<sup>th</sup> Sept, 1955, D.S.A.

service. If they do not do so, we shouldn't lay a premium on their negative attitude by trying to cajole them by offering extra allowance.<sup>331</sup>

Allowances were to be provided but no extra allowance like special rural allowance would be given to them. By 1976, a field practice area, namely a Primary Health centre in Ballabgarh started functioning.<sup>332</sup>

### *Faculty*

According to the model of the Bhore Committee, recruitment for the faculties was to be resorted through the world market owing to the fact that such an institute should have a universal character to it.<sup>333</sup> The exploration of talent outside however was to be preceded by the search of secure suitable persons of the required calibre within the country but the criterion of service was to be based on merit as reservation of posts was incompatible with the principle of the development of the Institute. Since the Institute was supposed to be of an all-India character, which would cater to the needs of other medical institutions afterwards, nothing was to stand in the way of its getting the best talent available in the country. In the broader interest of the nation, it was considered necessary that applications from well qualified and experienced Indians be considered for its various posts.<sup>334</sup> Dr N.G Gadekar, Radiologist; Dr Balber Singh, Bacteriologist; Dr D.N Gupta, Histologist and Dr P.N Taneja, Paediatrician all from the Irwin Hospital applied for the post in their specific fields respectively.<sup>335</sup> An application from Dr D. Kulanday, Assistant Director of Health Services, Delhi State had also been forwarded for the post of Programme of Maternity and Child Welfare in the A.I.I.M.S.<sup>336</sup> These were temporary posts which would be relieved after arrangements were made for their substitutes. As A.I.I.M.S was envisioned as a premium institute from where standards of teachers and research work were to be enunciated, private practice had no place as this would hamper the very basis of the institute.

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<sup>331</sup> *Ibid.*, dated 22<sup>nd</sup> May, 1956.

<sup>332</sup> *Directory of Medical Colleges in India*, issued by the Central Bureau of Health Intelligence, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi, 1976, p. 302, NMML.

<sup>333</sup> *Report of the Health Survey and the Development Committee*, Vol-II, Government of India Press, Calcutta, 1946, p. 435.

<sup>334</sup> Recruitment to Various Posts in AIIMS, dated 6<sup>th</sup> Jan, 1956, FILE NO. F.28(I)/56.AA, D.S.A.

<sup>335</sup> *Ibid.*, dated 12<sup>th</sup> Jan, 1956.

<sup>336</sup> *Ibid.*, dated 31<sup>st</sup> Jan, 1956.

Short term contracts not beyond five years were the norm for the professionals attained from abroad. Candidates outside India were interviewed by a selection committee formulated under the Chairmanship of L. Mudalair in London and New York.<sup>337</sup> Other than this, the assistance from the Colombo Plan, Technical Cooperation Mission, U.N.I.C.E.F, Rockefeller, Ford Foundations, F.A.O and W.H.O. etc gave the necessary help in getting qualified personnel as well as equipments for the Institute.<sup>338</sup>

### **Indigenous V/S Modern Systems of Medicine**

Subjects on science and medicine have attracted commendable works from notable historians in the last few decades. More important is the particular interest with which the processes of dissemination of medical tradition of the western world to the non-western medical tradition have taken place. However, in sharp contrast to this, many western countries have accepted and incorporated non-western medicine like the Tibetan or Indian Ayurveda or for that matter, the Chinese's acupuncture etc and many other such systems in their medical field.<sup>339</sup> Coming to the Indian context, the Ayurvedic system of medicine have been practiced widely in many parts of the western world. In spite of such nature in the global circumstance, within the country, no recognition or limited encouragement has been meted out to these ancient forms of medicine including Unani, Homeopathy and many others besides Ayurveda. While Amrit Kaur and Nehru had been instrumental in taking forward the essence of science to vital institutions like AIIMS during their leadership, the sorry state of ancient medical science highlight their limitations. Research of ancient Indian medical systems was not included in the scheme of AIIMS.

If I have a son and if you asked me as to where I would send him, as to what I would advise him to study, whether I would advise him to study Ayurveda or

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<sup>337</sup> Borkar, *Health in Independent India*, Ministry of Health, Government of India, New Delhi, 1958, NMML.

