

**Communication and Empire:  
The Telegraph in North India c.1830-1856**

*Dissertation submitted to the Jawaharlal Nehru University  
in partial fulfilment of the requirements for the  
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**Master of Philosophy**



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### CERTIFICATE

This is to certify that this dissertation entitled "**COMMUNICATION AND EMPIRE: THE TELEGRAPH IN NORTH INDIA c.1830-1856**" submitted by **Mr. DEEP KANTA LAHIRI CHOUDHURY** in partial fulfillment of the requirements for the award of the degree of **MASTER OF PHILOSOPHY**, has not been previously submitted for any degree of this or any other University and this is his own work.

We recommend that this dissertation may be placed before the examiners for evaluation.

(**PROF. MADHAVAN K. PALAT**)  
(CHAIRPERSON)

(**PROF. S BHATTACHARYA**)  
(SUPERVISOR)

To  
My Mother & Father

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*Finally, the mistakes and misconceptions in this work are entirely my own.*

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## INTRODUCTION

The history of communications under British rule has conventionally been written as the history of these institutions as public utilities. Edward Bennet,<sup>1</sup> Sir Evelyn Murray,<sup>2</sup> G. R. Clarke,<sup>3</sup> I. G. J. Hamilton,<sup>4</sup> writing from within the service, reveal postal expansion under their governance as bringing unprecedented service to the masses in India, symbolic of the benevolence of British rule.

The second generation of writers did not seriously shift from this perspective. Writing the centenary issues on the post and telegraph in India, Mulk Raj Anand<sup>5</sup> and Krishanlal Sridharni seem to believe that regardless of its origins the service was indeed unprecedented in the access they offered; a beneficial and modernizing aspect of colonial rule. Jawaharlal Nehru summed up this view, "... the oldest owned public utility in the world".<sup>6</sup>

Recently the focus has sharpened. The growth of communication studies under the rubric of Deutsch's work has led to fresh insights and questions. M.H. Fisher's articles study the changeover from pre-colonial

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<sup>1</sup> E. Bennet, *The Post Office and Its Story*, London, 1912.

<sup>2</sup> Sir Evelyn Murray, *The Post Office*, London, 1927.

<sup>3</sup> G. R. Clarke, *The Story of the Indian Post*, London, 1921.

<sup>4</sup> I. G. J. Hamilton, *An Outline of Postal History and Practice*, Calcutta, 1910.

<sup>5</sup> M. R. Anand, *The Story of the Indian Post Office*, Nasik, 1959.

<sup>6</sup> Krishanlal Sridharni, *The Story of the Indian Telegraph*, New Delhi, 1953.

networks to colonial monopolies.<sup>7</sup> C. A. Bayly's recently published work concentrates on the 'information order' that emerged with colonialism. He questions the degrees of impact and penetration achieved by the colonial state and its information agencies.<sup>8</sup>

Keeping in view this debate over the nature of the colonial state, the question I would like to ask is that if the colonial state was any different from a sovereign nation state how did this difference manifest itself in the ways that the British set about establishing their communication and information systems in India.

The difference with C. A. Bayly's work lies in the fact that I wish to examine what the colonial state explicitly and implicitly communicated to the people outside the state. Thus, the focus of my study is the colonial 'information order', not in the sense of information received but in terms of information disseminated.

Through a study of various levels of communication structures, whether at the level of laws determining information or at the level of the rationale behind the routes adopted by the British systems, I intend to show how marginal and marginalised was the indigenous presence. The native was discriminated against physically. The few who could afford to compete

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<sup>7</sup> M. H. Fisher, 'The Office of the Akhbar Nawis', *Modern Asian Studies*, 27, 1, Feb. 1993.: 'The East India Company's Suppression of the Native Dak', *Indian Economic and Social History Review*, 31, 3, 1994.

<sup>8</sup> C. A. Bayly, *Empire and information: Intelligence gathering and social communication in India, 1780-1870*, Cambridge, Cambridge University Press, 1996.

were subverted mentally by a acculturating schema that the colonial state implemented through a variety of rationalising measures over the 1830s. The pervasiveness of its categories and the problem of developmental backwardness have to be seen together for India. My thesis is that it was no 'miscalculation' of colonial policy that the colonial state distanced itself from the indigenous people. This was a matter of policy. The ways in which it avoided the indigenous people and their systems of knowledge and information was reflected in what it was prepared to give to them. Thus, colonialism in this period incorporated strategic blindness within the heart of its communication of knowledge and the diffusion of knowledge of communications. The telegraph, a 'strategic' innovation, was to be restricted to colonial enclaves and metropolises.

Dr. Saroj Ghose's unpublished Ph.D thesis on O'Shaughnessy and the Indian telegraph<sup>9</sup> follows on the lines of writing by Luke and other writers of history of technology. The question he poses through Basalla's model of science in the colony is about the nature and evaluation of O'Shaughnessy's contribution, both in terms of telegraphic science in general and to the system in India in particular. This historiography implicitly argues for agency for the colonial scientist; the independence of his actions and his freedom to be and do anything. It is against this perceived freedom that my

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<sup>9</sup> Saroj Ghose, 'The Introduction and Advancement of the electric Telegraph in India', diss., Jadavpur University, Calcutta, 1974.



work seeks to highlight how structured was the activity and even the attitudes of the personnel of colonisation.

The questions regarding the lack of technological diffusion and improvement commonly cited for India can be seen to have an institutional and educational explanation rather than a sociological and evolutionary explanation. An investigation into the structure of state communication can reveal the extent of state support for technological innovation and scientific development. This was the age of protective tariffs and high levels of state support for most technological and scientific innovation in the industrializing nations.

The first chapter examines the introduction of print technology in the colony. The rise of a public sphere and the way the state reacted to uncontrolled technological enterprise was revealing. Yet the newly formed associations in this almost exclusively European public sphere were not using any preset patterns of dealing with indigenous knowledge systems. They have been wrongly accused of Orientalism in the sense used by Said because they seem more concerned with engagement and exchange between the West and East. The colonial state in this period was also less concerned with the discipline of indigenous people and more concerned with disciplining its various participants.

The second chapter takes a closer look at the oldest association in the European public sphere, the Asiatic Society founded by Sir William Jones.

By examining the changing structure of its subsidy and the distribution of the topics of its publications, it tries to map the origins of Orientalism in the Saidean sense. The rise of newer subjects and the decline in experimental science over the 1830s was reflected at the level of policy where a particular education system and currency was modelled for India. The communications system was overhauled and Individual initiative was repeatedly curtailed.

O'Shaughnessy emerged and worked within this context. But none of his efforts materialised. His own signature as original experimenter and creator of the telegraphs in India was erased by him personally. In summation one perceives him to be also a victim of colonialism, one who was not conscious of his own colonisation and reduction from a scientist to an entrepreneur's role. He inhabited the same mental terrain that colonialism was trying to ingrain amongst its personnel.

CHAPTER I  
PRINT TECHNOLOGY, "LEARNED SOCIETIES"  
AND THE PUBLIC SPHERE

This chapter seeks to map the social and political space for the discussed in the later chapters. The aim is to sketch the different forces of the late eighteenth century that fed colonial state policy towards technology in the early nineteenth century. If the chronological narrative gives the impression of being concerned with ruptures, then that is not the intention. This chapter tries to capture the continuations and transmutations in certain attitudes of the state and its key personnel. The attempt is to try to seek out the metatext of empire. We do not presume that there was a predetermined attitude; that evolved through experience. Finally, we are also concerned with the possibility of openness, of choice in the policies towards knowledge and technology at the close of the eighteenth century.

The themes that I discuss in this chapter are the following: (a) The rise of an exclusively European public sphere that occurred with the introduction of print technology; (b) The state's reactions to private endeavor and the subsequent authoritarian constitution of the public sphere; (c) The formation of associations and their agenda.

## PRIVATE SCANDALS AND PUBLIC COURTS

The late eighteenth century colonial networks of 'settlements' and 'stations' were made up of clusters of families with similar origins, schooling, ethnic loyalties and ideologies. Factionalism and nepotism in the colony mirrored the patronage disbursal and factionalism within the Court of Directors. The coteries, 'juntas' and bitter contests of power reflected the process of colonisation and pacifications. The milieu of Eurasian, Interloper, and dissenting official critics fundamentally shaped the experience of the colonial state. It was informed as much by these contesting voices from within as by events on the outside.<sup>1</sup>

The 1770s were crucial to the formation and function of public criticism in India as well as in England. The *Letters of Junius* that appeared in the *Public Advertiser* from 21 November 1768, to 12 May 1772, caused enormous political and social turmoil in England. Called the 'pioneers of the modern press', these satirical articles publicly accused the King, the ministers, top military personnel and jurists of political misdemeanors and machinations: '..secret connections of political significance were thereby uncovered in a manner that ever since has been exemplary of a critical press.' These articles were the forerunners of the modern lead article.<sup>2</sup>

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<sup>1</sup> Holden Furber, *John Company at Work, A Study of European Expansion in India in the Late Eighteenth Century*, Cambridge, Massachusetts, 1951; A. Tripathi, *Trade and Finance in the Bengal Presidency*, Calcutta, 1956.

<sup>2</sup> Jurgen Habermas, *The Structural Transformation of the Public Sphere*, translated by Thomas Burger with the assistance of Frederick Lawrence, first edition 1962, this translation 1989, Massachusetts, Massachusetts Institute of Technology, p61.

'Junius' was the pseudonym of Philip Francis who was soon after placed on Warren Hastings' Council in what his contemporaries saw as a surprise promotion for a retired First Clerk in the Foreign Office.<sup>3</sup>

Francis also indirectly caused the rise of a public sphere in India. A series of 'spectacles', like the duel with Hastings, in which Francis was a main protagonist rocked the settlement of Calcutta in the late 1770s and 1780s. I shall focus on a particular scandal that aroused much contemporary excitement.

In 1814 a book was published claiming to be the first such English publication at the Cape of Good Hope.<sup>4</sup> It was financed by the author George Francis Grand. He first came to India in 1766. He was close to Hastings and rose to be Collector of Tirhoot and Hajeepur. In 1775 or 1776 he married a remarkable girl called Catherine Noël<sup>5</sup> from the French settlement of Chinsurah. He brought her to Calcutta and they were both welcomed by the European community of Calcutta. Marital bliss proved short-lived. Grand filed a case in 1777 alleging that his servants had caught Philip Francis trying to climb his wife's balcony. The entire settlement was scandalised. Catherine Noel was sixteen at the time. Information of the scandal traveled

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<sup>3</sup> H. E. Busteed, *Echoes From Old Calcutta*, first edition Calcutta, 1882, this edition Ireland (Shannon), Irish University Press, 1972, reprint of 1908 (4th) edition, PP 57-63.

<sup>4</sup> G. F. Grand, *The Narrative of the Life of a Gentleman Long Resident in India*, Cape of Good Hope, 1814, reprinted with Foreword by W. K. Firminger, Calcutta, 1911.

<sup>5</sup> Catherine Noël Verlee, later Princesse La Talleryand, died in 1835. Busteed talks of a successful liaison between Francis and Catherine after her husband abandoned her. Grand's publication might well have been a blackmail move on the Princesse. Busteed, *Echoes*, pp 266-7

spontaneously. 'The nocturnal expedition.. soon became public property.. it made a great noise in Calcutta.'<sup>6</sup> The spontaneity of news is what is remarkable for events such as this or the equally infamous duel; publicity was immanent in these 'spectacles'.<sup>7</sup> There was no media reporting these incidents. Information was unmediated.

This event also called into question several crucial aspects of the structure being evolved by the colonial state. Grand filed a law suit against Francis, claiming very high damages. The main points of the charge were adultery and trespass. The Supreme Court at Calcutta was in a serious quandary. The issue involved was obviously volatile and delicate. Initially, Grand's witnesses were dismissed for being 'black persons of the lowest order, and those in service of the Plaintiff'.<sup>8</sup> However Grand managed to *subpoena* an accomplice of Francis who confessed to the incident under oath. The final charge was that of trespassing and 'adulterous conversation.' This highlights the transition from private settlement of disputes to public litigation. Grand went to court because Francis refused his challenge to a duel. Grand was awarded Sicca Rupees fifty thousand and Francis was

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<sup>6</sup> Busteed, *Echoes*, p265.

<sup>7</sup> Theatrical performance and spectacle are different. Bakhtin distinguished between theatrical performance and theatre in terms of 'spectacle' and 'carnival'. I use 'spectacle' in the sense that he reserves for the second, that is, the '...people live in it.' *Rabelais and His World*, Cambridge, Massachusetts, 1968, p7. However, by 1780 we find advertisements announcing the staging of *School for Scandal* by a Mr. Mesinck.

<sup>8</sup> Home Public Proceedings, Minute by Wheler, 28th January, 1779, No.4. Francis also signed this Minute which advised against sending the concerned papers to the Court of Directors.

found guilty of 'criminal conversation with the plaintiff's wife' in 1779<sup>9</sup>. The Government was coerced into intervening in what was obviously extremely nebulous and personal. Hastings was 'forced' to issue a Public Minute on a 'question of so delicate and uncommon a nature' in December 1778.<sup>10</sup>

The privateness of the event and therefore the dubious nature of the judgment against Francis for 'criminal conversation' with a sixteen year old who was the main victim of this public and moral stricture of the law was highlighted by the first newspaper that emerged in 1780. Sir Robert Chambers's recorded opinion against Sir Elijah Impey's judgment of 1799 was cited. The following points were raised by him: (1) there was no proof that Mrs. Grand knew of, or previously consented to Francis coming to see her for any purpose; (2) there was no proof that they were actually together, much less committed any crime together; (3) the evidence fell far short of what could be considered a fact, especially of any crime, failing, as Chambers recorded, to meet any of the requirements of what English Common Law regarded as proof of adultery.

Hicky's editorial went on to ask, 'How can a Female culprit be said tried by her peers without a Female jury?' He foresaw the present day medical report for cases of alleged rape: 'Upon all indictments for Ravishment particularly, women only should be impaneled.. for the

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<sup>9</sup> Busteed, *Echoes*, p241, 259.

<sup>10</sup> Home Public Proceedings, 28th January, 1779, No.3.

Business upon such occasions ought undoubtedly to be rather to Examine.. Women must be the best judge in these mysteries of the Bona Dea, and can.. discover whether the testimony arise from a spirit of chastity or from extortion..'11

The need to shape a public realm to accommodate scandals that were beyond the rigid boundaries of law, to publicise the actions of public figures both in their public and private capacities combined with the specific unfolding of the Burkean project to ensure public responsibility in England for actions by authorities in India. A little after this Hastings and Francis were fighting their duel. Within less than a year *Hicky's Bengal Gazette* also called the *Calcutta General Advertiser* was regularly in print. The Asiatic Society was formed four years after *Hicky's Bengal Gazette*.

#### **PUBLIC CRITIC AND PUBLIC CENSOR: 1780-1799**

It could well be argued that the technology of print was the first technological import into India. Navigational innovation in shipping such as the compass and improvements in ballistic technology and military discipline are not sufficient to explain European superiority in India<sup>12</sup>. The control over the seas was important where sufficient volume of shipping was, with surety, maintained inside a specific spatial configuration. Over long distances, such as was to India, the return on investment combined

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<sup>11</sup> *Bengal Gazette*. Saturday 17- Saturday 24 February, 1781, No.V.

<sup>12</sup> C. Cipolla, *Guns and Sails in the Early Phases of European Expansion*, Hammondsworth, 1970.



with the risks of sailing made the strategic edge blunt.<sup>13</sup> Military techniques were easily copied by the Mysore State in the late eighteenth century. Dockyards and Indian shipping were not noticeably backward. Rudimentary coast maps were available.

The introduction of print into British India was the work of an 'Interloper'; one who was literally a trespasser on the Company monopoly and who was legally barely tolerated by it. James Augustus Hicky, an Irish interloper, built a rudimentary press in 1776. He was in prison for defaulting his creditors. The beginning of print as a private endeavor acquired its anti-authoritarian cast by Hicky's imprisonment. Hicky emerged from prison to take up shop as a printer. He was granted a commission to print the Military Regulations for the Company's army in India when Hastings intervened directly to confer on Charles Wilkins the monopoly over Government printing. Hicky was not going to be paid even for a single project. Wilkins published Halhed's Code of Ghentoo Laws in 1778. This was the great Orientalist beginning; the first English book to be published in India. But what is ignored is the transparent monopoly granted and the high level of subsidy available to Wilkins as Printer to the Government. The Company was exerting its authority over private enterprise by jeopardising the

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<sup>13</sup> P. J. Marshall, 'Western Arms in Maritime Asia in the Early Phases of Expansion', *Modern Asian Studies*, Vol. XIV, 1980, pp13-28; C.A. Bayly, *Empire and information; Intelligence gathering and social communication in India 1780-1870*, Cambridge, CUP, 1996, p. 56.

survival of an already marginalised member of the European community in Calcutta.<sup>14</sup>

Hicky had no option but to go public. The political theme of survival and protest shadows the introduction of print into British India. He tried his hand at printing an almanac before launching *Hicky's Bengal Gazette* also called the *Calcutta General Advertiser*. Its first issue was a huge sellout.<sup>15</sup>

From the beginning the paper offered a variety of general critiques on the state of the Government. <sup>16</sup>Though it was against the Government of Hastings and Impey, it had an uneasy truce with the party of Philip Francis. One of the reasons being the character of the newspaper which increasingly favoured the margins of society from the Eurasian and Interloper to the unmarried suitor and would be spinster.<sup>17</sup>

The Government in response helped launch a rival newspaper called the *India Gazette*. This was not only to be the first to know Government information but was also the sole publisher of all notices of the Government for the public. In addition, the *India* received a hefty postal subsidy along with the special privilege of circulating its first advertisement-issue free of cost. <sup>18</sup>

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<sup>14</sup> 'First and Late Printer to the Honourable Company'. Hicky advertised this. For example: *Bengal Gazette*, Saturday 15- Saturday 22 July, 1780, No. XXVI.

<sup>15</sup> *Bengal Gazette*, Saturday 11-Saturday 18 March, 1780, No. VII

<sup>16</sup> *Bengal Past and Present*, 'Some New Facts', W. Foster, Part I. Vol. XXX, 1925.

<sup>17</sup> Margarita Barns, *The Indian Press*, London, 1940.

<sup>18</sup> Tarun Kumar Mukhopadhyay, *Hicky's Bengal Gazette*, Calcutta, Subarnarekha, 1988. pp. 70-73.

Hicky was outraged. He immediately published a long article regarding his rival's special monopolies and privileges. 'Q: "Pray who advised you to apply for protection for your newspaper and to get it passed post free?.. Q: To whom did he advise you to apply for that? A: To Mrs. Hastings"'.<sup>19</sup>

The Government reacted swiftly and sharply at this personal allegation against the Governor General's wife. The Governor-General-in-Council ordered that Hicky's paper 'having found to contain several improper paragraphs tending to vilify Private characters, and to disturb the peace of the Settlement.. was no longer to be circulated through the channel of the General Post Office'.<sup>20</sup> However, Hicky managed to stay afloat and pour vitriol upon Hastings and Impey by engaging private *Harkaras* at a considerable personal cost.<sup>21</sup>

The kind of news that Hicky used in his attack is interesting. Private and public in this period was negotiated in both legal and information spheres at the level of gossip.<sup>22</sup> 'By letters from Madras. Mr. Whitehall, late Governor of Madras, is going to England.. And has made private application

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<sup>19</sup> *Bengal Gazette*, Saturday 4-Saturday 11 November, 1780, No.XLII, editorial.

<sup>20</sup> Home Public Proceedings, 14 November, 1780, cit. *Bengal Gazette*, Saturday 11-Saturday 18 November, 1780, No. XLIII.

<sup>21</sup> *Bengal Gazette*, Saturday 18-Saturday 25, 1780, No. XLIV; this was one of the last issues to be widely circulated before postal facilities were shut down.

<sup>22</sup> For gossip as an indigenous information channel: C.A. Bayly, *Empire and information*, p.91-94.

to the wife of a Frenchman, now in jail, requesting she would accompany him to England, but she has refused.<sup>23</sup>

Hicky's final chastisement at the hands of the state was equally brutal. The *Bengal Gazette* survived till 1782. The Government arrested Hicky and physically destroyed his printing press and blocs. Libel suits were slapped against him in the name of the Governor General. Sir Elijah Impey was the judge. The bail fixed was impossibly high. Hicky recorded, 'In England if a man is accused of Robbery, Treason, or Murder his person is secured, but his Family is not ruined by stopping his letters at the Post Office; it cannot be done, it is beyond the prerogative of the British Crown to put such an act in execution'.<sup>24</sup> Hicky was reduced to writing begging letters to Hastings and died in 1803 or 1804.

The naked fear of the Government at the exposure of their private and personal selves justified Hicky's extra-legal suppression. It also necessitated the formal constitution of the emerging public sphere. The Government through its involvement with a rival newspaper helped in generating competition. This along with the establishment of special institutions for the training of the Company's employees such as the Fort William College led to the increase in the demand for printing presses.<sup>25</sup> The

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<sup>23</sup> *ibid.*

<sup>24</sup> *Ibid.* Editorial.

