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Science, Morality, and Nationalism: The Multifaceted Project of Mahendra Lal Sircar

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On 15 January 1876, M.L. Sircar established the Indian Association for the Cultivation of Science (IACS). Sircar had broached the project of a national science association in 1869 in his famous article 'On the desirability of a national institution for the cultivation of science by the natives of India', in the *Calcutta Journal of Medicine* (which was started by him in 1868). This was followed by pamphlets, letters to the *Hindu Patriot* and public addresses. Sircar wanted his institute to perform two functions; one was cultivation of and research in science by Indians while the other was the popularization of science among the general populace. He articulated his goals in his first article:

> We want an Institution which will combine the character, the scope and objects of the Royal Institute of London and of [the] British Association for the Advancement of Science. We want an Institution which shall be for the instruction of the masses, where lecture[s] on scientific subjects will be systematically delivered and not only [will] illustrative experiments [be] performed by the lecturers, but the audience should be invited and taught to perform [them] themselves.[1]

Sircar thus set out his 'nationalist' agenda—to build a culture of science in India through its practice and popularization. This duality constitutes an important aspect in the history of modern science. Science has articulated itself in the modern world primarily in two diverse yet complementary modes. One was the growing hegemony of science in the popular imagination. An unprecedented popular consciousness about, and participation in, the discourses of science marked the nineteenth and the twentieth centuries. As a result, science was analysed, debated and re-analysed in astoundingly diverse ways. It was through this larger debate

[1] Mahendra Lal Sircar, 'On the desirability of a national institution for the cultivation of science by the natives of India', in *idem*, *Indian Association for the Cultivation of Science*, Calcutta, 1877, p. 8.

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that science re-defined, re-formulated, and ultimately affirmed itself. The other development was in the opposite direction. It was through the increasing specialization and professionalization of science that its cognitive language and symbols became refined and distinct. The growing institutionalization and specialization of science contributed to its esoteric and elitist status.

The Indian nationalist involvement with science demonstrates the manifestation of these trends. Science stirred the imagination of almost every nineteenth century Indian intellectual, even those whose primary concern was not science. This was facilitated by the fact that science had established itself as the pinnacle of nineteenth century European thought. Thus, science was debated within a wide spectrum of nationalist discourse. At the same time, there were initiatives in scientific research by Indians. Important Indian scientists such as J.C. Bose, P.C. Ray and C.V. Raman were all products of this development. How do we conceptualize these simultaneous processes of the social legitimization and the elitist orientation of science? How far was the cognitive content of science influenced or informed by the larger social history within which it was located?

The historiography on nationalist science does not provide too many answers to this problem. This is despite the fact that more recently the attempt has been to identify a re-definition of Western scientific thought by virtue of its location within the cultural matrix of Indian nationalism. Deepak Kumar shows how science formed the domain of contestation and assertion of nationalism against the colonial regime and how, in the process, science itself was re-defined and re-located.[2] Dhruv Raina and S. Irfan Habib, in a series of articles, stressed the cultural transformation that science was undergoing in India in this period.[3] They have focused on how the Orientalist, Eurocentric notions of science were challenged within the nationalist science discourse, how the 'cultural re-definition' of science took place, and how a changed image of science emerged. Gyan Prakash has argued for the 'alienation', 'displacement' and 'cultural transformation' of this dominant discourse in colonial India.[4] Prakash, however, focuses on the general questions of modernity and rationality with very little light on the actual shifts within science.

This particular preoccupation with the question of 'cultural transformation' is problematic. Knowledge systems of one particular cultural and social matrix are bound to undergo transformations through a range of creative interventions in another context. Such was the case with Western notions of nationalism in colonial India as well. My concerns pertain to the nature and limits of re-definition. What

[2] Deepak Kumar, *Science and the Raj: 1857–1905*, Delhi, 1997 (1998).

[3] Some important papers jointly written by them include: Dhruv Raina and S. Irfan Habib, 'Bhadralok perception of science, technology and cultural nationalism', *Indian Economic and Social History Review*, Vol. XXXII: 1, 1995, pp. 95–117; *idem*, 'Copernicus, Columbus, and colonialism and the role of science in nineteenth century India', *Social Scientist*, Vol. 17: 3–4, pp. 51–66. Also see Dhruv Raina, 'Evolving perspectives on science and history: A chronicle of modern India's scientific enchantment and disenchantment', *Social Epistemology*, Vol. II: 1, pp. 3–4.