<sup>338</sup> Kaur to Edith F. Ineson, Secretary of the Women's International League for Peace and Freedom, dated 20<sup>th</sup> May, 1957, Amrit Kaur Correspondence, NMML. Also FILE NO.7 (19)/56-Local Self Government, dated 4<sup>th</sup> June, 1956, D.S.A.

<sup>339</sup> Ayurveda is practised in Nepal, Sri Lanka, Bangladesh etc., where the system is practised with recognition from the government. And countries like Argentina, Australia, Republic of Czechoslovakia, Brazil, Germany, Hungary, Italy, Russia, Japan Portugal, New Zealand, Switzerland, Malaysia, Singapore, Arab countries like UAE, Oman etc. also practice it where there is an increasing awareness about Ayurveda as a healing system among the public. See under Praful Patel, *Globalisation of Ayurveda: A Global Vision for the next decade*. [www.iaf-ngo.org](http://www.iaf-ngo.org) (retrieved on 22-07-16)

whether I would advise him to study Homeopathy. I can tell you that I will never send him.....to study Ayurveda in this country at all. Why? Because, I am sure that if he begins to study Ayurveda or homeopathy, he will have no status in the society; he will earn little; he will not be accepted in Government service and his certificate will not be accepted by the Government departments.<sup>340</sup>

Such was a very strong statement made by one of the members of the Parliament W.S Barlingay in the Rajya Sabha while debating over the bill to provide for the establishment of the All-India Institute of Medical Sciences in Delhi. He pointed out the 'step motherly' attitude that was given to the Indian medicine by the State as well as the Central Government and was equally grieved by the appalling state of affairs as far as these systems in the country were concerned.

The year 1956 proved vital not just because AIIMS had been established through an act of parliament giving it an autonomous prominence and status of 'Institution of National Importance' but most importantly because an opportunity was created to see a whole commotion on the subject of ancient Indian indigenous versus the modern systems of medicine. These elaborate discussions which took fully four days in the month of April, let alone the other three days passed in the Lok Sabha in February the same year deliberating widely over the same issue brought into the fore front the reality and hypocrisy of many of the practitioners as well as the common psyche towards these ancient systems although the rifts between the dichotomous tendencies of both are not new.

The Health Minister, Rajkumari Amrit Kaur while putting forward the bill in the Parliament on 3<sup>rd</sup> May was trolled from all directions by several members due to the absence of any arrangement for the study and research of indigenous systems of medicine in the Institute. Even though it was clearly put that no question ever of the institution being anything except one for developing sciences which are allied and modern medicine, she ensured "*in not including the Ayurvedic, Unani or Homeopathic systems in this institute, no insult was meant to them.*"<sup>341</sup> In fact, she hoped to have a Chair for the History of Medicine which will include the teaching of the humanities wherein the study of these ancient systems would be incorporated. However, repeated plea by several

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<sup>340</sup> Parliamentary debates in the Thirteenth session of the Rajya Sabha official report, Vol. XIII, Nos 1-11, (23<sup>rd</sup> April 1956 to 7<sup>th</sup> may 1956), Rajya Sabha Secretariat, New Delhi, p. 1408.

<sup>341</sup> *Ibid.*, pp. 1208-1217

members to the greater encouragement to the indigenous systems of medicine was evident thereafter.

A congressman from U.P, P.N Sapru believed that the most fruitful way in which the ancient medical systems could be advanced was by the encouragement of research in those sciences. While, Raghubir Singh disliked the segregation, he rooted the integration of both the indigenous as well as modern systems. A member from Madras, Nallamuthu Ramamurthy said that they were committing ‘sacrilege’ on their own systems of medicine by not giving them the attention that they deserved. He further added that it should be the endeavour of the Institute to discover the ‘rich heritage’ in the field of indigenous medical sciences which had been overshadowed by the foreign rule.<sup>342</sup>