<sup>25</sup> B. S. Kesavan, *History of Printing and Publishing in India*, Vol.I, Delhi, National Book Trust, 1985.

technology itself could be duplicated without problem, specially after indigenous artisans were taught block making.

The proliferation of print and the expansion of the public sphere drove Wellesley to institute overt censorship. In May 1799 he decreed that all newspapers were to submit copies with a specially appointed Censor. Carey describes the 'starred', that is, censored newspapers of the day.<sup>26</sup>

The state, however, went a step further. It struck at the very basis of the European public sphere in India; its roots in private endeavor and the 'Interloper'. The formal constitution of the public sphere was based on certain notions as well as legal guarantees. The individual actor had to imagine his autonomy both for the family and in the sphere of the market. The privat citizen was defined on the basis of private property. The contradiction lay in the the fact that the prohibition of buying property split the public into coloniser and colonised. The public sphere necessarily meant that the public was 'inclusive', 'everyone had *to be able* to participate'.<sup>27</sup>

It is precisely the formal absence of the recognition of these basic assumptions of action in civil society that concerns us. First, the colonial state throughout this period and after intervened substantially and legally into

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<sup>26</sup> J. C. Marshman, *The Story of Carey, Marshman and Ward; The Sreerampore Missionaries*, London, Alexander Strahan, 1864.

<sup>27</sup> ...The sphere of the market we call "private"; the sphere of the family, as the core of the private sphere, we call the "intimate sphere"... there formed a public of private persons whose autonomy (was) based on ownership of private property... The latter (the family) was believed to be independent of the former, whereas in truth it was profoundly caught up in the requirements of the market.' Habermas, *Structural Transformation*, p 55, 37.

the sphere of the family.<sup>28</sup> With the direct policing of relationships there was little scope for illusions of autonomy. Second, the 'had to be able' clause remained by and large unfulfilled because the public sphere in this period was exclusively European. It could be said to be an expatriate national sphere rather than a public sphere because the subjects of colonial rule were only incidentally included. Finally, a crucial ordinance passed in 1793 revealed whom the colonial state saw as the immediate and troublesome 'public' and how it fundamentally challenged the basis of the formation of such a public. This ordinance forbade Europeans from buying land in India.<sup>29</sup> In 1793 the Permanent Settlement formally recognised the private property rights of the Bengal zemindars.

### ASSOCIATION IN THE PUBLIC SPHERE

This section will examine two very early associations in the limited<sup>30</sup> public sphere; The Asiatic Society and The Bombay Literary Society. The Asiatic Society was one of the first associations in the public sphere. Its

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<sup>28</sup> K. Ballhatchet, *Race, Sex and Class under the Raj 1793-1905*, Delhi, Vikas Publishing House, 1979.

<sup>29</sup> Regulation XXXVII of 1793; The immediate concern for the law was probably the heightened fear of Creole elites after the American War of Independence.

<sup>30</sup> 'In the first hundred years of its existence, only five [Indians] figured in the list of office holders of the [Asiatic Society] society, and of these only Rajendralal Mitra could be said to be a leading scholar.. In the same period, among nearly a thousand contributors to the journals and proceedings of the society, there were only forty-eight Indians; of these, only... Rajendralal was a regular contributor'. Partha Chatterjee (ed.), *Texts of Power: Emerging Disciplines in Colonial Bengal*, 'The Disciplines in Colonial Bengal' by the editor, Calcutta, Samya, 1996, p12.

founder, Sir William Jones, came out to India in December 1783.<sup>31</sup> Even before his departure Jones was acknowledged to be one of the leading authorities on India and was regularly consulted on the subject by men such as Burke and Bentham. On Thursday, 15 January 1784 Jones delivered the 'Discourse on the Institution of a Society for Inquiring into the History, Civil and Natural, the Antiquities, Arts, Sciences and Literature of Asia'. The chair was taken by Sir Robert Chambers. Jones prescribed the agenda.

'You will investigate whatever is rare in the stupendous fabric of nature; will correct the geography of Asia.. will trace the annals and even traditions of those nations who, from time to time, have peopled or desolated it; and will bring to light their various forms of Government, with their institutions, civil and religious; you will examine their improvements and methods in arithmetic and geometry, in trigonometry, mensuration, mechanics, optics, astronomy and general physics; their systems of morality, grammar, rhetoric and dialectic; their skill in Chirurgery and medicine, and their advancement, whatever it may be, in anatomy and chemistry'.

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<sup>31</sup> *Sir William Jones; Discourses and Essays*, compiled and edited, Moni Bagchee, Delhi, People's Publishing House Limited, 1984, Introduction, p. x .

Jones summed it up. 'If it now be asked, what are the intended objects of our inquiries within these spacious limits, we answer MAN and NATURE; whatever is performed by the one, or produced by the other.'<sup>32</sup>

Conventional readings of this association argue that it was formed '...not to communicate western knowledge to India, but... to study "oriental manners, customs and governments with their civil and military institutions"...' <sup>33</sup> This reading is slightly biased. Jones' agenda was not only knowledge of India but in its universalistic formulation, knowledge for India as well.<sup>34</sup> The correction of geography or the cataloguing of the skills in surgery would automatically feed back into a totality of knowledge that was potentially universal. The knowledge of production that Jones prescribed was also the production of knowledge and not just a localised investigation solely for the purposes of rule.

Jones' personal actions also reveal the interventionism and openness in the orientalist beginning. The element of intrusive study was perhaps a reflection of the origins of the public sphere in the tussle between state and private enterprise. Sir William Jones was the Puisne Judge of the Supreme

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<sup>32</sup> Mitra, Hoernle and Bose, *Centenary Review of the Asiatic Society 1774-1884*, Part I: 'History of the Society' by Rajendralal Mitra, Calcutta, The Asiatic Society, 1885, this reprint 1986, pp. 4-6.

<sup>33</sup> Satpal Sangwan, *Science Technology and Colonisation: An Indian Experience 1757-1857*, Delhi, Anamika Prakashan, 1991, p. 43.

<sup>34</sup> '...the construction of Indian 'otherness' always went along with another strategy: to find in India and Indianness residues of universal truths or values. That position was more characteristic of the later eighteenth century and the circles of Sir William Jones than it was of the mid-nineteenth...' C. A. Bayly, *Empire and information*, p.370.



Court. In his first address to court he described its purpose. 'The object then of the court.. is plainly this: that in every age, the *British* subjects resident in *India* be protected, yet governed, by *British* laws; and that the natives .. be indulged in their own prejudices, civil and religious, and suffered to enjoy their customs unmolested..' <sup>35</sup> But these laws had to be manufactured for the native and his judge before they could be administered. <sup>36</sup>

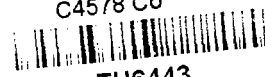
Sir William Jones verbally translated a version of the code of Manu from Sanskrit. He was dissatisfied with Halhed's version which had used a crude Persian translation as its source. He said:

It is a maxim in the science of legislation and government, that *Laws are of no avail without manners*, or, to explain the sentence more fully, that the best intended legislative provisions would have no beneficial effect even at first, and none at all in a short course of time, unless they were congenial to the disposition and the habits, to the religious prejudices, and approved immemorial usages of the people for whom they were enacted... the administration of justice and government in *India*, will be conformable, as far as the natives are affected by them, to the manners and opinions of the natives themselves;

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<sup>35</sup> *The Works of William Jones*, in XIII Vols., London, 1799, reprint 1807, this reprint, Delhi, Agam Prakashan, 1979, Vol. VII, Charge to the Grand Jury, at Calcutta, December 4, 1783, p.4.

<sup>36</sup> Rosane Rocher, 'British Orientalism in the Eighteenth Century: The Dialectics of Knowledge and Government', in Carol A. Breckenridge and Peter van der Veer edited, *Orientalism and the Postcolonial Predicament*, Delhi, OUP, 1994, pp.214-249, 255-56.



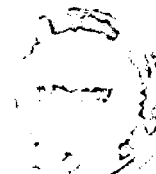
an object that cannot possibly be attained, until those manners  
and opinions can be fully and accurately known...'

This standardisation of knowledge of Hindu laws also meant a simultaneous standardisation of manners, that is, ways of living and relating. He goes on to justify and explain his position. 'MENU and his laws... are actually revered... by many millions of *Hindu* subjects, whose well directed industry would add largely to the wealth of *Britain*, and who ask no more in return than protection for their persons and places of abode, justice in their temporal concerns, indulgence to the prejudices of their own religion, and the benefit of those laws, which they have been taught to believe sacred, and which alone they can possibly comprehend.'<sup>37</sup>

If Jones can be accused of anything that was different from his times then that would be his making of India into a unique and mystical realm. This vision of India derived as much from Jones' Neo-Platonic beliefs<sup>38</sup> as from his love of literature, specially poetry. The first volume of the *Asiatic Miscellany* carried the 'Hymn to Narayena' which reveals his mystical vision of the Orient.

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'Spirit of Spirits, who, through ev'ry part  
Of space expanded and of endless time,  
Beyond the stretch lab'ring thought sublime



<sup>37</sup> Sir William Jones, *Institutes of Hindu Law: or, The Ordinances of Menu*, Calcutta, 1794. Preface.

<sup>38</sup> John Drew, *India and the Romantic Imagination*, Delhi, OUP, 1987.

Bad'st uproar into beauteous order start,

Before Heaven was, Thou art..<sup>39</sup>

For all its mysticism this orientalism was also directly concerned with aesthetic and philosophical debates.<sup>40</sup> Discussions of literature were primarily discussions of taste and Jones was a creative representor and translator of Indian aesthetics to the Western readership. India in this period was an open space yet to be assigned its characteristic signatures. The enormous popularity of Jones' work in the West testifies both to the openness of his researches as well as his ability to raise general comparative questions regarding philosophy and culture. The first volume was published in Calcutta in 1788. By 1798 pirated copies of it were widely in circulation in England. A French edition was issued in Paris by 1805. The pirated edition sold so well in England that within the next five or six years, two more editions were brought out in octavo.<sup>41</sup>

The subsequent criticism faced by the Society and Jones for obscure antiquarianism was not true of its original character. This was interventionist and directly relevant both to the cultural exchange being conducted as well the daily legal business of the state. While Jones fully retained the sense of European superiority and religious self-righteousness

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<sup>39</sup> Satya S. Pachori, *Sir William Jones: A Reader*, Delhi, OUP, 1993, pp 51-2.

<sup>40</sup> David Ludden, 'Orientalist Empiricism: Transformations of Colonial Knowledge', in Breckenridge and van der Veer (eds.), *Orientalism and the Postcolonial Predicament*, pp. 250-278, p254-57.

<sup>41</sup> Rajendralal Mitra, *Centenary Review*, pp.47-8.

yet his agenda included the indigenous people, though more as a question. He outlined the organisational structure of the society. ‘.. establish but one rule, namely to have no rules at all.. you will not perhaps be disposed to admit mere translations of considerable length, except of such unpublished essays or treatises as may be transmitted to us by native authors; but whether you will enroll as members any number of learned Natives you will hereafter decide..’<sup>42</sup> It is this deferred closure that gave this early orientalism its possibility of openness and involvement with indigenous learning.

Sir James Mackintosh delivered the Presidential address at the opening of the Bombay Literary Society on 26 November 1804. It was a critique of scientific knowledge and a lecture on the state of the art in India.

India is a country no mineralogist has yet examined... the botany of India has been less neglected....(but) the structure, the functions, the habits of vegetables... have been in general too much sacrificed to value and... professed Botanists have usually contented themselves with observing enough of the plants to give them a name in their scientific language and a place in their artificial arrangement all appearances that are comprehended under the words weather and climate, are subject of a science of which no rudiments yet exist.. Men of Medicine (who are) necessarily spread over every part of India,

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<sup>42</sup> *ibid.*, p8.

should be philosophical collectors of observations on weather and climate; ... keep journals of whatever they observe.. .'

Observation and recording were not sufficient, publication and collection were essential to the formation of knowledge. The objects realised had also to be transported to the metropolis, that is, London:

'...transmit... to the scientific depositories of Great Britain specimens of every mineral, vegetable or animal production.. It is better that ten useless specimens should be sent to London, than that one curious specimen be neglected...'

He distinguished between the 'physical' and the 'moral' sciences, 'employing the term in the sense in which it is contra-distinguished from physical...' It would consist of the 'past and present condition of the inhabitants of the vast country which surrounds us... a research which has hitherto been either neglected neglected or only carried on for the information of Government... the investigation of those facts which are the subjects of political arithmetic and statistics, and which are the foundation of the science of political economy ...no tables of political arithmetic have yet been made public from any tropical country.' These tables were census figures, records of births, deaths, marriages and the proportion of children reared to maturity. The distribution of people in terms of occupation and caste, 'especially according to the great divisions of agricultural and manufacturing...' And the relative state of these circumstances at different

periods. Mackintosh echoed common prejudice against the Asiatic Society. 'These enquiries... being easy and open to all men of good sense ...do not, like the antiquarian and philological researches, require great deal of previous erudition and constant reference to libraries.'

Mackintosh took a serious look at Government policy towards information. 'These enquiries form the very science of administration ...one of the first requisites to the right administration of the district is the knowledge of its population, industry and wealth... We only desire that a part of the knowledge that they [the administration] possess should be communicated to the world... Though I am far from thinking that this is the department in which secrecy is most useful, yet I do not presume to exclude it... But let it be remembered, that whatever information is thus confined to a government may for all purposes of science be supposed not to exist... when the information ceases to be guarded with jealousy, it is effectually secured from all useful examination by the mass of official lumber under which it is usually buried.'

Mackintosh believed that the publication of information was crucial to the control over the state's subordinate agents and also to the control on Government. He was realistic in his assessment of the state and public. 'The smallest society, brought together by the love of knowledge, is respectable in the eye of reason; and the feeble attempts of infant literature ...prove the diffusion at least, if not the advancement of science.'

The diffusion of knowledge and information that Mackintosh was talking of was in terms of a public that was inclusive. 'In the mean time the ascertainment of every new fact, the discovery of every new principle, and even the diffusion of principles known before add to that great body of slowly and reasonably formed public opinion, which however weak at first, must at last with a gentle and scarcely sensible coercion compel every government to pursue its own real interest.'<sup>43</sup>

## CONCLUSION

The potential openness of a universalist philosophical outlook and the agenda of diffusion of knowledge were qualified by the two ways of perceiving India as a museum and as a laboratory. India as a museum for the world. India was also seen in this period as a vast field for collecting specimens and for experiment. India as a laboratory. This was the phase of men like Rennell and Jones. Attempts to cartographically and linguistically situate India were simultaneously productions of knowledge and an ongoing search for the knowledge of production, whether intellectual or economic. This literary dialogue with the orient became increasingly devoid of its aesthetic contemporaneity and became in stead the exclusive preserve of the 'professional scholar and philologist'.<sup>44</sup> This slippage was indicative of

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<sup>43</sup> *Calcutta Journal*, Sunday July 11, No.132, 1819.

<sup>44</sup> '... from the time of Colebrooke on, Sanskrit studies and their fruits were to be the property not of literary men but of professional scholars and philologists.' Drew, *Romantic Imagination*, p.77

a process of change in the epistemological problematics that the colonial state set up for itself. A changing view of India that was increasingly seeing India in terms of preservation. However, the early promise to include learned natives did not get fulfilled. On the Asiatic Society: 'The effect produced on the circles of society at large is.. scarcely at all felt. We have never heard as a subject of conversation in either a large or small party, the merits of any paper read before the Asiatic Society examined and discussed: so that a taste for literature, and a fondness for the higher departments of knowledge is not engendered or promoted by the meetings of that institution'.<sup>45</sup>

Those in authority in the government combined in their private capacity and formed associations in the public sphere. Thus, the agenda of the Asiatic Society of Bengal or the Bombay Literary Society were policy statements by the official as private spokesperson. They were also addresses to private gatherings of individuals who were also members of the officialdom, that is, addresses to that community by individual members of that community but outside of the context of administration. Thus, this was a demi-official discourse on the ends of knowledge.<sup>46</sup>

The colonial state would soon both relax and flex its muscles regarding the press and communication of information. This chapter stops at

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<sup>45</sup> *Calcutta Journal*, Editorial, July 11, 1819, No. 132.

<sup>46</sup> S. N. Mukherjee, *Sir William Jones: A Study in Eighteenth Century British Attitudes to India*, Cambridge, Cambridge University Press, 1968, pp.3-4.



1818-1820. James Mill had published his *History*. The press censorship was lifted. Indian social reform, Bentinck, Macaulay and Metcalfe crowd the next phase of more mature rule of the Company.

## CHAPTER II

### FORGING OF A CONSENSUS OVER EMPIRE

The last chapter closed with the promise of diffusion of 'useful' knowledge in the colony. The agenda of the newly formed associations such as the Asiatic Society, aimed at both *knowledge of the colony and knowledge for the colony*. The repeal of the 1793 press censorship in 1818 seemed to reinforce this early promise.

This chapter seeks to continue the chronology since 1818. It focusses on two themes: (a) the institutionalised diffusion of knowledge and (b) the state's increasingly subtle methods of communication control which were formally inaugurated in this period. The first involves an examination of the colonial state's education policy, the role of public sphere associations such as the Asiatic Society, and the state of newspapers since 1818. It involves the explicit agenda of the state vis-a-vis information.

The second theme shows the state sends signals of approval and disapproval through discrete manipulations of the systems of communication. By examining the expansion of colonial postal network and the simultaneous sophistication in its manipulation by the state, a structure of subsidy is revealed that centrally directs scientific and technological

enterprise. Similarly, case studies of steam, rail and gas light also highlight a recurrent pattern in negotiations between the state and private enterprise.

This period has traditionally been seen as one of liberal and utilitarian reform. Evangelical zeal combined with both to provide a strongly modern and interventionist government for the colonised. The events that are cited to mark the climax of the reforms initiated by Bentinck's abolition of Sati, are Charles Metcalfe's repeal of the 1824 restrictions on the press, Macaulay's education Minute, and a series of centralising measures imposing uniformity, the most prominent being the currency reforms which gave India an uniform currency.

Recent research has highlighted the continuities between the late eighteenth and early nineteenth centuries. The 1832 electoral reforms in England or the 1833 Charter destroying all vestiges of the East India Company trade monopolies have traditionally been seen as markers in the shift towards industrial capitalism and free trade policy. However, these surface events do not obscure the continuations of entrenched conservative and mercantilist elites both in Parliament and in trade (for example, the gentry and the Old shipping interest).

I will try and show how in the case of diffusion and import of science and technology in the colony, these labels of liberal and conservative prove

insufficient. It will be argued that, unlike the close of the preceding century, the early nineteenth century saw the crystallisation of the official template towards knowledge and information. State policy became the basis for deciding what constituted useful knowledge beyond differences of liberal and conservative. This meant a closure in the choices before individual initiative unlike in the period of Jones. This closure over individual initiative was also a consensus over the political reality of colonial domination. By placing the telegraph in this context one can read the larger politics of its establishment and expansion.

The first section will discuss the organisation and activities of the Asiatic Society of Bengal. The second section will examine the education policy after Macaulay's Minute of 1835. The third section will follow the history of the public sphere after 1818 till 1837. It includes a discussion of the colonial postal system which was the only legal means of communication. The final section will examine three cases of technology transfer to the colony in this period. Through a discussion of state attitude towards private enterprise, I would like to examine how legal definitions of legitimacy are put forward. The unification of currency, I will try and argue, was symbolic of the forging of an official consensus and a clear signal to decentralised private initiative.

## SECTION I

### THE ASIATIC SOCIETY : 1800-1860

By the turn of the century, the Asiatic Society was established as a primary institutional authority in the field of oriental studies. The loose body that William Jones had envisaged was replaced by increasing hierarchies within the Society's organisational structure. At the top was the Committee of Papers, formed soon after the establishment of the Society. It consisted of the President, the Secretary and four other members. In November 1796, it was strengthened by adding two Vice-Presidents and four more members. This apex body was expanded further and formally recognised as the Council of the Asiatic Society in 1846.

### PHYSICAL COMMITTEE

Answering charges of obscurantism and of being too erudite and literary, the Society launched the Physical Committee in September 1808. It was to " propose such plans, and carry on such correspondence as might seem best suited to promote the knowledge of Natural History, Philosophy, Medicine, improvements of the Arts and Sciences, and whatever is comprehended in the general term Physics".<sup>1</sup> Its six members included Dr

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<sup>1</sup> Mitra, Hoernle and Bose. *Centenary Review of the Asiatic Society 1784-1884*, Calcutta, Asiatic Society, 1885, rep. 1986, Part III, 'Natural Science' by Baoo P. N. Bose, Chapter II, p.27.

Leyden, Rev. Carey and W. Hunter. There is no record of the activities of this Committee and presumably it did not function.