[4] Gyan Prakash, 'Science between the lines', in Shahid Amin and Dipesh Chakraborty', eds, *Subaltern Studies; Writings on South Asian History and Society*, Vol. IX, Delhi, 1996.

were the frameworks within which these transformations were taking place? Nineteenth century science was a Eurocentric, centripetal, and hegemonic discipline. Neglecting this fact might tend to glorify the levels of transformation. How did the 'cultural transformation' and 'displacement' of nationalist science influence the cultivation of and research in the same? Did 'nationalist science' give rise to different attitudes towards nature and the Universe in contrast to Western science, questioning Eurocentric notions of truth, knowledge and control of nature and society?

A study of the IACS provides an opportunity to explore these questions and the links between the 'popular' social discourse and the 'elitist' domains of science. The IACS was the first attempt at an institutional articulation of the relationship between nationalism and scientific research in colonial India. It encouraged Indians to engage in fundamental research in science and to develop their own hypotheses and arguments, thereby establishing themselves as citizens of a modern scientific nation. This essay thus attempts to study the complex images of nationalism that informed Sircar's project, the negotiations with the important nationalist concerns of the 'spiritual' and the 'material'.[5]

Sircar was joined in his mission by a missionary friend, Reverend Father E. Lafont, a man with a keen interest in science, engaged in building a spectra-telescope observatory at St Xavier's College, Calcutta. The new Lieutenant-Governor of Bengal, Richard Temple, also expressed his appreciation of and support to Dr Sircar's proposed scheme. The first meeting of subscribers to the projected Science Association was held on 4 April 1875, at Senate House at Calcutta University.[6] The Association was formally established at the third meeting of the subscribers held on 15 January 1876 at the same venue.

For Sircar, science was the metaphor of nationalism. He stressed that political nationalism had no meaning without science as its guiding spirit. In his worldview science was a metaphor for liberty and enlightenment against the preceding 'dark' ages, the catalyst for a new cultural and political self-expression. As he was fond of saying: 'The best way, in my humble opinion, to do this [achieve nationhood]

[5] Sircar's life and career has been well documented. The major writings on Sircar were biographies. The earliest biography of Sircar was by Sarat Chandra Ghosh, *Life of Dr. Mahendra Lal Sircar*, Calcutta, 2nd edition, 1935. The other was Manoranjan Gupta's, *Dr. Mahendra Lal Sircar*, Calcutta, 1959, (in Bengali). However, the most important is S.N. Sen's, *Dr. Mahendralal Sircar*, Calcutta, 1986, (in Bengali). Also see Chittabrata Palit, 'Mahendralal Sircar, 1833–1904: The quest for national science', in Deepak Kumar, ed., *Science and Empire: Essays in the Indian Context*, Delhi, 1991, p. 156. These were located within a contemporary depiction of scientific thought in nineteenth century India and its provinces, discussing the broad trends within contemporary scientific thought. They generally followed Whiggish-nationalist patterns of history writing. They accepted science and nationalism as naturally progressive and enlightening and the story of the nineteenth and early twentieth centuries was seen as one of a gradual, progressive articulation of these ideas. Such an approach precluded the possibility of a critical understanding of the contradictions, predicaments and crises that the links between Sircar's science and his nationalism might have produced.

[6] IACS, *A Century*, Calcutta, 1976, pp. 5–10.

is not by platform blustering and newspaper invectives, but by substantial achievement in the field of [the] intellect.'[7]

In an illuminating passage that Sircar quoted from a European journal, he spoke of the virtues of blending scientific culture with that of a truly national life.

> For that interpretation of national life, past and present, without which the citizen cannot rightly regulate his conduct, the indispensable key is—Science. Alike for the most perfect production and highest enjoyment of art in all its form[s], the needful preparation is still—Science. And for purposes of discipline—intellectual, moral, religious—the most efficient study is—Science.... Necessary and eternal as are its truths, all science concerns all mankind for all times.[8]

Sircar felt that the scientific spirit was a clear indicator of national progress and status. He found the two compatible because to him science was a *moral* force. Western science represented enlightenment, the path towards correct judgement, the ability to make the right choices and, thus, to assume nationhood. This moral aspect of science holds the key to Sircar's thought. It also explains Sircar's emphasis on the need for Indians to 'cultivate' modern science on their own. This is the first of the two pillars of Sircar's nationalism.