Looking at the fact that majority of the people go to Hakims and Vaidis for their daily treatment, there was not even a handful of Unani or Ayurvedic institutes in the country while there were establishment of various allopathic institutions in every district, town or cities and other big places opined Saksena. He lamented the once vivacious places in Lucknow like Jhawaitola or Pilibhit or Nardwar where the Hakims could beat any medical practitioners while diagnosing any kind of ailments but now they had almost perished because of the establishment of the state aided institutions known as allopathic dispensaries. According to him, encouraging the ancient system would only “*provide for the large population of the country that type of medical treatment that suits them, to which they are used, which is germane to their nature and which is cheap and within their scanty means.*”<sup>343</sup>

W.S Barlingay put forth a very interesting point whereby he argued that the answer to the test of a scientific mind should be an absolutely open and receptive mind. He was all up for the truth and science and contended that if these ancient systems don’t contain any truth or any grain of science in them, it should be thrown away. But, if it’s the other case, the superstitious part of it had to be distinguished from the scientific part of their doctrines and examine before accepting it. This was exactly what Nehru always stressed in most of his speeches.

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<sup>342</sup> *The Times of India*, dated may 9<sup>th</sup>, 1956.

<sup>343</sup> Parliamentary debates in the Thirteenth session of the Rajya Sabha official report, Vol. XIII, Nos 1-11, (23<sup>rd</sup> April 1956 to 7<sup>th</sup> May 1956), dated 3<sup>rd</sup> May, 1956, Rajya Sabha Secretariat, New Delhi, p. 1246.

Doubts were also expressed by several members as to whether reference to 'medical sciences' in the bill would not also include indigenous systems of medicine. R.P Dube made known to the members that the scheme for AIIMS had been visualized long in the Bhore committee and accordingly an institution had been conceived for a particular purpose for the advancement of research on 'modern medicine'. Hence, it was impossible to integrate it in the institution. His point was further followed by R.C Gupta who stated that AIIMS was a medical institution for the allopathic or modern system of medicine. Though he added that provision should be made for teaching Ayurveda or Unani or other system of medicine, it was at least for him wrong to introduce other faculties of these ancient systems in this institution.

To this, Shri Ramamurti challenged that "modern medicine" was inclusive of all forms of medicine, even the ancient medicinal forms. Radha Kumud Mookherji, a practitioner of indigenous systems argued that everybody present were all up for the most advanced science so, researches in the indigenous systems of medicine ought to be taken up even from such a point of view. Various analogies of the treatments and remedies to famous men like Buddha, Bimbisara of Magadha, and Prince of Ujjain etc all from Pali texts were made showing their extreme popularity and effectiveness. Certain views had also been put to show that medicines and drugs had been found very useful by foreign countries and they were being used by them and yet in the country, it was being ridiculed as extremely non scientific.

Pleas for better facilities were also made. M.D.D Gilder, a well known doctor and former health minister to Bombay reminded the Government of their duty to provide facilities for the growth of indigenous systems of medicine when a majority of the people believed in their efficacy. He was irritated that the Britishers had stamped these ancient practitioners and now the Government was doing the same. Mysore member Dasappa went along the same line as his former fellow member appealing the Government to discourage the antipathy that existed between the different forms of medicine in the country pointing out that "*the existence of indigenous systems like Ayurveda and Unani even after a long lease of life to modern medicine was a clear proof of the effectiveness of this systems.*"<sup>344</sup> He believed in taking the advantages from different systems, as the resulting factor then would not just merely be a replica of what was there in the West, or a

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<sup>344</sup>Developing Indigenous systems of medicine: Plea for government facilities, *The Times of India*, dated 8<sup>th</sup> May, 1956.



fairly good imitation of the West but it would entail readjustment or positioning of the country's age old medicine in a novel way. Talking of 'medical sciences' or rather the term 'All India Institute of Medical Sciences', he thought would be too demeaning to narrow down the science only to mean a particular science i.e. the science of modern system.

Bihar member Umair Shah Sahab reminded the Health Minister that the allopathic system owed its existence, basis and foundation to the basic principles of that very 'great system of Ayurvedic science' which existed in this country 6,000 years back. He appealed for an increment of one to four Chairs of Medicine or bring in a similar measure soon in the near future to encourage the ancient systems so that the seriousness be felt amongst those who were practising them.