In 1818 the Physical Committee was revived. But it again lapsed. One of the recurrent reasons for this failure to sustain itself was the Committee of Papers' refusal to incorporate its meetings with the general meeting of the Society. Without the record of its proceedings, without opportunities for publications, and deprived of the exposure and feedback of the general meetings of the Society, the Physical Committee could not continue. Another crucial factor which was ultimately redressed in 1851 was the lack of clearly laid electoral and tenurial rules for the Physical Committee.

The growing criticism of the Society from within was mainly focussed on the state of its publications. In fifty five years of its existence (1788-1839), the Society managed to publish twenty volumes; an average of one volume every two years and nine months. *The Asiatic Researches* were in themselves forbidding. A heavy, expensive Quarto volume with detailed and long essays. Short notices of scientific interest and value were read at the meetings of the Society, and thereafter forgotten.

Members increasingly sought to step out of the claustrophobic confines of the Society establishment. Officials, who had joined together in their private capacities to form a association, now launched alternative

associations and journals in their private capacities. Faced with a practically redundant Physical Committee, the members were complaining in 1820 about ‘..the great delay in completing and publishing the volumes of the Society’s Transactions’.<sup>2</sup>

The Physical Committee also expressed its feeling of impotence in 1825<sup>3</sup> by seeking authorisation for publication ‘by any convenient channel such reports and observations as may be communicated through them to the Society, the interest and utility of which depended on early publication’. The Committee of Paper granted them permission but at the same time dissolved that body and assimilated them within the general meetings of Society. The Physical Committee was again in eclipse.

The two main periodicals through which the members sought to vent their scientific interests were the *Quarterly Oriental Journal* and the *Transactions of the Medical and Physical Society*. The first was launched in 1821 by one of the stalwarts in the history of the Society, H.H. Wilson. The second was launched at the initiative of members of the Society in their private capacity. The Medical and Physical Society was started in 1823. While these accommodated much of the current interests of the members of the Society they proved to be short lived. Both these forums closed down in 1827.

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<sup>2</sup> Mitra, Hoernle and Bose. *Centenary Review*, Part II, p.50.

<sup>3</sup> Proceedings of the Asiatic Society, 9 March 1825.

The Physical Committee was revived again in 1828. The proceedings recorded that it ‘..having occurred to many of the Members.. that the General Meetings are held at intervals too remote, and for purposes too formal and miscellaneous a nature, to be calculated to promote any particular branch of enquiry, especially when of a scientific character..’, the Physical Committee needed to be revived with regular meetings and detailed records of its proceedings.<sup>4</sup>

However, the demand for regular publication remained. Captain J.D. Herbert launched a monthly called *Gleanings in Science* in 1829. It formally announced and met the demand for active Science. Short notices, experiments and technical skill took precedence over the more metaphysical, detailed, discursive and polished long essays of the *Researches*.<sup>5</sup> The quotation from Locke that was its motto, made this scheme explicit. ‘In the knowledge of bodies we must be content to glean what we can from particular experiments; since we cannot, from a discovery of their real essences, grasp at a time whole sheaves, and in bundles comprehend the nature and properties of whole species together.’

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<sup>4</sup> Proceedings of the Asiatic Society, 2 April 1828.

<sup>5</sup> One of the reasons was probably the loss of the edge of the Jones paradigm of enquiry, and its transformation into commentary on texts and translation. The classical orientalist dialogue was already irrecoverably lost.



The *Gleanings* were published from the Baptist Mission Press on the Circular Road in Calcutta. It was dedicated to the Governor-General, Lord William Cavendish Bentinck. Its list of subscribers included the Court of Directors, Secretary to the Government (General Department), Charles Metcalfe (Council Member), Charles Grey and Edward Ryan (Justices of the Supreme Court), and the Rt. Rev. Archdeacon Corrie, Bishop of Calcutta. It also included the name of William Nairn Forbes who was one of the Secretaries of the Asiatic Society from 1828 to 1830.

The *Gleanings in Science* satisfied the Society by publishing its proceedings. Hereafter, regular publication of its proceedings featured in most important newspapers like the *Calcutta Journal* or the *Asiatic Journal*, London. The editorial preface advertised an agenda similar to Mackintosh's agenda discussed in the earlier chapter. There was the same emphasis on the potential for diffusion of scientific activity and knowledge. Bentinck was hailed as the liberal and enlightened patron of every project 'calculated to promote and diffuse useful knowledge throughout the extensive Empire of British India'.<sup>6</sup>

There was an exhortation towards men of intelligence to apply themselves to scientific labour. It also announced the utilitarian project for

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<sup>6</sup> *Gleanings in Science*, January to December 1830, Calcutta, 1830, dedication of second volume.

India. In defense of its cheaper and periodical publication, it recorded that 'Another great advantage.. is the general diffusion of knowledge, and the consequent application of it to the common purposes of life.. Utility in its enlarged sense, is the grand test; and as that which is known to few, cannot be of extensive utility, communication is one of the duties, impressed upon us by the growing spirit of the age'. There is also a similar, though less sharply worded, dialogue with state over the issue of loss to knowledge by the interdiction of secrecy and the need to continuously go public with information.<sup>7</sup>

Herbert's magazine was continued by his associate James Prinsep who renamed it the *Journal of the Asiatic Society of Bengal*. The periodical had earlier consolidated its links with the Society by beginning the first regular publication of its proceedings. This phase with a powerful Physical Committee saw the *Researches* themselves divided into two parts: one scientific and the other literary in 1828. A number of sub-committees were also formed, loosely under the supervision of the Physical Committee. These Committees were the Geological Committee, the Statistical Committee and the Finance Committee.

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<sup>7</sup> *Gleanings in Science*, January to December 1830, vol.II, Calcutta, 1830, Preface, pp. vi-viii.

The 1830s and 1840s were crucial decades for the Asiatic Society. Scientific research flourished but this period also simultaneously heralded the overall decline of the Society by the 1850s. The proceedings of the Physical Committee are available till at least 1832. It would appear to be subsumed within the general meetings of the Society. The *Researches* were abandoned in 1839 and under O'Shaughnessy and Prinsep's Secretaryship a new series of the *Journal* was begun at the same time.

What concerns us are two issues. The first is the level of scientific contribution. The second is the changing organisation of the Asiatic Society. Both together reveal the achievements and targets set up and revised over this period.

## **PUBLICATIONS**

A listing of the achievements of this period naturally reveal several firsts. Between 1828 and 1829 the Physical Committee under Sir Edward Ryan and James Calder had collected and published two hundred pages of a quarto volume along with maps, plates and charts. These formed the first part of the eighteenth volume of the *Researches*. The main areas of focus were Zoology, Meteorology, Mineralogy and Geology.

Of the sixteen articles published in the 1829 *Researches*, twelve were on Geology. Dr. T.G. Malcolmson, Madras Medical Service, contributed articles between 1833 and 1836. Captain J.T. Newbold, Madras Native Infantry, was another significant contributor between 1836 and 1847.

The tradition of Geological research is enmeshed with the history of surveying in India. One of the pioneers, Dr. H.W. Voysey, was attached as surgeon and Geologist to Colonel Lambton's Surveying Party. Dr. P.M. Benza, Surgeon to the Governor of Madras, was an important researcher and contributor till around 1836. Captain J.D. Herbert, Dr. H. Falconer and Rev. R. Everest are already familiar names. Dr Gerard was the first to recover fossil shells from the Spiti valley. Lieutenant T. Hutton was sponsored by the Society to follow up Gerard's discoveries with another expedition around 1839. Earthquakes were recorded and analysed first in this period. Colonel Baird Smith, Bengal Engineers, was a pioneer. In 1845 he published with the Society a record of Indian and Asiatic earthquake for 1843. The Assam earthquakes from 1839 to 1843 were recorded by Captain S. Hannay, referred to as a most zealous contributor.<sup>8</sup>

Zoology appeared first in the Society's publication in 1828, B.A. Hodgson introduced the systematic classification of vertebrata. He

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<sup>8</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part II, p.51.

contributed over ninety articles in the *Researches* and the *Journal* from 1829 to 1848. Dr. H. Falconer was another prolific contributor from 1831 to 1859, though more involved with fossil research. The high point was reached with discoveries made by P.T. Cautley, W. Baker, H. Durand and Falconer in the mid eighteen thirties. E. Blyth deserves special mention. He worked on catalogues of birds and mammals, publishing his catalogue of the Birds in the Asiatic Society's Collection in 1849, and that of mammalia in 1863. Colonel S.R. Tickell was another contributor between 1838 and 1865.

Meteorology and mineralogy consisted of elaborate tables and detailed chemical analyses. They were more in form of raw data rather than frontline Scientific research. Meteorological tables, often monthly, were published regularly in the 1830s and 1840s, and continued throughout the 1860s. The study of mineral composition followed similar methods and ends.

The subjects that can however be seen to be in relative decline in this period would be Botany, Mathematics, Physics and Astronomy.

Botany was a science cultivated following Linnaeus in India since the 17th century. The foundation of the Botanic Gardens in Calcutta in 1786 and in Saharanpur in 1823, considerably helped in its Institutionalisation. William Roxburgh was one of the pioneers. Dr. Nathaniel Wallich was

appointed his successor at the Botanic Gardens. His *Plantae Asiatic Rariores*, in three folio volumes with three hundred coloured plates was published by the East India Company in 1832. He was a significant contributor to the *Researches* in the 1820s.

William Griffiths joined Wallich in 1835 in exploring Assam. He contributed articles between 1835 and 1838. Dr. T. Thomson along with Dr. J.D. Hocken began the *Flora India*. Thomson contributed an article in 1856 indicating the broad outlines of his grand project. However, the *Flora India* was never completed owing to the refusal of the Court of Directors to give any assistance.

Some of the earliest and most original contributions to the early *Researches* came in the sphere of mathematics. The pioneer was Reuben Barrow who was commissioned by the East India Company to mathematically and astronomically determine the position of the principal places in Bengal. This early turn towards surveying mathematics set the trend. The trend limited with the setting up of the Great Trigonometrical Survey of India in January 1818.

William Lambton was the leading spirit between 1779 and 1820. A series of arcs and triangles exactly measuring the peninsula and determining the exact latitude and longitudinal degrees was the object of such

mathematical mapping of spaces and distances. George Everest between 1823 and 1843 succeeded Lambton as superintendent of the Great Trigonometrical survey. Captain Robert Shortrede was an active contributor in subjects connected with astronomy, especially lunar charts. He wrote mainly between 1840 and 1843.

The area of inquiry that showed most promise was the question of determining the validity and antiquity of the Indian Zodiac. An assessment of Indian astronomy necessarily meant comprehending its mathematical achievements. Samuel Davis and William Jones initiated the debate on the antiquity of Indian mathematics. Reuben Barrow substantially investigated Indian works on algebra and arithmetic. The first volume of the *Researches* carried five articles by him. All of them were serious interventions in theory. The articles were: 'Friction in Mechanics', 'A Method of calculating the moon's parallax in latitude and longitude', 'Remarks on artificial horizons' and 'connection of the lunar method of finding the longitude'. Professor J. Playfair of Edinburgh joined the debate, questioning the earliest authority on the subject, M. Bailly who published his *History of Indian Astronomy* in 1787. I. Bentley was a contributor on the subject between 1797 and 1805. Henry T. Colebrooke entered the field between 1807 and 1816 and was regarded by contemporaries such as the senior Mill as the final authority on

the subject. The next entry is that of William Hunter who between 1795 and 1797 not only published some astronomical notices but went on to give a detailed account of Jai Sing of Jaipur and the Delhi observatory.

The practical experiments, inventions and improvements made in this period need to be examined. In the 1820s and 1830s the Asiatic Society sponsored several boring experiments in Fort William. Most of the experiments in this period were carried along the intersects of surveys and chemical analyses. The need to capture in detail coupled with the need to duplicate and improve devices for such observation. Thus, the equipments for the ground survey underwent several modifications. The telegraph too had a similar history.

The tradition of mechanical experiment emerged from the theoretical discussions in the *Researches*. Francis Balfour's 'A treatise on Barometers' in vol. IV 1795 paved the way. William Lambton emerged next, writing articles that included 'An account of Trigonometrical operations in crossing the peninsula of India and connecting Fort. St. George with Mangalore' (vol.8, 1808). A year earlier (vol IV 1807) Lieutenant J. Warren published 'An account of experiments made in the Mysore country, in the year 1804, to investigate the effects of terrestrial refraction'. In the same year Lieutenant Kater published a description of a 'very sensitive Hygrometer'.



Many of the articles in the 1820s were concerned with trigonometrical problems in determining to the last degree the latitude and longitude of a place. The need to precisely 'fix' a place on the information network of the company gave rise to mechanical innovation as well. Lambton, between 1800 and 1820, affected several modifications in instrument need for calculating the degree of the meridional arc. By the late 1830s and the 1840s, detailed meteorological registers from a number of places occupy increasingly greater attention and space than experimental science in the papers published. However, descriptions and introductions of mechanical devices increased. In the 1820s *Calcutta Journal* regularly published notices of machines patented in England. For example, in 1833 (vol II of the Journal) an article was published called 'An experimental inquiry into the means employed by natives of Bengal for making ice.' T.A. Wise and James Prinsep's 'Description of a compensation Barometer and observation on wet Barometers' appeared. These were more observational and explanative essays rather than experimental or original articles. This trend increased over the mid 1830s. After 1833 Dr. W.B. O'Shaughnessy emerged as a major contributor with description and observations on various methods, practices and devices.

Within this certain patterns can be shown to recur. Over the period the detailing of data increases. What sometimes seemed to disappear was the reasons for such data collections. Henry Piddington came up with a series of 23 Memoirs on the law of storms. These were published between 1839 and 1851. They consisted of detailed accounts of all important cyclones that occurred in the region from 1839 to 1851. As Bose comments, 'This required a vast amount of patience and industry'.<sup>9</sup> Observations of tides also occupy a regular place in the Journal between 1837 and 1850.

Several new subjects however emerged. They were 'new' only as categories; their function emerged from within existing disciplines.<sup>10</sup> Ethnology emerged from Philology and went on to become Anthropology. It was also the matrix for racial essentialism.<sup>11</sup> Ethnology was the study of races and tribes. India was divided into its characteristic races: the Dravidians (Gond, Khond, Todas, Oraons); aborigines (Kol, Santhal); 'Indo-Chinese' or the Mongolian type.<sup>12</sup>

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<sup>9</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part III, chapter I, p. 15.

<sup>10</sup> In the entry to the chapter on ethnology the author cautions in a footnote, 'This chapter is to be taken as supplemental to the Philology Part', *Centenary Review*, Part III, Chapter VI, p.90.

<sup>11</sup> 'With the rise of ethnography... as demonstrated in linguistics, racial theory, historical classification... There is a codification of difference, and various evolutionary schemes going from primitive to subject races, and finally to superior or civilized races.' Edward E. Said, *Culture and Imperialism*, Vintage, 1994, p.130.

<sup>12</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part III, Chapter VI, p.90-1.

The explorer and the geographer, in this period, were engaged in the same kind of activity. The same names such as Gerard, Csoma de Koros and Colebrooke appear. The tales of wanderings that geographers furnished were often travelogues. They increased in number as the fringes of British occupation such as Myanmar, North West frontier, Chhotanagpur and Sri Lanka became objects of exploration and study. The Himalayas and world beyond were increasingly objects of curiosity and mystery in the eyes of the European. These were tribal peoples and relatively closed communities that served to justify racial models of evolutionary and civilizational hierarchies.

A similar case can be seen with the category 'Economic Science and Statistics'. These take off after 1828. But there is a noticeable decline since the late 1840s. They in part, originated from the category 'Religion, manners and customs, etc.' which had a constant presence throughout our period.

In the older more literary subjects major breakthroughs were achieved over this period. Between 1834 and 1839, James Prinsep, Secretary to the Asiatic Society, deciphered the script of the Asokan inscriptions. He also found the key to the Bactrian inscriptions which were found to be variations of Prakrit. His work was continued by Alexander Cunningham who completed the task in 1854. Subsequent researches were mainly

translations of inscriptions discovered rather than any linguistic breakthroughs.<sup>13</sup>

A crucial sphere of the Society's publishing was translations of Oriental literature. In 1806 the Society instituted the Bibliotheca Asiatica "to publish, from time to time, as their funds would admit of it, translations of short works in the Sanskrit and other Asiatic languages, or extracts and descriptive accounts of books of greater length in those languages".<sup>14</sup> But there was no spurt of publishing by the Society, partly because of a shortage of funds. Other than the translation of one or two rare works, independent publishing plans of the Society remained unachieved till the mid 1830s. The Bibliotheca began publication after 1847. It was by and large definitive editions of texts like the *Upanishads* and the *Puranas*. The *Sakuntala* of William Jones was born of different interests and preoccupations. The distance that separates that and the Bibliotheca is not simply that of time but simultaneously the difference between original individual research and institutionalised cumulative scholarship.

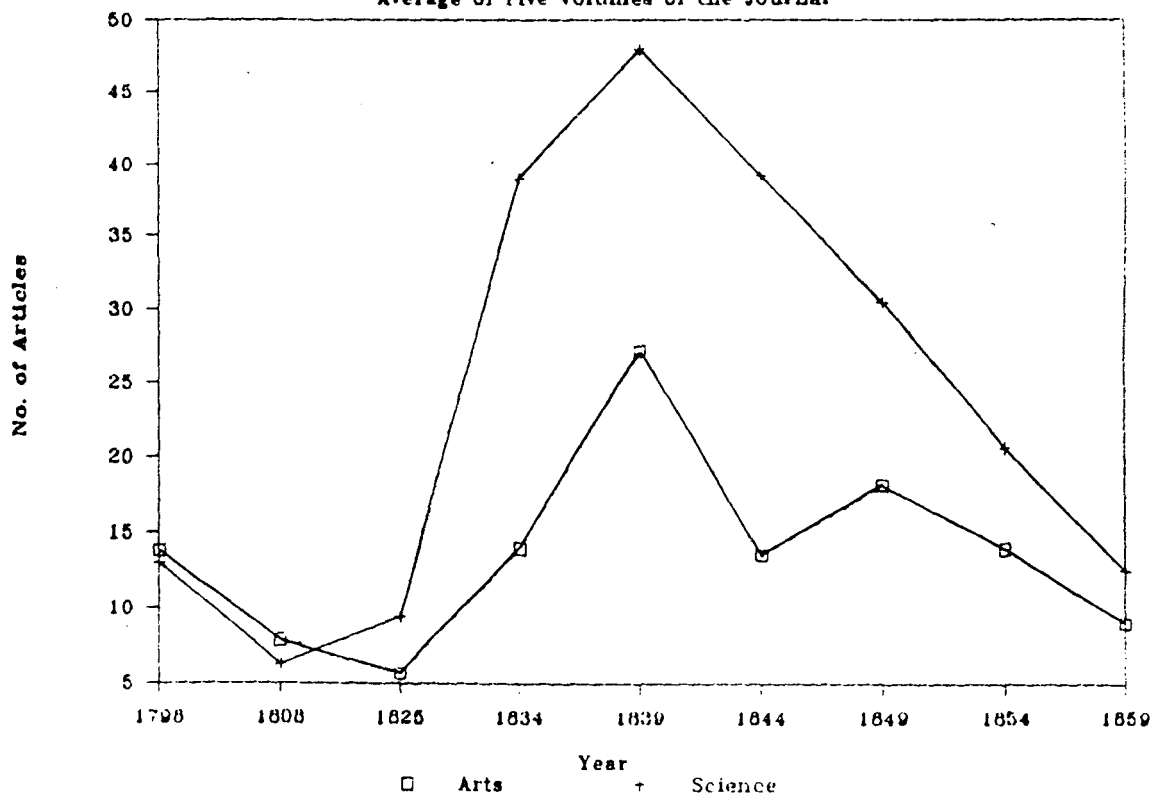
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<sup>13</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part II by Hoernle, p. 50-81.

<sup>14</sup> *Asiatic Researches*, Vol.XII, Appendix, p.vii.