Science, Morality and 'Cultivation'

Sircar's understanding of science as a moral force can be located within the Enlightenment ideas of scientific morality. Francis Bacon's new scientific method sought to provide a true moral guiding force by leading the human mind to the correct path, 'not leaving it to itself, but directing it perpetually from the very first, and attaining our end as it were by mechanical aid'.[9] Comte, too, saw in positivist science the true moral force of social and political life.[10] In fact, in the post-Enlightenment view of the world, the sciences of nature became the paradigm of 'correct' 'rational' knowledge in all aspects of life.

Such ideas had greatly influenced the nineteenth century Indian intellectuals. Bacon's claims to absolute unique truth through a 'new method' was accepted as cardinal. Rammohan Roy expressed his faith in Bacon's method as the true guiding spirit of modern life.[11] For Mahendra Lal Sircar, the appeal of science was similar. Moral laws by themselves were obscure and could lead to scepticism; on the

[7] IACS, *Annual Report of the IACS*, Calcutta, 1899, p. 19.

[8] *Ibid.*, p. 18.

[9] Jatinder K. Bajaj, 'Francis Bacon, the first philosopher of modern science: A non-western view', in Ashis Nandy, ed., *Science, Hegemony and Violence; A Requim for Modernity*, Delhi, (1988) 1990, p. 28.

[10] Geraldine Hancock Forbes, *Positivism in Bengal: A Case Study in the Transmission and Assimilation of an Ideology*, Calcutta, 1975, p. 6.

[11] P.C. Ray, *Life and Experiences of a Bengali Chemist*, London, 1932, pp. 140–41.

other hand physical laws were 'verifiable', and scientific phenomena were capable of reproduction by an arrangement of their causal conditions and left no scope for scepticism. Science thus provided the 'unchallengable basis on which the human mind can take its stand for positive certainty in all its investigation'.[12] Physical science was a superior form of knowledge because only it could convince the human mind about the 'unalterable relationship between cause and effect, with the idea of law pervading the universe. Thus initiated the mind stakes off for ever all the ideas of chance and caprice and chaos from the government of the universe as false and mischievous, having no basis in living reality.'[13]

The doctor saw in science the true form of moral enlightenment as it implied man's control over his mind and his surroundings. Thus, like Bacon, Sircar too described the advent of modern science as a great conquest over nature:

> This world is ablaze with their light, and the merest tyro can descent [*sic*] on the marvels man has wrought by the aid of that light; how from the humble position of minister and interpreter he has risen to the sublime rank of master of Nature. And there does not appear to be any limit to our knowledge and consequently to our conquests over her vast domain....[14]

He placed his 'sincere faith in the capability of the physical science to act as the firm and solid basis of the development and regeneration of man's moral and spiritual nature....'[15]

To Sircar, contemporary India in many ways represented all that was opposed to modern, rational and progressive ideas. In drawing distinctions between the East and the West, Sircar, much like his contemporary Bankim, had ascribed to Europe a rational, progressive culture while portraying Asia as suffering from a regressive, irrational mindset. He pointed out that Asia was yet to develop a material culture. The greatest obstacle here was the lack of a truly scientific temperament. Hindu culture constituted the greatest evil: it was marked by orthodoxy, polytheism, idolatry and priesthood, none of which he found compatible with the scientific spirit. Referring to the dominance of the Hindu priests as 'the most crafty, the most selfish and the most demoralised of any in the world',[16] he argued that such a priesthood and religion were particularly opposed to the search for Truth—the goal of science.

[12] IACS, *Annual Report of the IACS*, Calcutta, 1878, p. 17. Here he almost repeated Bacon's view that: 'Those who have attributed the pre-eminence to logic, and have thought that it afforded the safest support to learning, have seen very correctly and properly that man's understanding, when left to itself, is deservedly to be suspected'. Francis Bacon, *The Great Instauration*, Bacon's Preface, *The Works*, ed. and trans. Basil Montague, 3 vols. Philadelphia, 1854, 3, p. 336.

[13] *Ibid.*, p. 16.