Seeta Parmanand saw "modern medicine" as a borrowed term, from America. She added, "*American expression is sweeping over us... Just because the followers of our medicine have not had the wherewithal with which to apply the tests of modern medicine or to develop it on those lines, there is no reason why we should be responsible for calling it an antiquated or outmoded system.*"<sup>345</sup> To the ones who called the indigenous system quackery, she had a straight forward answer to give "how modern medicine came under science? Obviously after experimentation hence, the same opportunity should be given to these systems too.

It was only after Amrit Kaur's repeated assurance that '*she would do all that lies in her power to give Ayurveda and Unani systems the help that they need for their renovation and rejuvenation and research*' in the future that the Rajya Sabha gave its approval to the AIIMS Bill on 9<sup>th</sup> of April, 1956.<sup>346</sup>

Had such a subject been taken lightly, it wouldn't have extended for four days. In the house of the Lok Sabha too in February, it took three days deliberating over the same issue majorly, to pass the bill when it was just given an hour to complete.<sup>347</sup> The intensity with which such debates were carried on questions the condition of indigenous systems of medicine in the country. But most of all, the Government's take on the serious

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<sup>345</sup> Parliamentary debates in the Thirteenth session of the Rajya Sabha official report, volume XIII, Nos 1-11, (23<sup>rd</sup> April 1956 to 7<sup>th</sup> may 1956), dated 7<sup>th</sup> May, 1956, Rajya Sabha secretariat, New Delhi, p. 1471.

<sup>346</sup> 'Medical Institute Bill passed', *The Times of India*, 10<sup>th</sup> May, 1956,

<sup>347</sup> *All India Institute of Medical Science Bill*, Proceedings in Lok Sabha, February, 1956 compiled by Dr A K Bisoi, Professor, CTVS, AIIMS.

organisation, planning and encouragement of such systems have been brought in lime light. Also, we see rays of hope from some who saw well in these systems, wanting to improve it for the betterment of the country, whilst others saw it as a secondary scheme next to the improvement of the modern or allopathic systems. In the Health Survey and Development Committee which was a bold initiative including elaborative health service plans, Kumar and Shekhar initially felt that necessary 'will' to develop the health services of the country was evident but, the leaders after independence didn't show the will, instead the health policy had led to wide rural and urban disparities in the health services, destroying the native medical systems.<sup>348</sup> Father of modern Indian Science, Nehru had similarly held a number of times that "*there was no reason why AIIMS shouldn't investigate some of the old methods, old practices, old approaches and try to profit by them, provided of course they fit in the spirit of science which is the very basis of this Institute.*"<sup>349</sup> He was sure that these great men of the past were wise people though they didn't have the advantage of scientific techniques and knowledge. Yet, out of 140 crores sanctioned for the development of health in the First Five Year Plan, only 0.40 crores were allotted to the indigenous systems of medicine including homeopathy and nature cure.<sup>350</sup> Similarly, 4.00 crores and 9.3 crores were sanctioned in the Second and the Third Five Year Plan which comparatively was still minimal.

It is highly mesmerising that to the world, we are always there to glorify the ancient Indian systems of medicine as opposed to the modern or western form when within the country there exists much sharper dichotomy, demeaning and mortifying the state's own form of medicine which has survived for ages. The example of Yoga which has exceeded national boundaries to break pass the territories of the world gives an otherwise meaning.

Besides this concern, many issues pertaining to the nature of the Institution were also discussed. In 1955, legislation was passed discussing the probability of making AIIMS into a Statutory Corporation with the powers and functions of University or designating it as a University, to which there was considerable opposition from certain

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<sup>348</sup> Deepak Kumar and Raj Shekhar, *Medical encounters in British India*, Oxford University Press, New Delhi, 2013, p. 23.

<sup>349</sup> Singh, *Jawaharlal Nehru on Science and Society*, NMML, New Delhi, 1988, p. 265.