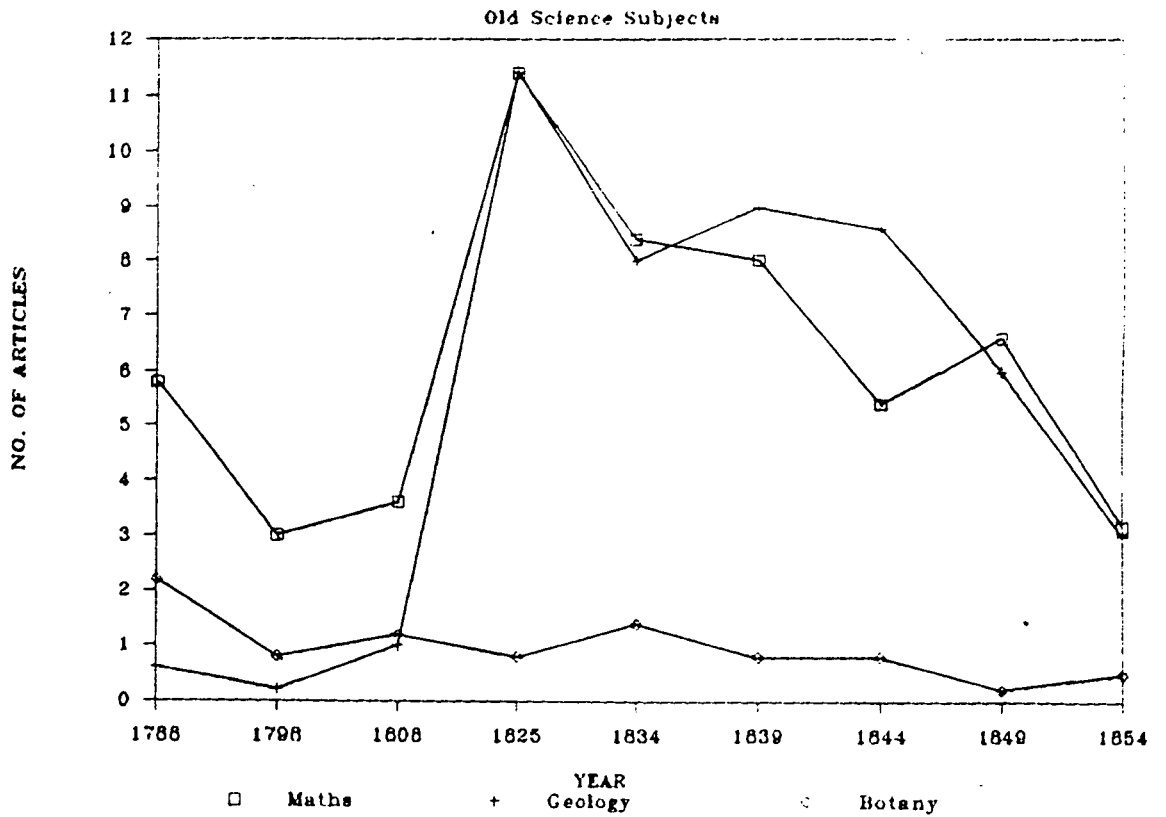
# Average of Articles Published

Average of Five Volumes of the Journal

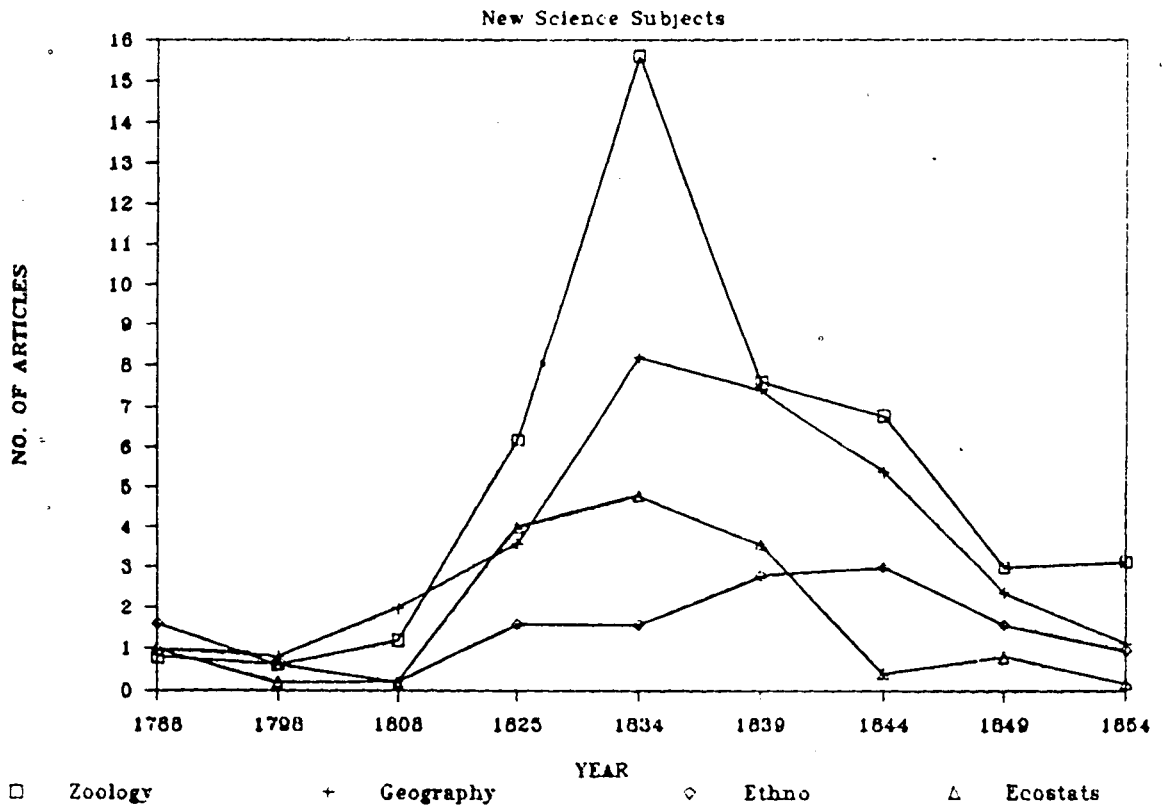


Year	Maths	Geology	Zoology	Botany	Geography	Ethnology	Ecstats
1788	5.8	0.6	0.8	2.2	1	1.6	1
1798	3	0.2	0.6	0.8	0.8	0.6	0.2
1808	3.6	1	1.2	1.2	2	0.3	0.2
1825	11.4	11.4	6.2	0.8	3.6	1.6	4
1834	8.4	8	15.6	1.4	8.2	1.6	4.8
1839	8	9	7.6	0.8	7.4	2.8	3.6
1844	5.4	8.6	6.8	0.8	5.4	3	0.4
1849	6.6	6	3	0.2	2.4	1.6	0.8
1854	3.17	3	3.17	0.5	1.17	1	0.17

# JOURNAL OF THE ASIATIC SOCIETY



# JOURNAL OF THE ASIATIC SOCIETY



## NUMERICAL ANALYSIS OF DISCIPLINES RESEARCHED

A brief numerical analysis shows certain broad patterns between 1788 and 1860. Both the humanities and the sciences, according to the *Centenary Review's* classification, show a peak between 1830 and 1850. Interestingly humanities dominate till about 1800 when the Science curve takes off. The crest is achieved in both cases between 1833 and 1835. The substantially higher number of science entries should be viewed against the regular compilation of data such as meteorological and tidal tables, chemical analysis of minerals etc. There is an overall decline after 1839 which after some renewed activity in the case of humanities around the mid 1840s goes in to a slump.

The list of membership of the Society reveals an approximately similar pattern. In 1788 the number stood at 89. By 1805 there is a steady increase to 200. This pattern of growth continues in the sharper increases and in 1815 the number stood at 263. By 1828 the number was 285 and by 1835 the numbers stood at 306. 1838 however shows a drastic decrease, the numbers drop to 126. By 1845 a low of 119 is reached. Most of numbers between 1845 and 1860 vary between 130 (1851) and 242 (1860). After 1860

the numbers increase and remained steady between 300 and 400 for the next decades.<sup>15</sup>

Between 1805 and 1835 the Society goes through a crest in membership, activities and publication. After 1839 there is a drastic fall in all three areas which continues till at least 1845. The reason behind this slump could well be the government which abruptly decided to curtail subsidies and define the role of Asiatic Society as keepers of the Museum and Orientalists. The renewal of interest after 1858 signified the desire to be part of the Society's reputation, not participatory interest. By the 1870s the Asiatic Society had become one of the most prestigious institutions in British India and it was often a point of honour to belong.

## THE MUSEUM

There was another series of developments around and within the Society. That was the institutional regularisation of its collections into a museum. As early as 29 September 1796 the Society adopted a motion to establish a Museum and invited donations.<sup>16</sup> It was revived through the personal interest of the Governor General Marquis of Hastings. The museum of the Asiatic Society opened to the public on 1st June 1814 with Dr.

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<sup>15</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part I by Mitra, Appendix, p.83.

<sup>16</sup> *Asiatic Researches*, Vol. VI, pp.591, 593.



Nathaniel Wallich as its superintendent. The Museum suffered from the want of a proper location, displaying facilities and an establishment. Dr. Wallich suggested employment of a full time keeper which was adopted in 1820. The superintendence went to Dr. J. Adam who held office from 1821 to 1832.<sup>17</sup>

The museum was in this time a cornucopia of strange artifacts -- a bewildering array of objects. A visitor in 1819 wrote about the museum that 'Here you will find fragments of sculptures, vases, tablets, coins, arms, and natural curiosities from every part of India; canoes and models, swords, clubs, spears...and fabrics from all the islands in the Indian Archipelago'.<sup>18</sup> Fanny Parks visited the museum and was disgusted by the model of the foot of a Chinese lady, a 'most disgusting deformity' that to her symbolised the loss of individual and personal freedom for the woman especially in most eastern societies.

This hall of curiosity and fantasia had swelled by 1835 to such enormous proportions that a separate organised establishment was imperative. However, the Society was in the midst of the general financial

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<sup>17</sup> P.T. Nair (comp. and ed.), *Proceedings of the Asiatic Society 1817-1832*, Vol.III, Book I, Calcutta, Asiatic Society, 1996, pp. 115-139.

<sup>18</sup> *Sketches of India*, Anonymous, London, 1819, p.130-131; cit. Nair, *Proceedings*, p.131.

squeeze that had began with the collapse of the Agency Houses. The government itself cut down on its subsidies including the postal subsidies.

The government had agreed to continue the postal subsidy given to the *Gleanings* in 1831 for the *Journal* provided they agreed to regularly print extracts from Dr. Buchanan Hamilton's Statistical reports. In 1833, the Government called for a review of the situation. In the mounting tension between the Anglicists and the Orientalists, the government ordered that the *Journal* cease to publish Dr. Buchanan's manuscript. The official reason for postal subsidy to the *Journal* being removed, the government withdrew the *Journal's* franking privilege in 1834.<sup>19</sup>

This was a heavy blow to the Society because its finances were very shaky. The first blow came with failure of Messrs. Palmer and Company in 1828. 1829 was thus a very difficult year. The physical class constituted an extra strain with frequent requisition for funds.<sup>20</sup> On top of this, an extra cost was imposed by dividing the already voluminous *Researches* into two parts, Oriental and Physical, in 1829, Part I of the vol. XVIII of the *Asiatic Researches* was published in 1829. Part II followed in 1832. An indication of the

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<sup>19</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part I, p.51-52.

<sup>20</sup> Mitra, Hoernle and Bose, *Centenary Review*, Part I, p. 71-73.

financial disorder is provided by the absence of any *Journal* or *Researches* published between 1829 and 1832.

The withdrawal of postal subsidy in 1834 was a serious blow. However, the Society managed to survive the 1828 crisis and the 1835 cost increase because of private donations. The Nawab of Awadh gave a hefty donation of Rs. 25000 around 1829. The money greatly relieved the Society's conditions till the collapse of Messrs. Mackintosh and Co., an Agency House, which sank with the money in 1833. In 1834 a Mr. Bruce left a bequest of \*2000 which was invested in governments securities. In 1836 a resolution was passed by the Society categorically stating its identification with the government. 'It appears to us that in a society constituted as the Asiatic Society of Bengal is, the existence of a fund vested in government securities is absolutely necessary for the permanence of the foundation'.<sup>21</sup>[

A resolution was also passed scrapping the recent appointment of a curator for the growing museum at a salary of Rs. 200. The society then proceeded to appeal to the government and the Court of Directors in for funds to run the museum. In 1837 their resolution recorded, '..viewing the maintenance of the Museum as a national object, and calculated to be of immense importance to science if placed upon a footing of efficiency, with a

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<sup>21</sup> Proceedings of the Society, May 1836.

professional Naturalist at the head, directing researchers and systematising informations obtained from various sources, both public and private, in all branches of Physical Science, but more particularly is regarded to the Natural History of British India and Asia at large - it is incumbent on the Society to make a full and urgent representation to government on the subject, and to solicit such support as is accorded in most other countries to similar institutions of national and scientific utility'.<sup>22</sup>

The Government and the Court of Directors initially turned down the appeal for help with the museum. Eventually the Court of Directors sanctioned a monthly grant to the museum by their despatch dated 18 September 1839. The Government also gave the Society all the Oriental works in its holdings and those being prepared for the press because executive order had stopped all publication activities after 1839. The *Bibliotheca Asiatica* now became a reality and was launched in 1845.

What was the reason behind the cessation of subsidy in one case and the initiation of subsidy in the other. Why was the *Journal* squeezed while oriental publications and the *Bibliotheca* promoted. These policy decisions were not isolated and arbitrary acts but were part of the larger debate in the 1830s regarding the role of the state in indigenous society. It was also the

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<sup>22</sup> Proceedings of the Society, May 1837.

heavy handed definition of the activities of the Society and its role. It was being restricted to antiquarian and oriental researches. Subsequently state institutions like the Indian Museum or the Geological Survey of India would bite into the holdings and activities of the Museum of the Society.

Before discussing these more general questions I should like to complete the narrative of the Asiatic society. From 1837 till 1850, with the exception of 1846-47, the translations were published in two parts. After 1850 it was reduced to a single volume which accounts in part for the sharp decline in our figures. Dr. O'Shaughnessy was secretary to the Society in 1838-39 and from 1846 to 1850, both periods of overall decline for the Society.

It was not just a subsidy squeeze for the Asiatic Society's *Journal* in 1835 but between 1833 and 1835 the Government had been systematically freezing subsidies and grants to scientific associations in the public sphere.<sup>23</sup>

The withdrawal of subsidy for the *Journal* or the grant towards a Museum was very much part of the Anglicist-Orientalist controversy that raged in the 1830s. The debate which climaxed with Macaulay's Education Minute of 1835, has been much discussed. It was as much an ideological

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<sup>23</sup> Home Public Proceedings, 28 January 1834, No.28, From the President of the Medical and Physical Society, dt. 18 January 1834; also 3 March 1834, No. 29 and 29A, From the Dinapore Branch of the Agricultural and Horticultural Society, dt. 1 January 1834.

debate as a strategic paradigm shift in government policy. The circles of administration had been engaged in hard debate amongst themselves primarily over the nature of the relation between the colonial state and the colonised. Whether over the dying debate of the role of the Eurasian in the imperial enterprise or the abolition of the company's remaining commercial monopolies, this period was engaged in evolving a consensus in attitude, a mental map for the engagement between the ruler and the ruled.

#### MACAULAY'S MINUTE OF 1835

The Education Minute of 1835 has been generally discussed around two broad heads. While apologists hold that it was a progressive decision opening up avenues of employment and access to western science, critics argue that it was a typically colonial decision aimed at not only creating a loyal acculturated cadre among the natives but also engineering a critical gap. It was a gap in a transmission and generation of knowledge: an epistemological absence. It could not have been possible at any other point of time previous in history. The complex of dialogues that had grown up between native, Eurasian, free trader, progressive officials and the intelligentsia in the metropolitan areas was snapped. Distinctive places were now assigned to these groups which previously had participated in a common discourse. The fragmentation of this discourse saw the consensus

over state since the state was directly determining roles and places. The Agency Houses began their slump in this period casting a pall of gloom over the prospects of private enterprise.

Macaulay's Minute was not a superficial statement but a policy template for government - a charter of and for the colonial state. It did not arise out of ignorance because Macaulay was well versed in Indian affairs. It arose out of a conscious desire to create the Empire - a bigger and better Empire than the world had ever seen. It was therefore important to avoid the mistakes of Rome. Macaulay's address was to the heart. He spoke of a cultural mission and an exercise in taste. He undertook to shape the mind, the ethos of the subject. Thus Macaulay's Minute was a mission to implement a regimented higher education system in indigenous society. What would be taught would be the sum total of the superiority of western culture, the tastes and mind of the conqueror. The difference with Rome was that certain key areas of knowledge and useful activity (technology) were cordoned off in terms of information and knowledge access and circulation.

In 1835 Macaulay was deep into Aristotle and Plato. In August that year he was writing to his friend Ellis, 'I am deep in the examination of the political theories of the old philosophers. I have read Plato's *Republic* and his *Laws*; and I am now reading Aristotle's *Politics*; after which I shall go

through Plato's two treatises again'.<sup>24</sup> The Education Minute was thus no casual act but one which originated from within the core of western political philosophy. Greece for her intellectual achievements, the Romans for their practical achievements -- these were the twin enchantments informing the public school classics ethos of Macaulay. He would go on to write a history of the Roman Empire. When Bentinck appointed Macaulay, two leading orientalists retired from the Committee of Public Instruction.

The strongest protest against the Minute emerged from the Asiatic Society whose Committee of Papers included several senior Orientalists. As early as March, 1835 a Minute by Lieutenant Colonel William Morison lodged protest against Macaulay's model. 'I confess that I view this sudden change with great anxiety for the result, I think that evil is certain, and that the good to be expected is at least very problematical.. Native youth will have their heads filled with English words... a knowledge of the English language does not necessarily lead to a knowledge of the Arts and Sciences...' He went on to make the Orientalist position much more explicit. 'If it be our object to confer on the people of India a knowledge of the arts, sciences and literature of Europe, I entertain the opinion that this may be more easily and successfully achieved through the learned languages of the

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<sup>24</sup> Sir G. O. Trevelyan, *The Life and Letters of Lord Macaulay*, enlarged and complete edition, London, 1908, p. 318.



country -- Newton, in publishing the *Principia* and his other works in Latin, made them accessible to every teacher of Philosophy in every state of Europe. Sanskrit in India, like Latin in Europe, is the general language of learning and Science.<sup>25</sup>

Criticism mounted. In a joint letter from several Orientalist luminaries of the Asiatic Society, Macaulay's Policy is called 'unwise and unpolitic'. They warned against reaction in indigenous society because of such outright debunking of their ancient language and culture '...all must be utterly destroyed by a coup de main and nothing else will suffice... Against such a warfare as this... one must earnestly protest'. They were open and clear about their position. 'If we wish to enlighten the great mass of the people of India we must use as our instruments the languages of India... Our object is to impart ideas, not words.... For many years the English instruction we impart to students... must be elementary or at least will not comprehend the sciences.... it must be much more easy to acquire those through the medium of the mother tongue than of a foreign one. As to the acquisition of our arts and sciences through the medium of English, few will have the ability and still fewer the inclination to make it -- and where there is both the inclination and the ability, there will generally be wanting the means to prefer a life of

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<sup>25</sup> Home Public Proceedings, 3 March 1835, No. 17 and 18, Minutes by Lieutenant Colonel W. Morrison

study to a life of labour. How is it with our own country men? How many in a hundred after receiving the most liberal education enter into public life with no more knowledge than suffices to enable them to use their mother tongue with facility ... yet more is to be expected under far less favorable circumstances from the natives of India, who are not only to master a foreign tongue... but the arcana of its Arts and Sciences also'. The 'grand object' was not so much that the few who studied it would be enlightened but 'that the, light should be diffused over the whole society...' It would therefore be '...cruel to consume their valuable time with the *acquisition of that which is not in itself knowledge, but only the means of gaining knowledge* and which could prove to but few of them the means of gaining a subsistence [emphasis added]'.<sup>26</sup> The letter was sent by W.H. Macnaghten and James Prinsep and Henry Shakespear were co-signatories dated March 24, 1835.

The Government supported Anglicist reaction was swift and harsh. In reply to Morison's Minute, Bentinck ordered that, 'all funds would be best employed on English education alone'.<sup>27</sup> The Medical classes at the Sanskrit College, the Madrassa and the Native Medical Institution were abolished. It was ordered that 'such students as are now capable of passing their final examination.. may be appointed Native Doctors the other students be

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<sup>26</sup> Home Public Proceedings, 22 April 1835, No. 10A, Letter sent by W. H. Macnaghten in which James Prinsep and Henry Shakespear had joined, dt. 24 March 1835.

<sup>27</sup> Home Public Proceedings, 7 March 1835, No. 19, Resolution by the Government.

transferred to the Native Corps in the Army... (and) if not found qualified in two years, to be discharged.' <sup>28</sup>

Forwarding the joint Orientalist letter against the Education policy, the Secretary to the General Committee of Public Instruction, J.A.S. Sutherland, noted that the 'majority of the Committee altogether dissent from the opinions expressed in the Minute, that they conceive the instructions of Government to be perfectly clear and explicit and that it is their intention to act on those principle without loss of time' <sup>29</sup>

#### FUNCTIONING OF THE POLICY

This action included abolishing the postal privileges enjoyed by the *Journal of the Asiatic Society* and other such ventures (eg: Proposal to establish a Maharashtra Newspaper entitled the 'Poona Vartick' and requesting postal subsidy.<sup>30</sup> Mr. A Ross was requested to stop his lectures on Natural Philosophy and instruction in Chemistry at the Hindoo College.<sup>31</sup> The Asiatic Society now appealed to the government to Government for help

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<sup>28</sup> Home Public Proceedings, 7 March 1835, No. 28, General Orders by the Governor-General-in-Council.

<sup>29</sup> Home Public Proceedings, 22 April 1835, No. 10 and 10A, No.2157 From H. Torrens, Offg. Secretary to the General Dept., submission before the Governor-General-in-Council with enclosures.