[14] Mahendra Lal Sircar, 'On the necessity of national support to an institution for the cultivation of the physical science by the native of India', February, 1872, in *idem*, *Indian Association*, p. 16.

[15] IACS, *Annual Report of the IACS*, Calcutta, 1902, p. 20.

[16] Mahendra Lal Sircar, *Moral Influences of Physical Science*, Calcutta, 1892, p. 19.

> It is not right that any man, far less that so many millions of men for generations without number, should be kept down in false and unworthy belief and thus deprived from the elevating and regenerating influence of the first and highest—Truth. If for no other reason, pre-eminently for this, is it the supreme duty of every devout student of nature to endeavour his best to introduce a knowledge of the physical science amongst the people of this country?[17]

His opinion of idolatrous and pantheistic beliefs was similar: '...[they] must receive their death blow from such study [of the sciences]'.[18]

Sircar found the pursuit of 'true' knowledge inconceivable under such circumstances, because the human mind became idle and wandered in useless speculations, while knowledge became inward looking:

> The Hindu mind, thanks to this religion which has been swaying it for centuries without number, and thanks no less to its other surroundings, has become more of a speculative than of a practical character singularly deficient in patient industry to observe materials, too prone to hasty generalisation, depending more upon its own inspirations than upon outward facts.[19]

Thus, for Sircar, traditional Indian knowledge of nature and natural laws remained superficial and rudimentary: they diverted the human mind from the right path towards 'unnecessary' 'unsolvable' pursuit, and 'they had in many cases to go astray and waste their energies in problems which are unsolvable, and attempted to formulate and maintain propositions which became stereotyped into dogmas, a blind faith'.[20] It was this sort of intellectual exercise which was the 'cause of the arrest of all progress in India'.[21] Sircar was of the opinion that Indian scientific knowledge was merely a 'chaotic mass of crude and undigested and unfounded opinion on all subjects'. He was very clear that science was alien to Indian culture. Physical science was of modern European origin:[22] '...I believe I am not committing any unpardonably unpatriotic sin when I say that physical science did not exist in our country even in [the] days of its greatest glory—of its loftiest intellectual achievements. And certainly it does not exist in the present day. It must be introduced from the west.'[23]

While replying to criticism of his strong views regarding traditional Indian knowledge Sircar argued how even the notion of scientific knowledge was alien to Indian tradition.

[17] *Ibid.*
[18] *Ibid.*
[19] Sircar, 'On the desirability', pp. 4–5.
[20] IACS, *Annual Report of the IACS*, Calcutta, 1901, p. 26.
[21] *Ibid.*
[22] Sircar, 'On the desirability', p. 4.
[23] IACS, *Annual Report of the IACS*, Calcutta, 1893, pp. 17–18.

> I admit for the sake of argument that there was science even in a high state of cultivation. But I beg leave to ask where are the traces of such a state of things? Certainly they are not to be found in the voluminous literature that has come down to us as heritage. To characterise as science the crude speculations about nature and her laws contained in this literature, speculations which could not go beyond the five elements, would be to show the grossest ignorance of science and of the methods of scientific enquiry.[24]

In such a corrupt situation the moral question of science had an even more crucial role to play. India had to practise science because such studies left 'little room for dogmatism' as any one could satisfy himself about the facts by 'observation and experiment'. But this had to be the conferment of Europe; for this science India had to look up to the West:

> It [science] must be introduced from the west. The natives of India, if they want to take rank with the civilised nations of the world, if they must escape from the ignominy of being morally and intellectually effaced from the face of the globe, must do what these nations are doing, must take to cultivation of science which will elevate them from the position of slaves to the rank and dignity of the Masters of Nature.[25]

While Sircar's understanding of science as a progressive and moral force could be located in the whole genre of nineteenth century Indian thought starting from Rammohan Roy, it was his particular stress towards 'cultivation' which distinguished his thoughts. He had formulated a deeper and more direct association of nationalism with science. In his very first article in 1893, he argued:

> The best method, and under the present circumstances the only method, that we conceive of, by which the people of India can be essentially improved, by which the Hindu mind can be developed to its full proportion, is...by the cultivation of the Physical Science. The great defects, inherent and acquired, which we have pointed out as characteristic of the Hindu mind in general of the present day, can only be remedied by the training which results from the investigation of natural phenomena.[26]