<sup>350</sup> Report of the Health Survey and the Planning Committee (also popularly known as the Mudaliar Committee)(August 1959-October 1961), Vol. 1, Government of India, Ministry of Health, p. 31.

members of the Inter-University Board to the latter.<sup>351</sup> Therefore, the former proposal of designating it as a Statutory Corporation with the powers and functions of a University had been accepted. The Ministry of Education was of the view that the Delhi University (DU) Act would forbid the conferment of degrees of any other University within its territorial jurisdiction. But since the Institute was not intended to be a University, they would have no objection if enactment was undertaken to give the Institution authority to confer degrees or diplomas.<sup>352</sup> The Committee formed under Mudaliar for the planning and formulation of the AIIMS in 1952 had contended that as post graduate qualifications granted by DU might not command sufficient recognition throughout the country, it was eminently desirable that the Institute be able to grant these qualifications on its own authority and not as an institution affiliated to DU. The importance of promoting such a decision in the Parliament to approve in the form of a statute was also stressed.

However, the same questions arose in the debate. Dupe wanted AIIMS to be included under DU so that easy grants could be received from them. W.S Barlingay followed what Dupe had said insisting that such Institution could be attached to some university, like DU and through this they could grant degrees and diplomas. By doing this the provisions of the University Grants Commission (UGC) would come into operation and the institute could get any amount of grants from it. Sapru argued it should function as an autonomous institution having more or less the status of a university. However, he didn't like the tendency of having special institutes and calling them by the name of universities or to devolve on them the function of a university. Bhupesh Gupta, a member from West Bengal stated certainly that AIIMS should be given a very high status. It was imperative to enlarge the functions of the Institute as it was going to be a vitally important institution in the country. No bureaucratic or arbitrary interference from any quarter for the efficient and democratic running had to be evident. At the same time, he emphasised active relations to be maintained between the activities of the Institute and the Parliament at least in the early years of the development of the institute so that the house knows their progress. Further adding to all this debate was Dasappa who opined that the more the Institution was given the character of being more or less autonomous body, the better it was for the future of the institute because they would be able to work divorced from the red-tapism of the Government.

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<sup>351</sup> Notes on Ministry of Education, dated 14<sup>th</sup> Jan, 1955, FILE NO.33-79/55A, NAI.

<sup>352</sup> *Ibid.*, dated 2<sup>nd</sup> Feb, 1955.

Also disappointments were meted out to the Health Minister for not including a single member from the Indian Medical Council (IMC) which was an all India body in the working of AIIMS. Wadia and Saksena wanted at least a representative from the IMC which was an all India body to be there in the rulemaking body of the Institute. R.C Gupta argued the same stating that it wasn't proper that representation had not been given to the IMC. Dr Radha Kumud Mookherjee briefing the members of the functions of the body told them that they controlled undergraduate teaching and held examination and more functions relegated to it; almost all the colleges, their standard of education and examinations were controlled by the body hence, proving her point that AIIMS if not guided by the body or under their control, will create dual control in the teaching of medical undergraduates.

Rakumari Amrit Kaur answered that AIIMS was not going to be under the Delhi University. No constitution from the UGC had come forward. Moreover, she was not worried about the expenses as the Government of India was there to provide her with the necessary grants for the Institute besides the fees of the students. Later, if private visionaries wanted to offer private philanthropic funds, it would also be encouraged. She further made the confusion simple by stating that the Institution was to be given the powers and functions of a University because its inception itself was probably to make revolutionary changes in many things, not only in curriculum but also in modes of teaching. The University status that the Bill would give would enable the Institute to give diplomas which would entail maintaining a very high standard, the same patterns to be taken from which exists in various coveted medical institutions in England. They would of course have to come under the Indian Medical Council Act. Minimum control could be exercised by the Government but the Institute would enjoy a very large measure of autonomy.

The exercise of the Union Public Service Commission (UPSC) was also absent in the administration of AIIMS to which Dr Raghubir Singh and R.C Gupta put forward their say on the matter. To appoint the very best of the Indians available in the country or outside as well as teaching of highest order in an institute of such importance, there was a need to necessitate a large amount of money to spend well. Hence, recruitment through the UPSC deemed vital. This was not all, a series of matters were discussed but Amrit Kaur had the perfect answers to crush all her toilers. Consequently, the Bill was moved by the Deputy Chairman in the evening of 9<sup>th</sup> May giving AIIMS the status of

autonomous character as well as the recognition of an institute of national importance.<sup>353</sup> Just a year after, she was removed from her position but went on to enjoy the role of being the President of the Institute till her death in 1964.