<sup>30</sup> "Not complied with". Home Public Proceedings, 1 April 1835, No. 49, Letter forwarding the proposal.

<sup>31</sup> Home Public Proceedings, Public Instruction, 30 June 1835, No. 6, From the Secretary, General Committee of Public Instruction; also 8 July 1835, No. 4 and 5.

with the museum.<sup>32</sup> They also requested that the Government make over to them all oriental books whose publication were in progress<sup>33</sup> O'Shaughnessy offered to conduct courses on Chemistry and Materia Medica at the new Medical College. O'Shaughnessy suggested that the lectures be open the students of Hindu College as well.<sup>34</sup>

The ruthless attack on indigenous literature and science combined with the neglect of certain key areas of knowledge. The institution of a language barrier was crucial to the maintenance of imperium based as it was on a common ethnic pool and distance from what it saw as its burdensome public, one such area of neglect was pure Physics.

As late as the 1740s Jaising of Jaipur, one of the most scientific minded rulers of his time, refused to accept the Copernican Revolution. The Madrassas also adhered to dogma and the Euclidean and Ptolemaic systems.<sup>35</sup> Thus, the heliocentric view was not universal to the indigenous populace in the first half of the nineteenth century. Yet Macaulay laconically records on the subject of the *Ptolemaic System*. 'We have too little money to afford

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<sup>32</sup> Home Public Proceedings, Public Instruction, 1 July 1835, No. 14, From the Secretary, General Committee of Public Instruction.

<sup>33</sup> Home Public Proceedings, Public Instruction, 15 July 1835,

<sup>34</sup> Home Public Proceedings, Public Instruction, 5 August 1835, No. 15, From the Secretary with enclosures, dt. 28 July 1835.

<sup>35</sup> S. A. Khanghori, 'Mathematics and Astronomy in India in the XVIII and XIX century', *Proceedings*, Session II, pp.204-235.

any.. for the purpose of paying compliments to grown up persons who find out that the sun does not go around the earth.'<sup>36</sup>

It is on the basis of Macaulay's policy that the new syllabus for 'B.A. and Honor Examination of the Calcutta University was put forward. At the school level the subjects were the Bible, History, Geography, Arithmetic, Grammar and Bengali. Special prizes were awarded for essays like 'the causes which led to the Decline and Fall of the Roman Empire.' At the level of college were taught the Bible, Theology Literature, History, Mental or Moral Science, Physical Science which consisted of Animal Physiology and Chemistry, Mathematics, and Natural Philosophy which included the six books of Euclid, Trigonometry, Algebra, Solid Geometry and Arithmetic. It could well be argued that the Copernican and Newtonian Revolutions never systematically reached India. The English higher education given to India was contradictory.<sup>37</sup> At one level a language with all its cultural ramifications was being introduced, at another level the subjects concentrated upon were continuations of past and irrelevant preoccupations. The colonial state's obsession with the Roman simile was echoed by similar continuations in the already developed branches of Arithmetic and Algebra in India. Similar to this neglect of crucial knowledge at the primary level, an

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<sup>36</sup> 16 December 1836, p. 295, Book K, p.102, *Unpublished Minutes*.

<sup>37</sup> cf., Henriques, Ursula R., *Before the Welfare State: Social administration in early industrial Britain*, (London and New York, 1979).

indigenous encyclopedia and reference book for students traveled along traditional categories in both European and indigenous knowledge. The *Vidyakalpadrum* also called the *Encyclopedia Bengalensis* was launched by Krishna Mohan Bannerjee in 1846. Thirteen parts were published between 1846 and 1850. They were on the history of Rome, trigonometrical survey, general studies, biographies, the history of Egypt, Geography, Moral Science and ethical exhortations.<sup>38</sup>

This was the same Macaulay who was going to give India her Penal Code. He began work on it as President of the commission on legal matters of the Empire in 1833. The rough draft was ready by 1838. 'This Code', envisaged Macaulay, '...should not be a mere digest of existing usages and regulations but should comprise all the reform which the commission may think desirable. It should be framed on two great principles -- the principle of suppressing crime with the smallest possible amount of suffering, and the principle of ascertaining truth at the smallest possible cost of time and money'.<sup>39</sup> The code of Civil Procedure was ultimately enacted in 1859. The Penal code was enacted in 1860, and came into operation on the 15th of January 1862.

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<sup>38</sup> Brajendranath Bandopadhyay (ed.), *Bangla Samayik Patra*, Calcutta, 4th ed., B. 1379. Vol.I, Chapter IV, p.87

<sup>39</sup> Trevelyan, *Life and Letters*, p.299.

## 1835 PRESS CENSORSHIP REPEAL

Implementing the task of modernization as he conceived it, Macaulay wholeheartedly supported Sir Charles Metcalfe's repeal of the 1824 Press Regulations. Macaulay was sharp and explicit about what constituted 'public' in 1835. 'The political phraseology of the English in India is the same with the political phraseology of our countrymen at home; but it is never to be forgotten the same words stand for very different things at London and at Calcutta, We hear much about public opinion, the love of liberty, the influence of the Press. But we must remember that public opinion means the opinion five hundred persons who have no interest, feeling or taste in common with the fifty millions among whom they live; that the love of liberty means the strong objection which the five hundred feel to every measure which can prevent them from acting as they choose towards the fifty millions, that the Press is altogether supported by the five hundred, and has no motive to plead the cause of the fifty million. We know that India cannot have a free Government. But she may have the next best thing - a firm and impartial despotism.'<sup>40</sup> Before entering into the 'liberation' of the Press in 1835 we shall attempt a short history of the Press since 1818.

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<sup>40</sup> *ibid*, p.280.

Direct Press censorship was repealed in 1818. The impetus given to the public sphere was enormous. One of the main chroniclers of the period, James Silk Buckingham's *Calcutta Journal* came into being in 1819. It entered, like most newspapers, into a contract with the Post Office.<sup>41</sup> But what Buckingham did was to threaten to advertise his contract rates from the information of the other editors. The Government decided to initiate flat rates based on the report of the Committee for investigating the Post Office Department.<sup>42</sup>

Throughout the period the Press came in for substantial price regulation through postal manipulations. To continue with our case in hand, by May 1819 Buckingham was being warned off by the Government.<sup>43</sup> By the end of the year directives were issued that his contract would be restricted to areas where 'The Post Office Regulations of only this Presidency extends'.<sup>44</sup>

When the renewal of contract came up the charges for the postage of the *Calcutta Journal* were hiked.<sup>45</sup> In January 1821 an 'Advertisement' of the

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<sup>41</sup> Home Public Proceedings, Post Masters, 16 April 1819, No. 27; also 22 April 1819, No. 37.

<sup>42</sup> Home Public Proceedings, Post Masters, 30 April 1819, No. 9, To the Post Master General.

<sup>43</sup> Home Public Proceedings, Post Masters, 25 June 1819, No. 4. Letter sent to J. S. Buckingham concerning some paragraphs published in the May issue.

<sup>44</sup> Home Public Proceedings, Post Masters, 17 December 1819, No. 69. Letter to the Post Master General.

<sup>45</sup> Board of Revenue Proceedings, WBSA (West Bengal State Archives), Post Office, 24 October 1820, No. 14. To the Post Master General.



charges for newspapers was published. First, weeklies were to be charged single letter postage provided they did not exceed 3 sicca weight. Second, Newspapers printed twice or thrice a week were to be charged two thirds of single letter postage provided they did not exceed 2 1/2 sicca weight. Third, dailies were to be charged half of single letter postage with the weight qualification of 2 siccas. The advertisement warned that 'Any excess in the above weights will render the newspaper liable to a proportionate increase of postage agreeably (sic.) to the general rules of the Post Office'.<sup>46</sup>

Buckingham had recently imported thick papers for his *Journal* and was in a serious fix. In a series of exchanges his requests for a reconsideration were refused. His contract was canceled in March 1821. His heavy imported paper was either to go waste or had to pay the higher postage.<sup>47</sup> By 1824 the *Calcutta Journal* had sufficiently provoked the acting Governor General Adam. He deported Buckingham and re-initiated press control. By 1825 the owners of news paper were forced to send a joint petition for modification in the extremely high postage. The Government saw no reason to suffer a total estimated loss of 1797 rupees per mensem.<sup>48</sup>

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<sup>46</sup> Board of Revenue, Post Office, January 1821, No. 8. Advertisement dt. 29 December 1820.

<sup>47</sup> Board of Revenue, Post Office, June 1821, No. 35, 36 and No. 47.

<sup>48</sup> Board of Revenue, Post Office, 17 May 1825, No. 46 and 47.

However, the public sphere had expanded substantially between 1818 and 1835 and more and more newspaper owners, both indigenous and European, were willing to run the risk of failure to get a share of the widening public demand for information.<sup>49</sup> Macaulay noted in 1835, 'The question before us is not whether the press shall be free, but whether, being free, it shall be called free'.<sup>50</sup>

Charles Metcalfe repealed the Press Regulations of 1823 in the Bengal Presidency, and those of 1825 and 1827 in Bombay. However, what was instituted in April 1835 was Press registration; it was censorship gone underground. It enacted that the printer and publisher of all periodical works, within the Company's territories, containing public news, or comments on public news, should appear before the magistrate of the jurisdiction of its publication. They should declare where it was to be printed and published. They also were asked to give their moral word that their presses would not encourage sedition or promote harm of government. The act went on, 'every person having a printing press on his premises should declare his property'. Beyond these declarations, notes Metcalfe's

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<sup>49</sup> Tapti Roy, 'Disciplining the Printed Text: Colonial and Nationalist Surveillance of Bengali Literature', in Partha Chatterjee (ed.), *Texts of Power: Emerging Disciplines in Colonial Bengal*, Calcutta, Samya, 1996, pp. 30-62, pp.30-32.

<sup>50</sup> Trevelyan, *Life and Letters*, p. 282.

biographer, 'there was no other restriction on the liberty of the Press.'<sup>51</sup> His decision aroused the displeasure of the authorities in England, especially the Parliament.<sup>52</sup>

#### "RATIONALISATION" IN POST AND CURRENCY

The last major acts discussed in this series are the 1837 Post Office Act and the 1835 Currency Reforms. Faced with mounting problems of forgery and changing exchange ratios between Presidencies, the Government declared a uniform currency for British India. In 1831-2, like a number of times in the early nineteenth century, the Company directly shipped treasure to England. The bills of exchange were often not relied upon. Apparently one of the motives for the 1835 uniform rupee was that, when exported, the additional expense of smelting for evaluation could be avoided with this standardised issue.<sup>53</sup>

The rationalisation of the political economy was also a rationalisation about the relation between ruler and the ruled. As a centralised state emerges over this period, these acts are key elements in deciding the nature of the colonial transaction. the indigenous populace was to be addressed as

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<sup>51</sup> J. W. Kaye, *The Life and Correspondence of Charles, Lord Metcalfe*, New and revised ed. in 2 vols., Vol II, London, 1858, p147.

<sup>52</sup> *ibid.*, p.157.

<sup>53</sup> Asiya Siddiqi (ed.), *Trade and Finance in Colonial India 1750-1860*, Delhi, OUP, 1995, Introduction, p.21.

one and by an equally monolithic authority. It is no surprise to find on the roll of the Committee for Public Instruction in 1836 names of H. Shakespear and the elder Prinsep.<sup>54</sup> These had been some of the chief opponents of the new education policy.

The 1837 Post Office act was the template for subsequent acts. It declared the Company's official monopoly over all public communication. It emerged out of the sittings of the Committee set up for investigation into the customs and the post office. This was the enunciation of official policy for everybody. Prior to this the indigenous letter writer had to pay double. First, because price was proportionally inverse to distance. Second, the Indians used light handmade paper. Europeans using thick imported paper were paying higher rates so lighter indigenous letters were charged double to bring them at par. Official correspondence was exchanged over the cramped handwriting and other 'cheatings' of indigenous letter writers. These rates were abolished in 1834 following a vigorous petition from the business community of Bombay. Madras had abolished this bias a few years previously.

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<sup>54</sup> Home Public Proceedings, General, 10 February 1836, No.4. Preliminary report to Sir Charles Metcalfe from the Committee of Public Instruction signed by H. Shakespear, J. R. Colvin, J. Young, H. T. Prinsep, J. C. C. Sutherland and Radhakanta Deb.

This recognition of the indigenous people as its public also meant a solidarity of attitudes among the rulers. Private initiative was no longer tolerated. Officials had been banned from associating with the press in any capacity in 1828. European Public Sphere associations and media were being split up either by institutionalisation, government policy or by growing indigenous initiative in catering to the close to the indigenous public.. The combined public sphere that had been emerging over the first thirty years of the century had been tackled by a series of steps that on the one hand fragmented private and Eurasian voices and on the other while giving the indigenous people recognition as the public, subverted its growth by simultaneously giving it language as a cultural burden.

CHAPTER III

PIONEERING WORK IN TELEGRAPH  
COMMUNICATION: CASE STUDY OF  
AN INNOVATOR

William Brooke O'Shaughnessy was born in Limerick, Ireland, in 1809. He graduated in medicine from the University of Edinburgh. He was teaching and researching in Edinburgh till 1833 when he joined the East India Company as an Assistant Surgeon. We find his name amongst officers attached to the Bengal Military establishment.<sup>1</sup> He was appointed professor of Chemistry at Medical College, Calcutta in 1835 at his own request.<sup>2</sup> He was also specially nominated as the Deputy Assay Master at the Calcutta Mint through a 'public notice' in 1834. While at the Medical College he was into experimental research in the fields of toxicology, chemistry and galvanic electricity. Some of his findings were published in the Asiatic Society's Journal.

Under George Eden, the second Earl of Auckland (1784-1849) and the Governor General of India (1836-42), a series of weekly meetings were held to which 'Gentleman of scientific pursuits and attainments' were invited. Here O'Shaughnessy was an active enthusiast, demonstrating Marash's process of

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<sup>1</sup> *Calcutta Annual Directory*, Calcutta, 1834.

<sup>2</sup> Home Public Proceedings, Public Instruction, 5 August 1835, No. 15, From the Secretary with enclosures, dt. 28 July 1835.

detecting arsenical poisoning, experiments with electrochemical batteries and electric motor. Such 'spectacles' served to arouse curiosity as an exhibit where mere publication could perhaps only inform. It is not remarkable that Auckland was one of the major contributors to the fund raised by O'Shaughnessy for making the thousand cell Mullins battery at the Medical College, Calcutta. O'Shaughnessy writing to Grant, Secretary to the Government of Bengal in 1852 introduced himself as the man 'Who in 1837 declared an electric telegraph to be a practicable thing... I proved it to be so in 1838...'<sup>3</sup> He was made Fellow of the Royal Society in 1843 and a Surgeon in 1848. It was also in this decade that he played an active role in the proceedings of the Asiatic Society. After his successful experiment of 1839, O'Shaughnessy built the line sanctioned by the Government from Calcutta to Diamond Harbour in 1850, extending the line to Kedgerie in 1852. He travelled to England to convince the Court of Directors and to collect stores for large scale construction. He was in England from June 1852 to August 1853, but aroused the enmity of the Board of Control who considered him to be enjoying undue privilege because of Dalhousie's and the Court's patronage. O'Shaughnessy built over 4000 miles of telegraph in India between 1853 and 1856. He again left for England, this time for the preparations necessary to introduce the Morse system in India. He was knighted in 1856

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<sup>3</sup> Home Public Proceedings, 23 April 1852, No.13, from Dr. W.B.O'Shaughnessy, Superintendent of Electric Telegraphs, to J.P.Grant, Secretary to the Government of Bengal.

because of Dalhousie's lobbying. He also accompanied the first Atlantic Cable Expedition in 1857. He returned to India only in December 1857. Till then Lieutenant Paul Stewart and Sheebchunder Nandy were in charge. O'Shaughnessy repaired and substantially repaired the telegraph establishment between 1858 and 1860. he left India in June 1860, and retired as the Director General of telegraphs in October 1861. He died at Southsea on 8th of January, 1889.<sup>4</sup>

O'Shaughnessy announced the success of his experiments in the field of electric telegraph in an article published in the journal of the Asiatic Society. He opened his essay by declaring that there 'are few projects which at first sight appear so visionary as those which promise practical benefit to mankind...' He was also aware of the risk of ridicule because from '...the dawning of knowledge in this science, pretenders of every grade have found it a free field for their speculations: and hence perhaps it arises that the sober and practical part of society generally regard with distrust, the multitudes of projects which electricians are constantly advancing'.<sup>5</sup> In this article he declared that his experiments were held at the Botanical Gardens of Calcutta, during the May of 1839; the article being in the September issue. He went on to add that his

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<sup>4</sup> *Dictionary of National Biography*, 1895, Vol.42, p.310.

<sup>5</sup> "Memorandum Relative to Experiments on the Communication of Telegraph signals by Induced Electricity", O'Shaughnessy, M.D., Professor of Chemistry, Medical College, and Officiating Secretary to the Asiatic Society of Bengal, *Journal of the Asiatic Society of Bengal*, (henceforth JL), September 1839, VIII, pp.714-731.



'reward' for these early efforts was almost 'universal ridicule for the advancement of such visionary and impracticable ideas'. He was, however, unequivocal about what he had achieved; the practicability of the 'impracticable'.

Dr. O'Shaughnessy acknowledged his debts. He mentioned six great practical experimenters of the electric telegraph - Steinheil, Cooke, Wheatstone, Morse and Henry in his 1852 letter. In his 1839 article he acknowledged 'many eminent philosophers - such as Brande, Faraday, Wheatstone and Fox...' He wrote that he was 'induced to institute the experiments... by the statements' he had read in 'several periodicals regarding similar attempts in England,.. Europe and America... and by the actual patenting and adoption by the directors of the London and Birmingham railways of a similar plan by Professor Wheatstone'. He also acknowledged an article by Dr. Steinheil of Munich, translated into English in the May issue of *Sturgeon's Annals of Electricity*. He also acknowledged his debt to the *Philosophical Magazine*, *The Transactions of the Royal Society and the Arcana of Science*.<sup>6</sup>

It would appear that Dr. O'Shaughnessy's active interest in experimenting with electricity began around 1835-36. he built an electromagnetic motor in 1836 and submitted a proposal for the construction of a battery of thousand Mullins cells. In his 1839 article he mentioned having at

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<sup>6</sup> 1839, op.cit; also 1852 letter op.cit.

least on one occasion fallen into the 'error of indulging prematurely in dreams of useful results, and of reasoning unguardedly from the model to the machine' (1852). This statement also clearly places his contributions as he then had perceived them to be.

However, O'Shaughnessy was not the first to propose an electric telegraph system for India. The first plan came from Adophe Bazin who submitted it to the Asiatic Society in June, 1839. It was an ambitious proposal to build an 'electro-hydraulic telegraph for effecting correspondence between Calcutta, London and the rest of the World'. Bazin's proposal was unique in offering to combine the electric and the hydraulic systems. A sub-committee was formed and included O'Shaughnessy. A report was asked for by August 1839. Interestingly, this plan was returned to Bazin at the meeting and O'Shaughnessy's comments on the proposal are available in the 1839 article, written after his own successful experiment. 'M. Bazin's plans, although very ingenious, were altogether impracticable, and... demanded thirty conductors where only one is actually requisite'. Moreover, he pointed out the problems of humidity and moisture confronting any plan which dealt with non-insulated 'common electricity' in the special climatic condition of India. The notion of a single wire code was unacceptable to Bazin and this was the ultimate grounds for O'Shaughnessy's rejection of the proposal.

O'Shaughnessy's first successful experiment was conducted in May 1839. Iron wire of half inch diameter 21 miles in length supported by bamboo poles covering an area of 450 ft x 240 ft, was built in Calcutta's Botanical Gardens. O'Shaughnessy later claimed that since iron was used, 21 miles was equivalent to 154 miles of a copper wire circuit, that is, he was the first to cover such a length. O'Shaughnessy discovered for himself the optimal balance between the diameter of the wire and its length. As he recorded, 'the igniting distance... increased in an arithmetical ratio with the mass of the conducting wire.' He used both locally available material such as cheap watches, bamboo as well as imported instruments such as the astatic galvanometer by Watkins of London. O'Shaughnessy envisioned a system using water and ground return of electricity to complete the circuit. It should be mentioned that neither Coke, Wheatstone nor Morse had any experience with water or the earth as return circuits. Steinheil had experimented with ground return in 1838. O'Shaughnessy discovered it simultaneously and independently' by the falling of a wire into the water tank at Medical College.' O'Shaughnessy also used rivers in his experiments. He included in various stages 7000 ft and 9700 ft of the Hooghly river. As a result of these experiments he concluded that only two wires were sufficient to maintain long distance communication and if water came between only one line would be sufficient.