Thus the essence of Sircar's nationalism was to 'cultivate' science, activate moral regeneration and thus become 'masters of nature'. The two had to go together as only science could provide the nation its required moral strength as well as its material development. In Sircar's mind, the nation had to adopt science as its

[24] IACS, *Annual Report*, 1899, pp. 17–18.
[25] IACS, *Annual Report*, 1893, p. 18.
[26] *Ibid.*, p. 7.

religion if it intended to survive in the 'race of nations': 'There is no *status quo* in the universe. There is progression and retrogression. The chief determining factor of progress is now and will always remain science. The amount of its cultivation in any country will thus be the chief index not only of its civilisation but of its power of maintaining its existence,...'.[27]

This defined the project of IACS, aiming at '...fulfilling functions of the moral, noble and elevating character, being no less than remodelling the Asiatic mind, leading it from airy regions of vain and mystifying speculation to the solid grounds of nature's facts and laws'.[28] However, original research by Indians was always considered a higher, more sacred, objective than mere diffusion of scientific knowledge. Discussing the objective of his institute, Sircar made this hierarchy of priorities explicit:

> The object, with which this Association was founded is not simply the diffusion of a knowledge of the truths of science discovered elsewhere. This is but one of its objects, and a very inferior and subordinate one. The other, the higher, the primary object is [that] which was adopted in the very first resolution founding the Association, viz., 'to enable the Natives of India to cultivate Science in all its departments with a view to its advancement by original research, and (as will necessarily follow) with a view to its varied application to the arts and comforts of life'.[29]

Implicit in this project of cultivation, was the notion of Indians as the idle, 'unproductive recipients' of the products of science, representing a child-like state of existence.[30] Little had they realized that science was 'in reality the offspring of the human brain brought forth in *much travail*'[31] (emphasis added). The 'cultivation' of science thus engendered a 'man-making' project.

[27] IACS, *Annual Report*, 1899, p. 19.

[28] IACS, *Annual Report of the IACS*, Calcutta, 1887, p. 15. Elsewhere Sircar had voiced similar concerns:

> Hence the cultivation of science must form an indispensable element of our national culture, as it is in all civilised countries.... It is with this view, Gentlemen, that I have striven all my life long to induce my countrymen, Hindu and Mahometan alike, and any other race of people who pride in the name of India, to unite in the holy bonds of fraternal sympathy and love for the common, worthy cause of mutual advancement by the at present best means, and I might say, the only means, within human reach, namely, the cultivation of the physical sciences.

IACS, *Annual Report*, 1893, p. 18.

[29] *Ibid.*, p. 22.

[30] Sircar, 'On the necessity', p. 25. He added: '...there is an immense difference between the civilised man and the man happening to live in civilised times, between the man of science and the man whom accident has placed in the era of science....'

[31] *Ibid.*

Research and Adulthood

Mahendra Lal Sircar once remarked:

> For that direct self-preservation, or the maintenance of life and health, the all important knowledge is—Science. For that indirect self-preservation which we call gaining livelihood, the knowledge of the greatest value is—Science. For the discharge of *parental* function the proper guidance is to be found only in—Science[32] (emphasis added).

This paternalism of science reflected the predominant western attitude towards the colonized world. Edward Said has described how through Western rational explanations, Europe appeared as the secular creator of a new world, as God had created the older one.[33] As Nandy indicates, the colonized peoples were seen as children who needed to mature to become responsible 'men' or 'citizens'. Colonialism picked up the contemporary European attitude towards childhood as a 'blank slate on which adults must write their moral codes' and drew a new parallel between primitivism and childhood.[34] In such a scheme the colonized always appeared as 'children' a term implying 'primitive' or a 'blank slate'. Colonialism was seen as a necessary function of Europeans to help the helpless children grow towards a higher morality, and towards adulthood and maturity. Western knowledge was supposed to play the patronizing, paternalistic role in this project. Nandy shows how nineteenth century Indian intellectuals like Bankim, Vidyasagar, and Madhusudan Datta functioned within this paradigm while attempting in their various ways to make 'adult men' out of Indians.