## **Conclusion**

Almost ten years had passed by when the All India Institute of Medical Sciences, in September, 1956, welcomed its students and started its course. The constituent members of the Bhore Committee Report would have without a doubt, definitely considered this too long a gap. But if conceived in the context of the present period, this temporary hold-up is comprehensible and have even verified to be fortunate in the perspective of a developing, newly independent nation which has to an extent accomplished the vast array of goals in medical science for its people. Within such a gap, the substantial resources required to commence the institution in order to meet its heavy responsibilities had been carefully mobilised and cautious forethought had been given to the selection and preparation of staffs and faculties etc.

However, just a few years after AIIMS had been established, loopholes began to appear. In 1958, the working of AIIMS came under criticism when the Rajya Sabha held a two hour debate on the second Annual Report of the Institute. The new Health Minister D.P Karmarkar was alleged with partiality and element of provincialism seen in the selection of teaching staff.<sup>354</sup> Also, he was back lashed because of the painfully slow construction programme. An Estimates Committee in the Lok Sabha submitted a report observing the inordinate increase in expenditure of the institute whereby the same project cost over Rs 959 lakhs, an increase of Rs 483 lakhs over the original estimate.<sup>355</sup> The undergraduate and post graduate teaching in the Institute was equally hampered owing to insufficient hospital facilities according to the report. Further, the famous Mudaliar Committee of 1961 which laid a comprehensive report on the development of health facilities after fifteen years following the Bhore Committee Report stated that the Institute

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<sup>353</sup> Parliamentary debates in the Thirteenth session of the Rajya Sabha official report, Vol XIII, Nos. 12-22 ( 8<sup>th</sup> May, 1956 to 22<sup>nd</sup> May, 1956), Rajya Sabha Secretariat, New Delhi, dated 9<sup>th</sup> May, 1956, p. 1754, NMML.

<sup>354</sup> 'Medical Sciences Institute: Criticisms of Working, *The Times of India*, dated 12<sup>th</sup> Dec, 1958.

<sup>355</sup> 'Expenditure on Medical Science Institute, *The Times of India*, dated 1<sup>st</sup> April, 1959.

had not been in a position yet to produce steady stream of teaching personnel that was envisaged before.<sup>356</sup>

Though they had a rocky start in the beginning, in the year 1961, India saw the most enthusiastic reception she had ever arranged or seen of Queen Elizabeth, the Second accompanied by Prince Phillip blessing the Institute and declaring open the five storey building of the AIIMS. In a brilliant sunshine, the Queen, in her light blue dress, a white hat and a diamond brooch, snipped a shimmering brocade tape with a pair of gold-plated shimmering scissors inaugurating the finest of institutions among the world conceiving it a symbol of international endeavour.<sup>357</sup> Following such a grand opening, there was no way the Institute wouldn't have prospered in the global field. Adding to it, the same year, Rajkumari Amrit Kaur as the President of AIIMS was presented with a medal and a citation at Boston by the Board of Trustees of the Massachusetts General Hospital placing the Institute in the list of some of the most distinguished Hospitals and Institutions in America, Canada and Europe. In the pursuance of Kaur, the Director of A.I.I.M.S, B.B Dikshit acknowledging the award wrote back saying that he would particularly try his best to live up to the last words that was written in the citation, "*this understanding unites education and research in a courageous manner to meet the need of four hundred million people.*"<sup>358</sup> This citation itself gives a universal message. Endeavour towards mitigation of health problems for the service of humanity breaks outlines and frontiers of countries. The erection of institution like AIIMS also becomes an effort towards this.