### The 1852 Experiment: Background

In 1849 the Governor General Lord Dalhousie, faced with the impending Afghan Wars and the newly annexed Burma ordered that the project for a electric telegraph in British India be seriously taken up. Actually, the Court of Directors asked the following questions of the British Indian Government: first, the expediency of establishing electric telegraphs in India; second, the nature of the system to be adopted; finally, the suitability of Mr. Whishaw's specimens for the insulation of the wires.<sup>7</sup> Whishaw was an employee of the Gutta Percha Company and by offering to build a wholly subterranean telegraph also calculated enormous profits from the use of Gutta Percha as an insulator. The Military Board asked Dr. O'Shaughnessy and Lieutenant Colonel William Nairn Forbes, Mint Master and Superintendent of Government machinery, to comment on the proposal. Forbes was the senior scientific advisor to the government and the architect of ST. Pauls Cathedral, Calcutta. Both Forbes and O'Shaughnessy put in adverse reports to Whishaw's proposal.

Forbes criticised Whishaw's plan of building a subterranean line and argued that gutta percha would dissolve overtime <sup>... experiments over time</sup> ~~... are more valuable~~ than those which are hurriedly made, ... and assuming, what is far from being admitted, that the experiments which have locally been carried on fully prove that overground electric telegraph can neither be employed in Bengal nor in

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<sup>7</sup> 26 September 1849, No.13, Dispatch from the Court.

other parts of India, it becomes advisable to note that if the trials which have been made can be held sufficient proof of the general inapplicability of the mode of construction so extensively adopted in Europe and America, it will by no means follow that because the subterranean method is there (Prussia) also proved effective it will be found equally successful in India'. He concluded, I sincerely wish success to every form of electric telegraph but with a view to seeing it early and permanently in use. I cannot but conclude that it would be safer to adhere to 'day light' (as easily dealt with) unburied telegraph than to speculate on that which being subterranean does not profess to be either amphibious or (ultra) "marine".<sup>8</sup>

O'Shaughnessy supported the subterranean system but agreed with Forbes that Gutta Percha without protection was insufficient for the elements, specially the heat. His main criticism was 'Mr. Whishaw proposed Rs. 750 per mile of single wire... but all the batteries for 20 stations can be supplied for Rs. 200.. and Morse's instrument (American) which telegraph most expeditiously than those in common use in England can be made up at a trifling cost - I allow Rs. 1000 for each set of instruments for 20 stations, Rs. 20,000 for 2000 miles, Rs. 10 a mile included in the above estimate (i.e., Rs. 250 a mile)'. He was entirely satisfied of the correctness of his data. He went on to make a strategic offer: 'on

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<sup>8</sup> Home Public Proceedings, 4 April 1850, No.49, from the Lieut. Col. W.N. Forbes, Mint Master and Supdt. of Government Machinery, to Capt. Scott, Secy. to the Military Board, dt. 19 Feb. 1850. Letter to the Board No. 8479.

the calculations founded there upon that I would be happy to undertake the work for the whole of the line or any part above 100 miles at the terms proposed'.<sup>9</sup>

When the Military board forwarded the reports they gave answers to all the three points raised in the Court's despatch. The feasibility of the electric telegraph for India was beyond doubt but the Board, in deference to Forbe's seniority and O'Shaughnessy's experience did not cast their support for either plan the introduction of telegraph '... would be most judiciously attempted by carrying out two experimental lines for a short distance, one on each of the systems advocated...' Jumping at O'Shaughnessy's offer, they wrote, 'Dr. O'Shaughnessy's ability, energy and experience induce our Board to consider him as a most valuable officer to be placed at the head of the electric telegraph experiments... we have sufficient confidence in that officer's devotion to the cause of inductive science to feel satisfied that his present recommendation of the underground system would not be allowed to interfere in any way with an impartial report of the results..' As for Mr. Whishaw, '.. his preparations of Gutta Percha for insulating the wires.. may not prove successful in their present state for either the above or the underground system'.

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<sup>9</sup> Home Public Proceedings, 4 April 1850, No. 48, Report to the Military Board, from Dr. O'Shaughnessy, Calcutta, dt. 24 Dec. 1849.

cause of inductive science to feel satisfied that his present recommendation of the underground system would not be allowed to interfere in any way with an impartial report of the results'... As for Mr. Whishaw, '... his preparations of Gutta Percha for insulating the wires... may not prove successful in their present state for either the above or the underground system'.<sup>10</sup>

Researchers have completely ignored an interesting rivalry that had broken out in the European scientific community of Calcutta. Forbes, the senior man, clashed with O'Shaughnessy, junior and perhaps not irrelevantly, Irish. O'Shaughnessy was to later complain to the Government that he was 'opposed in limine by the Chief Scientific Authority in Bengal, Lieutenant Colonel Forbes, who publicly and privately declared me to be unfit for such employment, further then concerned with preliminary experiments instituted on the scale of a few yards to smooth the way for the English Engineers and Patentees'.<sup>11</sup> Forbes, as can be realised from O'Shaughnessy's words, was a formidable authority who had moreover 'seen' the English Telegraph personally. The fact that Forbes had visited the inside of a telegraph station was acknowledged to be one of his recommendations for being an expert on the telegraph. The letter with enclosures submitted by the Military Board to the President of the Council of

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<sup>10</sup> Home Public Proceedings, 4-11 April 1850, No. 429, from Sir Henry Elliot, Secy. to the Govt. of India, endorsing the Board's recommendations.

<sup>11</sup> Home Public Proceedings, 23 April 1852, No.13, Military Board to Forbes and O'Shaughnessy.

India had this note scribbled on its back: 'O'Shaughnessy's is the more practical, Forbes the more facetious. O'Shaughnessy to begin at once'. However, the formal text recommended that the Irish innovator be 'required to consult Colonel Forbes on all points connected with the experiment above ground.'<sup>12</sup>

The Government concurred with the Board.

The other area of contention was the direction to be chosen. O'Shaughnessy suggested the line between Calcutta and Chinsurah; 'A very large return would, in the opinion of the mercantile gentlemen consulted, be made from Mirzapore and the mercantile and banking establishments of Muttra, and the Marwaree shroffs. The Newspapers of upper India would also contribute.. I consider it highly probable that these items with the amount above specified (Rs. 8 for 480 words for Calcutta and Bombay) would pay a large sum beyond the yearly expenditure and leave the telegraph eighteen hours available for the day for the use of the Government without charge..' The line was to go West and would be paying, supplementing its strategic importance.

Bethune recorded a dissenting note. He suggested a line to Diamond Harbour or Kedgerree because...' it will be very important to <sup>know</sup> in what degree the merchants will show themselves disposed to use the opportunity offered them for having instantaneous intelligence. .. my own belief is that a line to the Harbour would pay well but nobody wishes to correspond between Calcutta

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<sup>12</sup> Home Public Proceedings, 4 April 1850, No.47, from the Military Board.



and Chinsurah, and nothing could be learned on this head in that direction until a much greater distance has been reached.<sup>13</sup>

#### The 1852 Line:

Submitting his report to the government, O'Shaughnessy claimed that what the Government proposed as a mere preliminary experiment has been brought into the condition of a public department, and this reduced to a degree of simplicity and economy unknown elsewhere'.<sup>14</sup> The total distance from Calcutta to Kedgree amounted to 82 miles. The over ground line differed completely from those in America, England or the continent. O'Shaughnessy used iron rods 3/8 inch in diameter weighing a ton to the mile as opposed to the usual high tension wires. Iron rods were useful because they were relatively immune from 'gusts of wind or ordinary mechanical violence'. They could be tampered with great difficulty while their mass allowed a free passage to electricity that atmospheric turbulence did little to inhibit. Furthermore, no insulation was required. The fragility of the wire system with its baggage of winders and strainers, insulators, glass or ceramic non-conductors. Even if the transport and import costs of iron were taken into account it would still be cheaper than the conventional wire. Finally O'Shaughnessy argued for the

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<sup>13</sup> Home Public Proceedings, 4 April 1850, No.50. Minute by the Governor General and the Hon'ble J.E.D. Bethune, dt. 26 and 28 March 1850.

<sup>14</sup> Home Public Proceedings, 23 April 1852, No.13, from Dr. W.B. O'Shaughnessy to J.P. Grant, dt. 10 Feb. 1852.

special case of India: 'If we have to construct lines for general communication our tracks will often run through a "howling wilderness" tenanted only by wild beasts, or mere savages in human form'. While on only the best roads, even if we entertain a police establishment we may rest assured they will take but slight trouble, in their duties. The lines must protect themselves or incessant interruptions will take place'.

He also used the locally abundant bamboo for the telegraph post. Its flexibility and lower expense compared to sal posts was made evident with a difference in favour of the bamboo of Rs. 472. He concludes that the 'overground system on the plan I have followed presents the great advantages of rapidity in construction, exceeding cheapness and immunity from storms. Lightning and wanton injury...'

It was the crossing of the rivers Haldi and Hooghly that occasioned Dr. O'Shaughnessy the greatest difficulty. While insulation and preservation were technical aspects of the problem, the more practical one was the 'defence of the lines' against vessels so that they were 'mechanically self protected'. The heavy anchors of the Hooghly were particularly difficult to counteract. In the case of the Haldi the gutta percha insulated line was passed through the links of a chain cable - this last mode was to prove successful. 'The chain tears away the grapnels of the native craft which hook it and the boatmen 'learned' to give the line a wide berth. A similar procedure was attempted with the Hooghly which

bore shipping of tonnage over 1600 tons and 'heavy native craft not under European officers', but with less rewarding results. A guard boat also kept vigil over the lines while a semaphore was erected in case the chain cable snapped. However, O'Shaughnessy expressed his doubts about it surviving the dangers across the expanse of Hooghly where it sprawls to meet the sea.

The methods used on the wire was as follows. Gutta Percha covered the wire which was then coated with sheet lead and waxed tape. This was spiralled with rings cut out of iron wire. parallel to the wire beside the rings were then placed iron rods each  $\frac{3}{8}$  this inch diameter, touching each other so as to form a 'bundle like the Roman *fascies*'. These rods were secured together by transverse loops of iron.

The instruments used were another area of innovation for O'Shaughnessy. As he noted, 'On organising experimental correspondence. I found.. that unless the instruments could be reduced to such a condition of simplicity that when deranged they could be set right by mere schoolboys and without the aid of a mechanic, regular and sustained correspondence would be totally impracticable'. There was no mechanic outside Calcutta and there only 'two skilled in such matters', O'Shaughnessy records how he was 'driven step by step to discard every screw, lever, pivot and foot of wire, and framework and dial, without which it was practicable to work...' He successively tried and dismissed the English Vertical astatic needle telegraph, the American dotter,

and several contrivances of my own invention most skilfully constructed by Mr. G Grindle of Calcutta. Every thunderstorm put the astatic needles *hors de combat* by deranging the polarity of one or both the needles. The American temporary magnets became permanently polarized and ceased to activate the Markers... O'Shaughnessy finally designed the single needle Horizontal Telegraph 'now in use in all our stations and with which we work in all weathers without danger of interruption'. The instrument could be, "cured" in a few seconds by the signaller on duty. If totally destroyed it could be resupplied at the cost of Rupees three by the signal 'boys' who made it themselves and 'included their profit on the construction'.

Similarly, he reported that the Reversor or 'direction by which the battery currents are transmitted' was also simplified and improved 'in point of solidity and strength, until it now totally differs from any instrument of the kind used elsewhere' A battery of 12 to 20 pieces of platinum wire with zinc plates was the elementary battery designed by O'Shaughnessy. He recorded that it 'suffices to work our lines and instruments through heaviest rain and most violent storms'. O'Shaughnessy stated that he could provide 'all stations with complete sets of instruments of every kind, battery reverser, telegraph and alarm, with a dozen reserve telegraphs, for less than hundred rupees'. The average cost per mile of the line came to around Rs. 452. He concluded that he was 'enabled confidently to undertake' the construction of future overground

lines at the rate of Rs. 350 per mile for a single, Rs. 650 for a double line, river crossing and erection of office being a separate charge.

### **The Personnel**

The response to this 82 mile long line which opened on the fourth of October, 1851, was phenomenal. 'How efficient is the system, may be testified to by the Members and Secretaries of His Lordship's Government, by the members of the Military Board, the Superintendent of Marine, the Chamber of Commerce and the Trade Association, the consulting engineer of the Government, Major Baker, and Mr. Macdonald Stephenson, the Managing Director of the Railway Company... and the community of Calcutta who in hundreds have visited the office. That the 'public' was allowed to 'visit' the telegraph office is significant because subsequently such visitations were made offensive to the law.

O'Shaughnessy also provided a break up of the returns of the telegraph from December 1851 till february 1852. The average return from private messages sent and received, and from subscription for circular amounted to Rs. 638 for the three months. It would appear that apart that from the general interest aroused, no native actually used the line. A possible reason could be that they had little business with the <sup>line</sup> which facilitated commercial shipping intelligence.

O'Shaughnessy did visualise indigenous participation. In his report he spoke of persons'.. we must employ at our telegraph stations in India.<sup>15</sup> Accordingly he inducted five Bengali youths with a good knowledge of English. He trained them for a month at the signalling school he set up in Calcutta and sent them out towards Diamond Harbour. One of them died soon after from malaria. The rest refused to leave Calcutta. O'Shaughnessy then turned to equally young European youths, the upper side would be sixteen, from the La Martiniere School, Calcutta, However, the native recruit he had made from the Mint was a survivor. Shibchandra Nandy ('Sib Chunder Nundee') was 25 years old when he joined the Irish surgeon turned mint controller as an assistant. Nandy supervised the construction of the line when Dr. O'Shaughnessy was at work in the mint. The first establishment for the electric telegraph saw Nandy as the Head Signaller, Accountant and manager of the Alipur head station on a monthly salary of Rs. 75. The Abstract of the Establishment in March, 1852 has only one name in the Category of Inspector Ist class, directly below O'Shaughnessy as Superintendent, and that is Nandy. His monthly salary was now hundred rupees with an additional travelling allowance of forty rupees. Of the fourteen other signallers only one was native - Shreenath Newgee <sup>The rest had</sup> the marginal posts, i.e., *Jamadar, Lascar, peon* etc.

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<sup>15</sup> Ibid.

In his letter dated. 10th Feb, 1852 to Grant, O'Shaughnessy approached the Governor General to say how thankful' he would be to receive 'whatever compensation he may consider...' O'Shaughnessy was particularly pressed by the sudden emergency of having to send his unwell wife and children to Europe. To enable the government to form some estimate of the possible value' of his efforts he cited three examples. In the USA, Dr. Locke of Cincinnati was awarded Rs. 20,000 for the single needle telegraph in 1851. James Prinsep received Rs. 5,000 as a present for his survey of the salt lakes. Dr. McClelland<sup>a</sup> was awarded the arrears for his unremunerated services as secretary to the Coal Committee. O'Shaughnessy asked for Rs. 20,000 and leave to visit England with pay.

Dalhousie's reaction to the success of the experiment with the 'great engine of power' was extremely positive. Of the experimental line he noted with satisfaction that 'its success been complete.. A mechanism and system both admirable for their simplicity, and therefore doubly valuable in India. An establishment of young lads has been trained, and has conducted the duties with...regularity and to the satisfaction of the Government and of the public'. Financially the experiment was very successful. O'Shaughnessy had managed to save Rs. 13,000 from the initial cost projected. The monthly charge of the establishment came to Rs. 925 while receipts from 'private parties' came to Rs. 916, thus subsidising almost all of Governmental correspondence. Dalhousie

recorded, 'I have visited the line and in common with hundreds of other can bear testimony to the beautiful simplicity of the work, to the regularity of its operations, and to the perfect success of it as a national experiment of the highest and most immediate moment to the interests of India.' Dalhousie, as acting Governor of Bengal, recommended to Dalhousie-in-Council three items. The first was to sanction and reward of Rs. 20,000 to O'Shaughnessy. The second was to request the Court with all urgency to sanction immediate construction of a line from Calcutta to Agra, To Bombay, to Peshawar, and to Madras; 'either simultaneously or as soon as possible, in the order in which they are placed...' Finally, to expedite the process Dalhousie recommended that O'Shaughnessy be allowed to personally take the despatch to the Court, satisfy all their doubts, and return to India procuring what was needed for large scale construction.

While in England W. B. O'Shaughnessy published a manual of Instructions relative to Instruments and Offices for the Indian Telegraph Lines.<sup>16</sup> O'Shaughnessy, true to his vocation of teacher, attached a class<sup>ic</sup> exposition of the principles involved in electric communication because to 'understand how to use the electric telegraph, it is necessary to know the nature and sources of electricity, the properties of magnetic bodies, and those substances employed in the construction of the lines and of the instruments used in correspondence'. He

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<sup>16</sup> W. B. O'Shaughnessy, *Instructions relative to Instruments and Offices for the Indian Telegraph Lines*, London, 1853.



continues, 'The brief exposition of the principles of electricity and magnetism with which the instructions open, is given for the information of artificers, signal pupils and lower, imperfectly educated persons, and is not intended for the higher class of officers employed in the Department....(T)he principles of electricity and magnetism are explained to the full extent required for instruction of the persons in arranging and carrying on telegraphic correspondence'. Though he emphasised the conditions of his instruction what happened subsequently was a promotion of technical skill that was to be increasingly operationalised and an exposition of the fundamentals increasingly ignored through institutions such as the Rurki Engineering College since the 1840s.

W.B. O'Shaughnessy's original and tested innovation was his telegraph instrument which was accorded a comparative trial over 1852-53 in England. Gorman observes that the 'crudeness' of O'Shaughnessy instruments was not 'an indication of a necessary inferiority of concept... but rather an example of the downward adaptation which frequently must be made in transferring a technological practice from the home country to a colony'. (1971, p.592). However, these experiments in England revealed that no 'downward adaptation' had necessarily taken place; in this case, simplicity was combined with increased efficiency. In 1852 the Gutta Percha Company of London conducted experiments with O'Shaughnessy instrument over 200 miles, 300

miles and on the submarine line between Dover and Calais. The Gutta Serena Company certified that over 130 miles of double wire could.. without difficulty communicate and read at the rate of 20 words per minute... by means of instruments of the construction adopted by Dr. O'Shaughnessy...' This was signed by C. S. Wollaston, Superintendent of the South Eastern Telegraph lines. C. V. Walker, in August, 1853<sup>17</sup> wrote, 'I have 80 telegraph and stations, and 211 needles, and have but four stations with assistants competent to magnetise (the needles),... but with the use of such simple arrangements as yours (I do not know why it has been in their to overlooked) we could get over this difficulty'. What O'Shaughnessy instrument achieved was remarkable for the time: a signalling speed of twenty words per minute. The average speed was fifteen words per minute on the English Lines, and that too by 'bold guesswork' and 'cutting in' by literate and intelligent signallers.

The overhead line was set with wire 5/16 inches in diameter. The poles were made at least twenty four feet high - emphatically out of the reach of 'monkeys and men'. The conductor was set at least sixteen feet above the ground in order to allow loaded elephants to pass below. The construction of the system began on November 1, 18~~5~~63 at twenty different places and in three extremely rapid phases. A 'flying line' of iron road and bamboo was set up for immediate communication, mostly military. This as quickly replaced by more

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<sup>17</sup> 18 August 1853, Ibid., pp.50-51.

permanent posts, wires and insulation. The third phase involved the setting up of double lines but this did not begin seriously till after 1857 (one of the exceptions being the double line to Barrackpur in 1855). The newly created Public Works Department was to help in construction. On March 24, 1854 O'Shaughnessy conveyed his respects to the Governor General Lord Dalhousie who telegraphed his congratulations in reply. Eight hundred miles of telegraph were now functional in less than five months. In 1856 it was over 4000 miles and growing. Dalhousie in the meanwhile had gone on to annex Pegu, the Carnatic and most of central India. By the end of 1855 the entire line from Saugor Island connecting the key military cantonments of upper and central India to Peshawar was complete.

In spite of such clear confirmation of the innovations introduced by O'Shaughnessy the establishment of the telegraph system saw the weeding out of almost each of these innovations and adaptation. The first to go were the bamboo poles and the iron rods. Iron rods would have proved much less expensive than wires in terms of maintenance and subsidiary cost (such as the winding equipment and non-conductor). Rods would also have proved much more resistant to mischief during the 1857 uprisings. It was O'Shaughnessy's tenure as Superintendent that saw the adoption of the Morse instruments and code. It was a 'progressive' move according to O'Shaughnessy. However, in 1860 when, in part due to the 1857-58 disturbances, his single needle

instruments were re-introduced no operator could be found who remembered how to use it. This erasure was affected through stages. The elastic bamboo poles were replaced by the less durable and more expensive (in terms of transport, replacement and ecology) timber posts. Species included were teak, *sal*, conifers, blackwood and Iron wood imported from Burma over a total line span of 2,754 miles at around twenty to thirty such posts per mile.<sup>18</sup> Another ecologically viable and economically efficient system for the telegraph posts was introduced by Babu Seebchandra Nandy. He suggested the use of Toddy palm for the posts. These were used on some of the lines around Calcutta at an interval of sixteen miles or ten miles. O'Shaughnessy personally preferred the very hardy iron wood imported from Burma. In 1853 he also conducted experiments at Ipswich with cast iron sockets and screw piles. These were to be used as protecting sheaths. But with all these precautions the wooden posts had a life span of five years. An estimated amount of Rs.40,000 (£ 4000) per month was needed for their regular replacement. Iron posts were finally introduced after 1857.