To Sircar too, the lack of a scientific tradition reduced India, although an old civilization, to a state of adolescence. The ability to 'cultivate' science was, for him, a precondition to becoming an adult. His plans for the institute were often expressed through metaphors of manhood:

> In schools pupils can never rise to the state of practical workers in science, so as to be able to carry on independent investigation, not because of any fault in the psychology of the pupils themselves, but because such a thing is impossible in *statu pupillaris*. Men [*sic*] must continually be at a subject, observing and experimenting, before he can acquire that knowledge of it which will enable him to feel his own deficiencies in the branch of science which he has made his speciality,—before indeed he can engage with any hope of success in researches which will improve both himself and his science.[35]

[32] IACS, *Annual Report*, 1899, p. 18.

[33] Edward Said, *Orientalism*, London, 1978, p. 121.

[34] Nandy, *The Intimate Enemy: Loss and Recovery of Self under Colonialism*, New Delhi, p. 11–18.

[35] First meeting of Subscribers at the Senate Hall, Calcutta University, 4 April 1875, cited in Palit, 'Mahendralal Sircar, 1833–1904', p. 156.

Elsewhere Sircar made clear the 'man-making' aims of his Association, when he asserted that: 'We have, I told you, no scientific men at all, and we want to create them—train men in science.'[36] Father Lafont, his old friend and fellow founder of IACS, shared these views. He reacted strongly to suggestions that the IACS was 'merely' an educational establishment. He claimed the status of a 'scientific institution' for the IACS, saying that 'it was not a school, it was a scientific institution in which modern discoveries in science were promulgated'.[37]

Similarly Sircar considered university education to be inadequate for national regeneration. He always resisted the affiliation of the IACS to Calcutta University, which, he was afraid, might simply turn it into a college. Universities, he believed, only taught science; thus their scope was limited and could not fulfil the greater task of making men:

> It is true, that our universities are turning out at high pressure and speed, graduates in the various faculties,—masters and bachelors,—by hundreds and thousands. But if we are to judge them by the only and infallible test of—'by their fruits ye shall know them'—how would they stand? How would they compare with their brethren of Europe and America?[38]

Sircar's Association too had taken up teaching science but that was because at that point it was almost non-existent in universities. His hoped that once colleges developed the art of the teaching of science, the IACS could focus on its primary objective: 'then its only *raison d'être* will be advancement of science by original research. If it cannot be made to fulfil that object, it would be better that it should cease to exist.'[39] Sircar was always uncomfortable with the popular demonstration-lectures at the IACS as they generally gave the misleading impression that, 'attendance at these lectures will convert the audience into full-blown men of science and discovery will follow after discovery as in Europe and America'.[40] 'Man-making', asserted Sircar, was a much more arduous process. It needed active participation, effort, originality and judgement on the part of the individuals involved.

Sircar's ideas in this regard had been generally accepted by his colleagues at the IACS as well as within the broader nationalist discourse. When a proposal came up in 1893 to affiliate the IACS to Calcutta University, all the members except Lafont opposed it as a 'degradation' of the prestige of the Association.[41]

[36] Sircar, 'On the necessity', p. 33.

[37] Arun Kumar Biswas, 'Revered Father Eugene Lafont and the scientific activity of St. Xavier's college', *Indian Journal of History of Science*, Vol. 129: 1, 1994, p. 84.

[38] IACS, *Annual Report of the IACS*, Calcutta, 1898, p. 15. Sircar insisted that universities were only the first stage; they produced only students and not men of science vital to a mature nation: 'merely to learn parrot-like what other nations are teaching is to abdicate our position as an intellectual people, as a member of the republican of letters'. *Ibid.*, p. 16.

[39] IACS, *Annual Report*, 1901, p. 21.

[40] IACS, *Annual Report*, 1893, p. 24.

[41] IACS, *Annual Report of the IACS*, Calcutta, 1900, p. 17.

For Father Lafont, a missionary and a teacher at St Xavier's, the diffusion of knowledge always had a separate appeal. He successfully convinced Sircar to open the lectures of the institute to students of the First Arts Examination. Sircar, faced with the reality that not much original research was in any case being conducted at the IACS, chose to be pragmatic. He realized after some initial hesitation that 'it would be no derogation of its [IACS's] dignity to tell the University that the lectures which were being delivered within its walls would fully prepare students for the First Arts Examination'.[42]

It was because science was depicted as the salvaging moral force for the future nation that the institute was conceived as a seat of fundamental science as opposed to a patron of its utilitarian counterpart. This position becomes apparent in the debate with the Indian League on turning the IACS into a technical school. While Sircar and his friends were preparing the blueprint for the Association, a scheme for a technical institution was initiated by the Indian League—a semi-political organization. The objective of the League was to combine scientific instruction with practical training, and the drilling of men in manual and mechanical industries, on the model of Technischen Hochsulen of Germany and Switzerland.