Today, AIIMS, Delhi stands a tall at the centre of the country, taking pride of its many achievements. In various surveys conducted, she has remained undefeated for the past decade or so in medicine and has found for itself a niche in the international field. With six AIIMS institutions started and two in progress, efforts towards the attainment of self sufficiency in medical education as well as taking India towards the path of calling itself the nucleus or powerhouse in the subject of medical knowledge not only in South-east Asia but in the whole world had been undertaken. Rajkumari Amrit Kaur's network and her idea of internationalism created a way for the peaceful inception of the AIIMS at

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<sup>356</sup> Report of the Health Survey and the Planning Committee (also popularly known as the Mudaliar Committee)(August 1959-October 1961), Vol. 1, Government of India, Ministry of Health, p. 314.

<sup>357</sup> 'Queen opens medical College Buildings, *The Times of India*, dated 28<sup>th</sup> Jan, 1961, NMML.

<sup>358</sup> B.B Dikshit to the Chairman, Board of Trustees, Massachusetts General Hospital, dated 28<sup>th</sup> Feb, 1961, Rajkumari Amrit Kaur Correspondence, NMML.

Delhi. It has broken so many barriers and stereotypes in so many levels pushing the envelope a little bit further and still continues to do so.

## CONCLUSION

Two of the most crucial sectors which the Britishers monopolised during their raj in India have to be definitely in the technical and medical field. Least bothered about educating the colonised, they started technical and medical institutes firstly to educate their own people later broadening it to include more of their subjects as and when their necessities arose, to man their administrative apparatus. This way, scientific knowledge was restricted to very few. With the anticipation for freedom, though on one side, roughly all were in the spotlight, fighting in the battlefield, very few in the background were actually thinking what next? What ought to be done once they were given freedom? What would be left of India and how she would have to regain her strength? All these questions bothered them. These were the Indian scientists who had been in the backseat for quite a long period of time. It was the first Prime Minister of India, Jawaharlal Nehru who saw capabilities in them, trusting their instinct and incorporating their say on matters of serious concerns about the development of the country.

Science became a magical potion through which the development and progress of a nation had to be measured. Resort to science and its application became overriding in many of the debates following 1940s. This was the peak juncture whereby a whole range of discussions and deliberations happened in the context of utilising modern scientific means for high scale industrialisation. Nehru, a proponent of science agreed to such measures. Having inculcated scientific outlook throughout his life from his father and his stay in London, he believed that to remove the very defects and abnormalities of the Indian society, to develop its economy and to project India in the international field amidst the developed countries, science had to take action. With him stood various scientists, technologists and politicians who had the same opinion. This route to development using high end scientific and technological means was however disliked by Gandhi. According to him, this was a foreign path. High scale industrialisation meant destruction of the rural poor whose work would be snatched by modern machines. Also, this would be incompatible and of no use for the rural people. Many supported him but recourse to modern science and technology became overpowering as the inevitability of the appliance of science and its output stood at the end of freeing India if she had to have self sufficiency in her resources.



The post-colonial phase was intrinsically linked with the colonial period. The technical and medical institutions during the colonial period thus paved way for the establishment of the new scientific institutions. Historians of Science, Technology and Medicine has worked on the three themes in various capacities to enrich the area and it is through these researches that we can draw an analogy with the period preceding the year 1947 and the events following it. Significant roles were played by famous scientists like Meghnad Saha, Bhabha and Bhatnagar who had already created networks for themselves in the international stage. Robert S. Anderson in his book “Nucleus and Nation” has reflected the remarkable arrangements that were worked out to build scientific institutions to start necessary preparation so that in every sphere, India was self sufficient. The development of science has been crisscrossed through the metropolitan cities and the leading universities and institutions. Saha’s “Science and Culture” which he started prior to Independence became a powerful medium through which scientific subjects were brought in the open and debated. In other words, through it, scientific knowledge was being increasingly instilled in the minds of the public. Bhabha’s Tata Institute of Fundamental Research (TIFR), AEC and ARC were aimed at introducing India into the world of nuclear science so she wouldn’t lag behind other nation of the world in the nuclear sphere. Bhatnagar’s C.S.I.R was a central organization for planning research bringing about co-ordination in research activities and promoting its application for national development. Scientific and industrial research was to be applied to the existing industries and agricultural enterprises. In no time, magnificent research laboratories were set up in the country.