The choice of the direction of the lines need further analysis. Dr. Ghose's main thesis is that political and strategic necessities were behind the formation of the system. Bethune's Minute and the line to the Harbour disproves it at origin. The second controversy contradicts Dr. Ghose's main thesis that `...

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<sup>18</sup> Annual Telegraph Department Report 1855-56.

political and military necessities outweighed social and economic considerations in the development of the electric telegraph in India'.<sup>19</sup> But the first experimental line finally built was to Diamond Harbour and Kedgerree, thus following Bethune's proposal aimed at testing a commercial response rather than a pressing military and strategic need. The Government clearly recognised the institutional demand for business and profit. From the beginning the telegraph subsidised Government messages and even yielded a low profit after deducting the cost of establishment. But finally to see the kind of rationality operationalising the nodes to be linked is not a sufficient question. The system itself needs questioning.

Three routes were proposed. It was Dalhousie's decision ultimately. Adley, proposed that Calcutta-Peshawar-Agra-Bombay be joined with an inner loop joining Agra-Bombay-Madras-Calcutta. O'Shaughnessy suggested Simla which the Government shot down as inessential before the completion of the line to Peshawar. Hamilton suggested Indore-Aurangabad-Ahmednagar-Poona the Government of Madras suggested Poona Sholapur Hyderabad Bellary, Benal suggested following the river upto Benares. Dalhousie in every case chose the shortest and quickest route to meet 'the immediate necessities of the time'.<sup>20</sup>

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<sup>19</sup> Saroj Ghose, 'Commercial Needs and Military Necessities: The Telegraph in India', in Roy M. MacLeod and D. Kumar (eds.), *Technology and the Raj: 1700 - 1947*, New Delhi, Sage, 1995, p.153; Saroj Ghose, 'The Introduction and Advancement of the Electric Telegraph in India', Unpublished Ph.D. Dissertation, Jadavpur University, Calcutta, 1974.

<sup>20</sup> Home Public Proceedings, 29 April 1853, No. 103, Minute by the Governor General.

What spurred Dalhousie on was not just the prospect of the end of his Indian tenure. It was another laurel in his wreath but it was also one more 'public work' that he wanted to see finished before he left for India. It is not irrelevant that at this time Dalhousie was haunted by thoughts of death and was physically ailing.

The line started from Sagar island on the sea and stretched to Peshawar. A line followed the old paved road from Agra, going onto Bombay, Madras and Bombay were linked. Deloche<sup>21</sup> asserts that there are natural circularities in the overall structure of land communications in the sub-continent. This natural structure was ignored by Dalhousie's linear non-circular system and the price was paid in 1857 with very widescale disruption in the links between the colonial metros.

### COLONIAL VERSUS "HOME" INTERESTS

The two disagreements, one between Forbes and O'Shaughnessy over the extent and nature of the line, and the other over the choice of the direction of the line, are reflective of wider disputes. The controversy between Forbes and O'Shaughnessy was also a proxy fight between English Patentees and Engineers and the colonial Irish innovator-entrepreneur. In 1850 the *Bengal Harkaru* published typical advertisements of such patented contracts.<sup>22</sup> It intellectual <sup>highlighted the absence of</sup>

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<sup>21</sup> J. Deloche, *Transport and Communications in India: Prior to Steam Locomotion*, II Vols., Delhi, OUP, 1993-1994.

<sup>22</sup> 18 February 1850, *Bengal Harkaru*, extract from *Atlas for India*.

rights recognition and protection afforded to colonial endeavor. The right of patent which guaranteed the preservation of intellectual property rights was solely restricted to registration of inventions made only on British soil. This patent was no simple ordering of ideational activity; in this period the patent was only manifest in the artifact. It was embodied in the physical design of the device under patent. The famous legal commentator Sir William Blackstone wrote, 'The King's Grants are a matter of public record... open letters, litterae patentae: so called because they are not sealed up, but exposed to open view. And therein they differ from certain other letters of the King. which not being proper for public inspection, are closed up.'<sup>23</sup> Thus, patent rights also implied public knowledge of such invention and monopoly. This embodiment and physicality crucially distinguished between what was recognized by the metropolitan state and what was plumed off in the colony. The patent system was introduced in India in 1856 and then only in name. An establishment for standardized referencing and proper registration emerged much later over the 1860s).<sup>24</sup> There was also the familiar predicament of distance; no device that O'Shaughnessy designed had a chance of recognition outside the patent system given the crowded nature of development of telegraphy in this period and

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<sup>23</sup> W.Blackstone, *Commentaries*, 18th edition, London, 1825, "On the Rights of Things", Vol.2, p.316.

<sup>24</sup> Charles Osmond, *The Law of Patents in India (in Relation to Inventions)*, Calcutta, Eastern Law House, 1936, p.17.

given that whatever machine or code was designed had to contend with the time lag and the monopolies of previous patents. This is in itself an overlooked and quite remarkable fact of absence but this absence has to be placed in terms of larger absences and negations in colonial state policy in the first half off the nineteenth century.

In this case O'Shaughnessy had adequate experience, sufficient knowledge and his proposal was much cheaper; the Government had no hesitation awarding him the project. This is not to project O'Shaughnessy as a colonial hero fighting for his intellectual property rights against the might of English ethnicism and industrial capital channelled through turn-key patentee monopolies. He was content to value his own invention and achievement at a one time payment of Rs. 20,000 from the Government. This was granted to him after the successful completion of the line to Kedgerie in 1852. Nor is his shift from a laboratory scientist to a technician cum entrepreneur as idyllic as Dr. Ghose would have it. He sees O'Shaughnessy career graph as a natural one for a 'colonial scientist' following Basalla's three stage model. But pressing financial needs coupled with the demands of a growing family forced the inventor to turn entrepreneur.



## O'SHAUGHNESSY AS A SCIENTIFIC RESEARCHER

O'Shaughnessy went on to define the 'state' of electricity. 'The term electricity is employed to denote a peculiar state into which several substances are brought by various causes - the state differing from their ordinary condition and made manifest by the occurrence of sparks, of shocks to living animals, of attraction or repulsion of moveable bodies, by chemical changes and by magnetic action..(p.30). The states are distinguished by positive states attracting those which are negative, and repelling those in the same state as themselves... The earth is itself a great magnet. The earth has magnetic poles and it is by the power of these poles that the needle is forced to assume its determinate position' (pp.4-5).

It is electricity that is the power/agency which is behind the state which repels, attracts, shocks and above all transforms what was the 'ordinary condition'. Through the operation of natural law, by the 'power of the poles' determinacy is achieved. The fixity of the polity is similarly achieved through the state; a state which both changes substantively and through its own needs for equilibrium imposes the determinacy of activity in civil society.

O'Shaughnessy's most original experiment was in the unusual area of electrical correspondence via the human body. He concluded the 1839 article with a section on the 'Induction machine and the mode of correspondence by Pulsations and Chronometers' (pp.725-29). It was a means of establishing a

human telegraphic system or 'sympathetic flesh telegraphy' as it was called. Dr. O'Shaughnessy remarked, 'It is useless for me to remain~~ed~~ the reader of the admitted fact, that the exquisite delicacy of the impressions of the touch transcends. The voidance of all other senses. The eye and ear are liable to distraction by casual sounds or phenomena, while the attentive touch knows no interruption'. He devised three sets of sensations generated by pulses of electric current. 'It is difficult to express in words the differences in these distinguishing signals, but the practice of a quarter of an hour will make the observer so familiar with them, that he can without the slightest difficulty carry on a communication by numbering or spelling with his distant correspondent. With the tittle of the practice of a pianist or a harpist, the most perfect sympathy is practicable between the signalists, and that as fast as the signal can be spelt. In short, with but little less velocity than the articulations of language or writing of stenographic characters, this silent but thoroughly intelligible, and still most secret of all correspondence can take place'.

#### COMMUNICATIONS: METAPHORS FOR CONTROL

It is here that O'Shaughnessy reveals both the disposition of the age and the irony of the Nineteenth Century inventor. In this search for the unity between the vital and the electrical forces he followed Salva in locating in the human body the fact of such correspondence. Yet secrecy remains implicit with

such a correspondence. In its systematic elaboration, in the constitution of its unity, its code and its circuit there was a secrecy; a circular cabalistic confidentiality. Its promise was also a promise to the state, not to society. The diagrams represent a circularity reflective of O'Shaughnessy's conception of the unity of the physical and the electrical as part of the natural. The totalitarian conception of state centrality to which O'Shaughnessy would ultimately assent, was part of the early nineteenth and late eighteenth century *weltanschauung*. Compare the concentricity between Bentham's *Panopticon* and O'Shaughnessy's single wire connecting eleven transmitting wires to complete a circuit of 22 miles. In his description of the experiment with the Galvanometer, he writes, 'The ends of the wire then proceed to little cisterns of Mercury, disposed in a circle. From the Centre of this circle a wire proceeds as a radius'. (1839 p.717). O'Shaughnessy explicitly used Roman images and metaphors in his descriptions, for example, 'Roman *fasces*' in his description of the underwater cable. The staff of state and citizenship. The visual assonance with the solar system. The same discursive formation that led Thomas Watt to 'think' of the 'sun-and-planet' system for wheel-pistons of the steam engine.<sup>25</sup>

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<sup>25</sup> Egon Larsen, *A History of Invention*, Faridabad: Haryana, Thompson Press (India) Ltd., 1975, p.39.

Above all it is ironic to see how the discourses dovetail into each other using the same vocabulary, inhabiting the same terrain of perceptions and ultimately serving the same interest. It is answering the first query of the Court, the experience of establishing the electric telegraph in India, that the overlap between Forbes and O'Shaughnessy becomes apparent. O'Shaughnessy warns, 'It would be.. utterly hopeless in India to expect the wires to remain secure from thieves or even from wanton mischiefs especially along the Grand trunk Road. The marching of a single regiment and their motley followers or the annual awards of pilgrims hurrying along the line would soon prove this anticipation to be well founded. So a police of some sort was essential for the overhead line, he concluded. Similarly, Forbes argued'. some sort of police would be required for their protection..'<sup>26</sup> Furthermore, they both warned against the abundant natural life of India. The 'multiplicity of birds and a superabundance of monkeys'. The 'danger of birds, monkeys, etc. e.g. Vultures'. The marginal note records crows, kites, wild duck, cormorants and 'pelicans - web footed/splayfooted". Somebody had written the more sane "adjutant" within brackets to the last charge of errant pelicans. Finally, like O'Shaughnessy's 'most secret correspondence', Forbes states that the wires must be raised 'beyond the reach of monkeys or of men'. In a similar vein, O'Shaughnessy talks of 'due

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<sup>26</sup> Home Public Proceedings, 4 April 1850, No.49. Forbes to Scott in reply to Military Board's Letter No.8479 of 19 Feb. 1850.

vigilance' to keep off 'birds, monkeys and thieves'. The 'howling wilderness' that was 'India', imagined and supported by experience ignores the crucial admission of absence. The wild was a reality. But not necessarily the only one. It was with the intention of a geometrical reorganisation of the nerves of communication that the system was to be built. Logically and visually, epistemologically, the colonial state was preparing its binds. It was opting for routes that avoided human settlement in rationalised networking between colonial metropolises.

Thus, it is no irony that the victors in the quest to keep the telegraph in India 'beyond the reach of monkeys and men' were almost all the protagonists. O'Shaughnessy got to lay the line, Forbes' recommendation for an overhead line was followed. Instead of west to Chinsurah, a line to Kedgerie in keeping with Bethune's suggestion, was built. Even Wishaw's Gutta Percha, improved, was used for insulation subsequently.

O'Shaughnessy went on to devise a code for the electric telegraph. It was original in its simplicity and accessibility for the less literate operator. Most previous codes that were devised were without logical series and so difficult to learn except by rote. As O'Shaughnessy commented on the prevalent codes in 1853 (p.34)'. The alphabet is entirely an arbitrary one, and gives no clue to its recollection'. Coke and Wheatstone followed sequences in their codes but distinguished between the single and the double needle systems.

O'Shaughnessy's was the simplest because it followed the Roman alphabet. The first ten letters (A to K) resembled Roman letters with three small variations (I and J had the same code). The next 10 letters (L to V and W had the same code) were simple in the inverse order of the first 10 letters. The letter W was signalled in its original form by four alternate signals. This was also the letter used when testing the instruments (see diagram 4). In fact, with the exception of the Morse code, O'Shaughnessy's code came close to following the usage pattern of, i.e., a statistically oriented approach so as to give the least number of impulses for the most commonly occurring letters of the alphabet. A signaller acquainted with the rudiments of Roman numerals could operate the system.

Once more the reference to Rome, this time embedded in the operational code of this 'most secret correspondence'. O'Shaughnessy also envisaged a more elaborate cipher system for the state in this 1849 report, '...it would be highly desirable for each public department, Political, Judicial, Financial, Military etc., to prepare codes of numbered signals, orders, ciphers etc. for communication by numbering (not by letting<sup>er</sup> as - in the 'normal' code), polyglot vocabularies, numbered, should also be edited for the community at large'. In his 1853 manual O'Shaughnessy wrote, 'For codes such as Maryatt's or Bedford's, or any other preconcerted between two correspondents, the (single) needle telegraph serves perfectly, provided the code be divided into numbered chapters, sections and units, and each number telegraphed be spelled (sic) in full. Another mode of

secret correspondence much adopted in US and in England is that of assigning certain words with a different meaning from their apparent one. Mercantile firms may have their own special vocabularies of this kind... Secret codes of this kind will be ensure the transmission of despatches without their meaning being intelligible to the signallers.' (1853,p.45). It is therefore no surprise that by September, 1857 a recently knighted O'Shaughnessy had drawn up a 'Secret Cipher Code which was forwarded to the Commissioner of Scinde and the Chief Commissioners in the Punjab.'<sup>27</sup>

This chapter has attempted to question and go beyond some of the conventional queries that are asked of O'Shaughnessy and the telegraph. The conventional question is what was O'Shaughnessy's contribution to the science of telegraph; was he a 'colonial scientist' implementing western technology in the colony and conducting a metropolitan dialogue in terms of recognition, or was he a practical pioneer 'conferring a great boon (i.e., Electric Telegraphy) to India'.<sup>28</sup> Given the absence of registration of intellectual property rights and the biased nature of the core-periphery dialogue with a considerable time-lag, these questions become redundant. The second aspect of the question, that of 'legacy'.

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<sup>27</sup> Home Public Proceedings, 9 October 1857, No.1 from H.L. Anderson, Secy. to Government of Bombay, to C. Beadon, No.397, dt. 26 September 1857.

<sup>28</sup> Vijai Govind, 'The Origin of Electric Telegraphy in India with Special Reference to O'Shaughnessy's Contributions', *Proceedings of the seminar on Science and Technology in India in 18-19th Centuries*, Session II, New Delhi, Indian National Science Academy, 1980, pp.282-300, p.297.

'The history of the telegraph illustrates how rapidly.. a Western technology can be diffused... the telegraph and railways established communication... links necessary for government.. a technological legacy that was later to serve the interests of an independent nation'.<sup>29</sup> It is precisely against this perception of legacy that I am trying to argue. Daniel R. Headrick's distinction between geographic relocation of technology and the cultural diffusion of technology is useful; the first has little to do with or impact upon indigenous industrial enterprise while the second involves diffusion and imitative endeavor in indigenous society.<sup>30</sup>

This is an examination of the structure within which this entrepreneur and inventor operated: the conditions of invention and the potential of cultural diffusion of the technology in indigenous society. What happened to the avowed early nineteenth century promise to promote 'useful knowledges' in the colony? Dalhousie Minute of 1853 reveals the state's realisation of the value of the 'great engine of power' that was the telegraph. Dalhousie also called it a 'national experiment'.<sup>31</sup> Keeping in mind the links between nation, narration and communication, it is the second claim that deserves closer scrutiny. The

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<sup>29</sup> Saroj Ghose, op.cit., *Technology and the Raj* edited by Deepak Kumar and Roy Macleod, New Delhi: Sage, 1995, pp.153-176, p.172.

<sup>30</sup> Donald R. Headrick, *The Tentacles of Progress: Technology Transfer in the Age of Imperialism 1850-90*, New York, 1988, pp.12-13.

<sup>31</sup> Home Public Proceedings, 23 April 1852, No.14, Minute by Governor General Lord Dalhousie, dt. 14 April 1852.



telegraph that was established by the Act of 1855 was not a national but an imperial experiment. The users kept in mind were an almost exclusively European clientele. But it had a potential 'public' in the colonised, a public that was entirely notional in 1855. It is this disjuncture between what was nation to the colonial state and what was public to it that needs to be kept in mind.

The notion of a standardised record of practical invention proved impossible in the case of the telegraph. Attempts to renovate O'Shaughnessy as a colonial hero are equally naive. O'Shaughnessy as a colonial hero are equally naive. O'Shaughnessy was very much a part of the Colonial state. he was not only an employee of the Company enjoying special access to the Governor General in the first part of his Superintendency,[45] but he also shared the world-view of the state of the time. Whatever might be high personal views about dissemination of scientific knowledge and involvement of indigenous peoples, the very nature of the colonial state and his employment precluded any real transfer of technology or knowledge. This state in its commitment to Empire was aggressively nationalistic vis-a-vis its origins: the native figured as a absence, an accident to be accommodated if necessary. Thus, the telegraph lines ran through 'howling wildernesses' and the annual accounts classified 'native telegrams' as a separate category not even included in the total of money received.

The lack of dissemination of this 'strategic innovation' in the colony is not a negligible fact, it forms part of the template regarding flow of knowledge between the core and the periphery. The various barriers to which the innovator tacitly assented was not just the failure of an individual but the predicament of a people in an age increasingly committed to Empire and rule. Thus the "National experiment" with the telegraph in India had little to do with India as a nation because the linking between spaces had little do with the priorities of Indian nationhood. The officials to see only the logical and the possible, reducing knowledge to skill and in both literature and science ignored the indigenous participant as unworthy of inclusion in the generation of knowledge and technology.

## CONCLUSION

This is a chapter in the history of the colonial state and the quality of knowledge transfers to the colony in the early nineteenth century. It could well be argued that this study of the communications structure in the early nineteenth century concerns a handful of Europeans with only a trace of indigenous participation. This would be numerically true and reductive. In history often agency does not lie with numbers. The substance of the bourgeois public sphere never depended on numbers ( which in theory was inclusive of all citizens) but on the nature of the dialogue between the state and civil society which was severely restricted as a matter of policy by the colonial state. In the early nineteenth century this dialogue had reached a crucial syncretic moment the failure of which, in part because of government intervention, overshadows much of the subsequent dialogue.

However local and superficial the initial impact of state policy might have been, underlying it is the consensus and continuities in the attitudes and the legal structures of early colonial rule. This is a history of the present in so far that it investigates the nature of our education system and of the models of state that the architecture of our nation-state is built upon. It tries to delineate the frameworks implicit in state policy in the period of nascence. These crucial state policies originating in the early nineteenth century still occupy central positions. For example, the recent opposition faced by satellite television and the Internet in India emerged out of the application of

the Telegraph and Wireless Acts of 1885. These were in turn informed by and modelled after the first Telegraph Act of 1855. For example, we still continue to inhabit the broad contours of the Macaulean system of education in the present. Again, our policy towards intellectual property rights and the GATT might still be on the lines of an abstraction divorced from the realpolitik of the production of invention. The expense and infrastructure involved in establishing intellectual property right in the area currently most active, genetic fingerprinting and cloning, cannot be ignored. It needs to be stressed that in the era of machines, 1750 to 1830, there was no intellectual property right in the colony.

Initially Orientalism had within it a potential for engagement and an openness that the post-1830s colonial state could not tolerate. This flexibility did not mean the absence of racial power play and the fact of conquest but these were yet to be the leitmotif of cultural exchange between the conquered and the conqueror. But India in this period was an open space yet to be attributed its characteristic signatures. This early Orientalism was dominated by the two ways of perceiving India: India as a laboratory and India as a museum.

India was seen in this period as a vast field for collecting specimens and for experiment: India as a laboratory. This was the phase of men like Rennell and William Jones. Attempts to cartographically and literally situate India were simultaneously productions of knowledge and an ongoing search

for knowledge. For all its obscurantism this early Orientalism was directly concerned with contemporary aesthetic and philosophical debates.<sup>1</sup> Discussions of literature were primarily discussions of taste and Jones was a creative representer and translator of Indian aesthetics to the Western readership. The enormous popularity of Jones' work in the West testifies both to the openness of his researches as well as his ability to raise general comparative questions regarding language, philosophy and culture.