Sircar's plan for the 'cultivation' of science was criticized by the League as being premature and intended merely for intellectual pleasure. Suggestions were made for the amalgamation of both projects into a single institution undertaking teaching in science as well as instruction in the mechanical arts.[43] The third meeting of the subscribers at the Senate Hall in 1876 saw two opposing camps vigorously arguing their positions. On Sircar's side were Father Lafont, Raja Ramnath Tagore, Dr Rajendra Lal Mitra, Babu Digambar Mitter, Raja Jatindra Mohan Tagore and Keshab Chandra Sen. Sambhunath Chandra Mukherjee, Kalimohan Das and Reverend K.M. Bannerjee defended the League's position.[44]

Reverend Bannerjee, Chairman of the League, talked of a 'combination of scientific teaching with practical training', and of 'utilising the discoveries already made before aspiring after such discoveries'.[45] He also accused Sircar of 'Soaring aloft, without looking beneath'.[46] Sambhunath Chandra Mukherjee, described the project of the IACS as an 'unnecessary luxury, an anachronism and an anomaly—the scheme involved a waste'.[47]

Strong support for Sircar's position came from the Orientalist, Rajendralal Mitra; who stated that:

> Science had a higher and nobler claim than the narrow, utilitarian, Benthamite one.... It was the most powerful lever for progress, for the advancement of

[42] *Ibid.*, pp. 17–18.

[43] Rai Chunilal Bose Bahadur, 'The science association and its founder', IACS, *Annual Report of the IACS*, Calcutta, 1918, pp. 37–38.

[44] Kumar, *Science and the Raj*, pp. 199–200.

[45] Palit, 'Mahendralal Sircar, 1833–1904', p. 157.

[46] Kumar, *Science and the Raj*, p. 200.

[47] *Ibid.*

> civilisation, for ennobling the mind of man. Do not confound Science with technical education in the industrial arts...let every step of science education be explained by experiments, for science to be effectually learnt should be learnt in the laboratory: but do not attempt to make your Institution a school of technical education in the industrial arts under the misnomer of practical Science.[48]

Father Lafont also stressed the need of fundamental science for Indians to become self-sufficient and independent. The League, he alleged, wanted to '...transform the Hindus into a number of mechanics requiring for ever European supervision whereas Dr. Sircar's object was to emancipate in the long run his countrymen from this humiliating bondage'.[49]

Thus, the IACS concentrated its courses on 'pure science'. The first lectures were by Dr Sircar and Reverend Father Lafont on physics, Rai Tara Prasanna on chemistry and Reverend A. de Penaranda on astronomy. Simultaneously, a laboratory was built.[50] When Father Lafont left for France due to ill health, a sum of Rs 4,000 was given to him for importing from France an assortment of instruments and apparatus for illustrating lectures on thermotics, acoustics, electricity and optics. In 1878 a large number of new instruments arrived, including a sympalmograph, a phonograph, and a Caitellet's machine for the liquefaction of oxygen. In the next few years more apparatus for physics and chemistry experiments arrived.[51] Father Lafont continued his lectures in physics on light, general physics and sound until 1893. After Lafont, Rajendra Nath Chatterjee taught optics and general physics. Among others to teach were J.C. Bose and Ashutosh Mukherjee.[52]

The question of morality had set one of the central agendas of the IACS. It also motivated the other component of its search for a nationalist science, the search for self-reliance.

'Self-Reliance' for the Adolescent

Mahendra Lal Sircar was very clear that his institute was to have a 'national' character when he said that: 'There must be national support for this national work. This can only be secured by an organisation which must be national in its character'.[53] Significantly, this 'national character' did not necessarily constitute

[48] IACS, *A Century*, p. 11.

[49] Palit, 'Mahendralal Sircar, 1833–1904', pp. 157–58. In later years such a position was reiterated by Mahendra Lal Sircar's son and successor Amrita Lal Sircar. He took up the cause of fundamental science with greater zeal. Taking over the Association at the height of the Swadeshi movement in 1904/5 he criticized those whose 'cry is for industry' stressing the fallacy of 'applied research'. He epitomized the ethics of disinterested fundamental research, IACS, *Annual Report of the IACS*, Calcutta, 1905, pp. 21–23.