Independence, as the head of the newly liberated nation, Nehru was to incorporate the advices of various experts in bringing the country to the global arena employing science to suit itself in a new environment. In doing so, Nehru cooperated with various individuals in his cabinet as well as his close aides, scientific community and friends. The whole idea was to develop modern scientific institutions in India, which would propel the force towards “modernity”. But this “modernity” in this case was not without contestation and criticism but was challenged from different quarters, which we have seen in chapter three regarding the parliament debate between the allopathic medicinal practices versus ayurvedic and unani practices in India. Nevertheless these debates reflected the diverse views that was incorporated in the first parliament and acknowledged the contribution of various ministers and members in introducing the discourse which would in a way played

a very important forum for scientific discourse in the Parliament. So, the whole idea of Nehruvian Science was of course attributed to Nehru but it also included his colleagues, various ministries, friends, scientists and the networks that extended beyond the boundaries of India, making it a national building process which was intertwined with the international links and assistance. Both in the case of IIT, Kharagpur and AIIMS, Delhi, the thesis has tried to look into the networks that comprised of various committees, personalities and the international linkages, that was forged to cooperate and co ordinate its functioning which developed the two institutions, one for technology and the other for medical. It was prudent on part of India to seek help from other countries as India was still in nascent stage in the arena of science and technology and it's still a matter of debate that whether the development of these two institutions led to the transformation of technology and medicine in India, but it did bring India in the forefront of the advanced technologies and medical science at that point of time, as various international scientific institutions were consulted and their view were taken into consideration in its functioning and curriculum. The first IIT was firstly established in Calcutta and later on moved to Kharagpur, this is interesting to notice, a periphery site was selected for establishing a technological institution over a metropolitan city, or one could argue that the Centre-Periphery model was taken up where the science, knowledge and technology flows from the former to the latter and in this case to take modern scientific institution to a rural area as a project to develop the peripheries. Also, taking into account the fact that most of the talents from these technical institutes are being trapped with high inducements and salaries in the countries abroad, we could only make an analogy of their knowledge being on high demand. But how could high end excellence in knowledge emanate from such a marginal zone? It is a thing to consider. Same goes with AIIMS. It on the other hand, was established in the Capital city, New Delhi, having envisioned right from the start that it should be built in an area which would grab the attention of outside force. These developments are to be analysed keeping in mind the policies of the government and its efforts towards science and technology. To conclude in a grand sweep, the first half of the twentieth century and the first few years after independence can be looked as a crucial stage for the development of science, technology and Medicine not only in India but throughout the world. The development in Physics, science was apparent in Europe as well as in India. The development of Atomic Bomb and the Nuclear Physics paved the way for the 'Big Science'. It was in this juncture that India gained freedom from colonial rule, as mentioned earlier the stage was ready as Indian scientists and leading leaders like

Nehru had already taken up the task to develop scientific laboratories and the first Nuclear Cyclotron in Calcutta in India. All these factors had already instilled a sense of importance of science which was furthered carried on by the independent India. The institutionalization of the two institutions within the scope of this thesis reflected a minuscule picture of the overall development of science during the Nehruvian era. It was an exciting time where plans were taken up for the creation of world class institutions, cooperation as mentioned earlier was important but the same planning and negotiations were often the sites of disagreements and contestations. IITs and AIIMS were instituted as educational Institution which was different from the national laboratories and research institutions; it was created to train young men and women in engineering and medicine, which was important for India for its development in engineering and health sector. Rajkumari Amrit Kaur's contribution as the health minister was indispensable as well of the J.C. Ghosh and S.R Sen Gupta, the first two Directors of IIT, Kharagpur. These were the people who actually help to create Scientific, technological and medical progress during Nehruvian Era, who was further supported by many individuals and people. Nehru in his capacity as Prime Minister did support the endeavours for scientific developments. These two institutions which formed out of various negotiations and contestations in the later years led to the formation of other new IITs and AIIMs throughout India and could be considered as the first premium engineering and medical institution that was setup in Independent India.

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