Sir William Jones was the founder of the Asiatic Society, the first public association for knowledge in British India. It included democratic electoral elements within its constitution. Jones' inaugural speech held open the possibility of indigenous membership and direct participation. Conventional readings of this association argue that it was formed solely out of a hegemonising agenda to study "oriental manners, customs and governments with their civil and military institutions".<sup>2</sup> This reading is biased. The original agenda of the Asiatic Society and William Jones was not only knowledge of India but in its universalistic formulation, knowledge for India as well.<sup>3</sup> The correction of peninsular geography or the cataloguing of

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<sup>1</sup> David Ludden, 'Orientalist Empiricism: Transformations of Colonial Knowledge', in Carol A. Breckenridge and Peter van der Veer (eds.), *Orientalism and the Postcolonial Predicament*, Delhi, Delhi, OUP, 1994, pp. 250-278, p254-57.

<sup>2</sup> Satpal Sangwan, *Science Technology and Colonisation: An Indian Experience 1757-1857*, Delhi, Anamika Prakashan, 1991, p. 43.

<sup>3</sup> '...the construction of Indian 'otherness' always went along with another strategy: to find in India and Indianness residues of universal truths or values. That position was more characteristic of the later eighteenth century and the circles of Sir William Jones than it was of the mid-nineteenth.' C. A. Bayly, *Empire and information: Intelligence gathering and social communication in India 1780-1870*, Cambridge, CUP, 1996, p.370.

indigenous skills in surgery would automatically feed back into a totality of knowledge that was potentially universal. The knowledge that Jones called for was not just localised investigations and compilation of statistical digests solely for the purposes of administration.

The other view saw India as a museum. I suggest that this second view went on to dominate after the 1830s; the 1858 changeover from Company to Crown was more in the nature of a formal transfer of power. This view was also a major component in high Orientalism, in the sense used by Said. The literary dialogue with the orient that Jones and the early Orientalists had opened up became increasingly devoid of its aesthetic contemporaneity and '... from the time of Colebrooke on, Sanskrit studies and their fruits were to be the property not of literary men but of professional scholars and philologists.'<sup>4</sup> This slippage was indicative of a process of change in the problematics or developmental ends that the colonial state set up for itself. The Asiatic Society drastically lost its relevance and initial popularity. 'The effect produced on the circles of society at large is.. scarcely at all felt. We have never heard as a subject of conversation in either a large or small party, the merits of any paper read before the Asiatic Society examined and discussed: so that a taste for literature, and a fondness for the higher departments of knowledge is not engendered or promoted by

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<sup>4</sup> John Drew, *India and the Romantic Imagination*, Delhi, OUP, 1987, p.77

the meetings of that institution'.<sup>5</sup> Nor did it really fulfill the early move to induct natives in an open manner. The reality of indigenous participation in the European institutions was abysmal.<sup>6</sup> India was now being seen as a vast repository of past civilizations and cultures needing preservation from themselves and of themselves.<sup>7</sup> India as a museum for the world.<sup>8</sup> India of the Great Exhibitions less than half a century later.

This Orientalism was not always already there as has been argued by some historians. That would be to see colonialism in retaliation in static and essentialist terms. The degree of hegemonising violence that is present in the early discourse is probably there in the contest of voices within all languages. If anything, this early Orientalism was an exercise in self-discipline for the colonial state and its constituents in the late eighteenth century. Hicky, an aberrant European, was disciplined, the Free-Trader and

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<sup>5</sup> On the Asiatic Society: *Calcutta Journal*, Editorial, July 11, 1819, No. 132.

<sup>6</sup> 'In the first hundred years of its existence, only five (natives) figured on the list of office holders of the (Asiatic) society...In the same period, among nearly a thousand contributors to the journals and proceedings of the society, there were only forty-eight Indians...' Partha Chatterjee (ed.), *Texts of power; Emerging Disciplines in Colonial Bengal*, 'The Disciplines in Colonial Bengal' by the editor, Calcutta, Samya, 1996, p12.

<sup>7</sup> I am referring to the notion that India being several nations and peoples violently at odds with one another, the British acted as 'Platonic Guardians' to ensure the survival of India as a whole. Their mediation preserved India for the Indians by preventing the various politico-regional differences from engulfing the nation.

<sup>8</sup> 'The literature on India of the seventeenth and early eighteenth centuries ...established an enduring structural relationship between India and the West: Europe was progressive and changing, India static. Here could be found a kind of living fossil bed of the European past, a museum which was to provide Europeans for the next two hundred years a vast field on which to impose their own visions of history.' Bernard S. Cohn, *Colonialism and Its Forms of Knowledge*, Princeton, Princeton University Press, 1996, p79. He captures the use of India as the past in colonial discourse with brilliance but I do not agree with his seamless view of this discourse as always leading into classic racial Orientalism.

Eurasian was marginalised, a curriculum and institutions for the training of the colonial administrator was implemented.

It is possible to map the paradigm shift between early and later Orientalism in terms of government because of a unique feature of the public sphere of this period. The men in authority, officials of the government, combined in their private capacity to form associations in the public sphere. Thus, the agendas of the Asiatic or the Bombay Society were policy statements by the official as private spokesperson. They were also addresses to private gatherings of individuals who were also members of the officialdom, that is, addresses to that community by individual members of that community but outside of the context of administration. This was a demi-official discourse on the ends of knowledge.<sup>9</sup> Over the 1830s this transformed into an official address to the indigenous people.

Colonialism was not one thing. It was many things to many people at different points of time. In the 1750s and 1760s the reality of colonial rule had not yet sunk into the minds of the rulers. The urgency to control and to command beyond the needs of revenue collection and to engage with technology and information transfers in the public domain emerged in the late eighteenth century. This emerged out of the Company Government's discomfiting experience with the first technology of communication: Print.

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<sup>9</sup> S. N. Mukherjee, *Sir William Jones: A Study in Eighteenth Century British Attitudes to India*, Cambridge, Cambridge University Press, 1968, pp.3-4.



This was the only real technological weapon that the coloniser had at this time. Yet it was introduced under private initiative. Government woke up late and reacted with exemplary severity, almost ferocity.

It reacted in two ways to the diffusion of print technology and the corresponding rise of a public sphere. First, it controlled subsidy both in the sphere of information as well as in the sphere of communication technology. It started rival papers and enterprises. It manipulated who would access what level of government information. It also manipulated the costs of the technology for transmission of information. Second, it went in for direct domination and destruction. The legal set up of libel where the jury was qualified only to confirm the fact and subject of the publication, not the libellousness of the content, was a pliant weapon of suppression. There was a third strategy that crystallised over time from this second process. This was a more invisible means, less to do with control and more to do with surveillance and 'guidance'. It was an implicit process of persuasion and 'steering'. These themes were played out between the state and the public sphere repeatedly over the closing decades of the late eighteenth and early nineteenth century.

The *India Gazette*, the *Government Gazette*, Charles Wilkins, the Baptist Missionary Press and Sreerampur missionary press, associations such as the Asiatic Society or the Medical and Physical Society, were all subsidised at both the levels over this period. These subsidies, whether of postal rates and

grants or of information, were crucial to the survival and competitiveness of these organisations. These were parastatal organisations because they were either organs of the state, were substantially dependent on government funding or were mostly staffed by state officials in a private capacity.

The number of such organs suppressed was equally high. High price hikes in newspaper postage occurred over 1819-20, 1824-25 and 1836-37. Censorship prevailed between 1829-1834. Historians of newsprint and contemporary editorials record the very high numbers of public sphere enterprises crashing. Since the direct censorship and deportation orders of 1799 over two editors had been deported and several presses had crashed.<sup>10</sup> Reimposition of censorship followed in 1824, five years after its repeal in 1819. This time the victim was James Silk Buckingham and his *Calcutta Journal*. He was a dangerous critic of colonial government and championed the interests of the Free Traders. A number of associations and similar ventures also collapsed from the withdrawal of postal subsidy or increase in the rates.

The 1835 'liberation' of the Indian press was no act of liberal and utilitarian altruism but a coldly pragmatic and modern act. It saw the suppression of a number of newspapers and associations because of the

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<sup>10</sup> The first newspaperman to be deported was American William Duane. He was the editor of the *Indian World*, published from Calcutta. The other person was a Charles McLean who had refused to apologise for a letter written to the *Telegraph* of Calcutta. Margarita Barns, *Indian Press*, London, 1940, pp. 63-66, 67-70; also cited in A.F. Salahuddin Ahmed, *Social Ideas and Social Change in Bengal 1818-1835*, Calcutta, Rddhi, first edition 1965, rep. 1976, p.61.

withdrawal of subsidy and higher rates. At one level the act recognised the physical impossibility of direct censorship, though coercion as a mode of control continued throughout the colonial period (for example, in 1857-58). At another level it was one of the earliest attempts at moral persuasion. It attempted to steer the public sphere at a consensual normative and ethical plane. It asked proprietors and editors to sign a bond declaring that they would not harm the interests of the state and Government.

This last and less visible procedure operated over time and informed the standardising of exchange between coloniser and colonised, in terms of knowledge and technology, between the East and the West. The state clearly defined its 'public' in the 1790s. First it stopped all Europeans from buying land in India and reserved the right of deportation over all foreign nationals. The right of property, which defines the right of citizenship in the bourgeois public sphere was clearly and physically denied to the Interloper till the renewal of the Charter in 1833. By the time this right came into force there was no question of revolt in the European ranks. The colonial state at the same time formally granted the recognition of private property to the landed proprietors of Bengal in a clear signal as to whom it was willing to recognise as its public.

The European public consisting of free traders, Eurasians and aberrant officials was suppressed by law repeatedly and in a number of ways. The European public sphere was structured in a manner that made it

singularly sensitive to Government decisions, which were equally sensitive to the Agency Houses. This network of private and Government maintained itself after the 1830s through the re-emphasising of ethnic difference from the 'public'. The Eurasian was sidelined as a matter of conscious policy, in part arising out of racial concerns as well as the post-American fears of a Creole coup d'etat. The free trader declined partly because of the Agency House crisis in the late 1820s and the 1830s. He also declined because of the Government's refusal to extend any assistance unless it was dealing with cartels, patent monopolies and commodity combines. Official initiative was increasingly subject to scrutiny by the state. Concerned with forging a class of ruler-administrators through all round training in languages, sports and sexual mores the colonial state was defining the ideal coloniser, and his self-defence. The state explicitly forbade all official involvement in any capacity with the media in 1828. It also forbade in 1830 the use of Indian clothing by officials during hours of duty or in the public. The cutting down to size of the European public sphere was also simultaneously strengthened by the forging of a transnational identity based on empire. The disjuncture between what was national to the interests of the colonial state and who was its public was recognised strategically over the 1830s as the Government addressed an invisible public in English officialese.

The Asiatic Society is an excellent case for illustrating the changing concerns of knowledge for colonialism over the 1830s. The older subjects

such as botany, pure mathematics and geology declined in prominence as newer, more racially informed subjects such as ethnography and statistical digests take over. The Orientalist versus Anglicist controversy over the nature of the public education to be given to British India saw the members of the Asiatic Society at odds with the majority within the government. They even formally contested Macaulay's Minute. The result was the loss of postal subsidy for its journal. This was not an isolated case of victimisation but a conscious state policy between 1833 and 1837 to cut back on grants, postal subsidies and support to public sphere associations devoted to experimental science, diffusion of useful knowledge and enquiry. However, the crippling of the Society's frontline research publication was tempered by the government through two compensating acts. It arranged for the publishing of definitive Indian texts such as the Puranas and the Upanishads. These needed serial and institutionalised scholarship, rather than individual genius. The government also granted a sum for the improvement and conduct of the Society's museum. As the Physical Committee of the Asiatic Society turned from experiment to preservation, the message relayed by the state was clear. The Society was to restrict itself to oriental antiquarian research and the museum. A static, "preserved" India of classic Orientalism was being announced.

What the state did over the 1830s is to emphatically define the role and activities of Europeans in the public sphere. Henceforth the Asiatic

Society had to restrict itself to oriental studies. This definition of the space of individual enterprise was extremely rigid and restrictive.

In its declaration of the formal constitution of indigenous people as its public, the colonial state had to engineer the notion of difference between coloniser and colonised within the foundations of state policy. This notion of difference had to work equally for both European and Native; it was an attempt to standardise exchange between coloniser and colonised at the level of knowledge and culture. The colonial state in the 1830s gave India a public higher education system, a centralised currency, a Penal Code and a centralised communication system 'rational' economically and spatially. Except the postal system did not include the indigenous people. The legal machinery with its elaborate and expensive procedure, its Stamp Duties, was beyond the reach of those who could be identified as oppressed, whether in pre-colonial, colonial or post-colonial regimes. Higher education remained the preserve of a handful of the wealthy.

The few who could afford to participate in the public sphere had to be contained, their activity constituted within certain spaces with strict boundaries of legitimacy and illegitimacy. The answer was to introduce language as a cultural commodity and culture essentialised as difference. These together could ensure the stability of distance and diversion of the argument of backwardness along socio-cultural wastelands. As the 'Culture Code' became more explicit as in Java, the point remains that this inherent

standardised distance was manufactured by preoccupations of rule. The orientalism that produced the literature of difference was informed above all by the empire. The state actively intervened in the production of knowledge by offering guarantees, encouragement and support, and by giving space to expression. The colonial state in the 1830s was fashioning a model that would define these spaces and their language. It was also indicating the nature and quality of the exchange between the two cultures.

The model adopted for public education for the indigenous people was the Platonic model of a complete individual educated in both the science and the arts; a 'man for all seasons', a Humanist or complete individual. Charles Trevelyan, a government official, described that the project of the colonial curriculum and pedagogy was arranged in a 'Platonic sense, to awaken the colonial subject to memory of their innate character,.. In this universalizing narrative, ..the British government was refashioned as the ideal republic to which Indians must naturally aspire as spontaneous expression of self, a state in which the British rulers won a figurative place as Platonic Guardians.'<sup>11</sup> The official syllabi pointedly neglected physics and astronomy. Technological skill was taught in colleges<sup>12</sup> while schools taught

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<sup>11</sup> Quoted in Gauri Visvanathan, *The Masks of Conquest: Literary Study and British Rule in India*, New York, Columbia University Press, 1989, p.32; also quoted in Edward W. Said, *Culture and Imperialism*, Vintage, 1994, p.131.

1. <sup>12</sup> Subjects like Civil Engineering were promoted, that is, implementational skill not research skills were taught. Cf. MacLeod, Roy and Kumar, Deepak (ed.), *Technology and the Raj: Western Technology and Technical Transfers to India*, (Delhi, 1995), Introduction.

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histories of technical invention. The monitorial system adopted finally was a shadow of what it had been conceived to be, that is, elder students teaching younger ones and so on in a chain of innovative substitution.

Macaulay, the author of the Minute on education, was heavily into Greece and Rome. Extremely widely read, he was following the classical syllabus as a 'gentleman' should. There is little reason to credit him with a large unconscious. The Colonial state in this period was obsessed with Rome as the last precedent of Empire in the West (What of China? Here Gloire did not work). What caused its decline? The loss of ethnicity. This implied the loss of the ethos, the culture of Rome. What then would be the higher education for the subjects of British India? The project of forging the cultural individual; one who is given all the exposure to be English; to be a genius even like Shakespeare. That could, as in any other time, place and society, lead to revelation and realisation. The irony lies in the fact that over all these centuries of empiricism following enlightenment, there has been no method operationalised for this transcendence. It is nowhere proved that a completely technical, one-sided education cannot lead to the same revelatory knowledge. The regulated socialisation and definition of the individual neither led to individuality nor immediately to any grand wisdom. Most key concepts, whether of fundamentals of technology such as the telegraph or of Heliocentrism, were kept out of the syllabi. The native was asked to perform a 'double jump'; achieve regularly the Platonic miracle



of total knowledge. He was asked to acquire the entirety of a foreign culture before he could access its key concepts. Copernicus came to India much after Coleridge and Comte. This transcendence or double jump implied the logical situation of the native in a 'double bind'; the cultural cul de sac of untranslatableability that was initiated at a normative level. Henceforth, defences and studies of Indianess and justifications of Western cultural resource slipped along the cultural axes of the word: cultural essentialism. The author of the Education Minute called it a moral intervention, as did more than a few of his successors, but morality is embedded in the rationale of validity of claims within a particular cultural and colloquial grouping; there are no other acceptances except that of relating to, rejecting or modifying key concepts determining ontology not just on an individual plane but also at the level of culture or ethnic identity.

It is within this context that the telegraph was first experimented with. O'Shaughnessy continued in the earlier tradition of innovation. His skills included surgery, chemistry, engineering and electrical experimentation. Conventional historiography asks what was O'Shaughnessy's contribution to the science of telegraphy in general as well as his specific contributions to the system in India. Both these questions need to be modified in the light of the prevailing system. Certainly, according to some contemporary experts in the 1850s his signalling instruments were inferior to none. His code was quite advanced for his time and Morse's code

is logically not very much superior. In the 1830s he was experimenting with extremely interesting things including experiments with various types of electrical conductors. His use of water as a reverser was a novel experiment. Yet all this does not earn him a place in the conventional histories of the telegraph. This is not because of some deep rooted neglect but the impossibility of comparing various devices and experiments in the absence of a standardised measure of time and record of these innovations. The absence of the patent system in India and its restriction to the soil of Britain placed science in the colony already at a remove. This lack of institutional support was compounded by two things. First, the state rarely supported enterprise in the colony (preferring patent holders in England) and when it did extend support it was always after a time lag when the experimental phase of that technology was long over. Second, the state strongly influenced and controlled the public education system and heavily policed substitutive enterprise, that is, diffusion by the small entrepreneur who often resorted to forgery to gain access to monopolised markets. In this overwhelming structure O'Shaughnessy was as much a victim as a propagator of colonialism. He had little exceptional role to play except as the executor of the wishes of the state.

Individual innovation and substitution were both declared almost out of bounds without state or institutional support.<sup>13</sup> Both case studies of private technical initiative and study of subsidy of public sphere associations reveal that state was less interested in new things and more in preservation. There were no guarantees or support for individual enterprise. The absence of intellectual property rights in the colony when patent registrations had crossed a hundred a year in 1830s England cemented the retardation. The patent was both a guarantee as well as public information open to improvement. Arguably, innovation in the age of capital means, most often, substitution. The substitution of technology and the ensuing culture capital and knowledge capital spin-offs are one of the features of substantial private innovation/enterprise. It was the rigorous enclaving of technology within a 'howling wilderness' that arrested such diffusion. It was also arrested by legal definitions of enterprise which involved registration etc. Forgery was one of the nightmares faced by the colonial state in the early nineteenth century. From luxury commodities to currency, everything seemed shadowed by duplication. However, the fact of such a large underground industry existed meant that at least the first communication technology had no problem in diffusion. It also meant that there was a high demand and restricted legal access. The silencing of private initiative thus

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<sup>13</sup> '...private enterprise can hardly be said to exist in India..'. An observer's comment after 1850, cited in Norma Evenson, *The Indian Metropolis: A View Toward the West*, Delhi, OUP, 1989, first published, 1989, Yale University Press, p.28.

operated at two levels. At the surface the state through manipulation of subsidy and institutionalisation slowed down experimental enterprise. A lesson that was driven home in the case of gaslight, railways, steam navigation and the telegraph. This is also illustrated by the directions of subsidy flows to the Asiatic Society. At another level the state cordoned off 'public' enterprises from the public by defining what constituted legitimate enterprise and keeping the infrastructural costs very high. Possibly the Swadeshi attempt to substitute on an extensive scale legitimised private initiative again. Gandhi tried at another point of time.

Nigel Crook uses the concepts of knowledge and information to distinguish between knowledge generating faculty and learning by rote. Cognitive capacity and information, as manipulated by the hegemonic elite, have a trade off. The ideal for continuities in the ruling positions is to encourage information and skill while retaining for themselves cognitive resources.<sup>14</sup> The colonial state in the 1830s through a panoply of acts and ordinances that ranged from education to economy ensured that the information and skill transfers would remain relatively higher than the transfers of fundamental science, the tools needed for the generation of knowledge.

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<sup>14</sup> Nigel Crook ed., *The Transmission of Knowledge in South Asia*, Delhi, OUP, 1996, Introduction, pp 4-5.

After 1835 the indigenous people received statistical digests, romances, Victorian censorship, racial categories and ethnography. It also accessed static and aesthetic technologies such as art appreciation and photography. Photography, the science of the momentary arrest, emerged over the 1850s in a big way. The museum became the centrepiece of the Asiatic Society's activities. The telegraph ordered by Government was matched by another official innovation. The use of fingerprinting by the Criminal Investigations Department was begun in Calcutta.

What I have been trying to define is the quality of knowledge exchanged between two cultures at the official level of policy. This defines also the knowledges seen as valuable by the state, and therefore controlled by silence, and what was diffused. The absence of the promotion of direct knowledge and the enclaved technologies after 1835 meant a public that was half informed as a matter of conscious policy. This exclusion or ellipse of the public was reflected in the spatial mappings of the systems of communication that rationally connected the colonial metros through empty spaces relatively devoid of human habitations. But this structuring of the nerves of the body politic meant in turn that the coloniser had to be similarly blind to India. This disjuncture in the quality of knowledge exchanged was achieved at the level of policy over the 1830s.

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