[50] IACS, *A Century*, p. 15.

[51] *Ibid.*

[52] *Ibid.*, p. 16.

[53] IACS, *Annual Report*, 1893, p. 18.

a critique of colonialism. It actually signified a search for self-reliance for Indians in areas of scientific research:

> We should endeavour to carry on the work with our own efforts, unaided by Government, perhaps more properly speaking, without seeking its aid. Now this does not mean that we will not accept any aid from that quarter if it comes to us unasked, and unhampered with conditions and restrictions, excepting the all importance condition of the continuance of the Association. Let me not be misunderstood. I want freedom for the institution. I want it to be entirely under our own management and control. I want it to be solely native and purely national.[54]

What motivated this search for self-reliance, which had also articulated itself in a 'freedom' for an institution, 'entirely under our own management and control'? What stimulated the need to develop an independent base of Indian scientific research? Sircar had stressed the independent status of the IACS, 'to make my countrymen, in the matters of science-cultivation at least, self-reliant', to help them, 'master the elementary principles of science unaided, that is except with the aid derived from books and instruments'.[55] Such independence, he believed, was 'essential to the very life of the Institution as calculated to engender the spirit of self-reliance which has well-nigh become extinct'[56] Sircar's 'man-making' project becomes apparent when he stressed that to become responsible men, Indians must develop the spirit of independence. And what better way could there be to do so other than practising it in science—the great moral force? Elements of an adult–child, mother–child relationship are apparent when Sircar talks of the advantages of British rule to India: 'If the Government were to do everything for us, we shall never do anything for ourselves. We must be *weaned* from this sort of dependence upon others, just as a *baby is weaned from the mother's breast*' (emphasis added).[57]

Sircar's metaphors are striking. British rule performed the role of the mother who blessed India with Western science, while Indians were children learning to suckle the virtues of science from her. For the children to grow up they had to be 'weaned' by instilling in them qualities of self-reliance by pursuing science on their own. Thus, the dual project of establishing an independent research institution for Indian science could ensure both organizational and intellectual maturity. Further, 'we wish that the Institution be entirely under native management and control. We say this not out of vanity but simply that we may begin to learn the value of self-reliance in matters in which we may do it without any serious risk.'[58]

[54] IACS, *A Century*, p. 8.

[55] Mahendra Lal Sircar, 'A Sketch of the scheme of the science association', in *idem*, *Indian Association*, p. 71.

[56] *Hindu Patriot*, 1 June 1891, p. XXXV.

[57] Sircar, 'On the desirability', p. 6.

[58] *Ibid.*, p. 8.

The search for 'freedom' from government was thus aimed at instilling a sense of responsibility among Indians who were seen to have become unnecessarily dependent on the government, and was not necessarily an anti-colonial sentiment. Further, his nationalist project did not necessitate a distance from the colonial regime, as was clear when he appealed to the Governor-General Woodburn to convince Indians to donate more money for this 'great cause'.[59] Moreover, Sircar was not opposed to British aid. In Resolution 8 of the Plan of the Association, Sircar made it clear that he was open to European assistance in terms of teaching as well as funds, even if that might be interpreted as 'departing from the quintessence of my scheme, which is to make my countrymen, in the matters of science cultivation at least, self-reliant'.[60] This was necessary because 'we must admit we have to learn even the very rudiments'.[61]

Again in Resolution 18, he made clear his expectations from the government for his 'noble' cause which any enlightened rule ought to promote. He said: 'We are fortunate to be under such a government as this, and therefore we sanguinely expect aid from it.'[62] Mahendra Lal was practical enough to realize that the task he had undertaken was difficult and the British aid was necessary even for his brand of self-reliance:

> It is impossible in the present day to cultivate science in all its branches and to the fullest without aid and encouragement from those who have all the resources of the country at their command. ...Government has already done much for the Association by its moral support, and by acquiring the land for it on which its premises stand; and it can do much more in a variety of other ways.[63]

Sircar was thinking of two categories of help. One was the employment of indigenous men of science in its services and the recognition of institutions like the IACS. The other was a desire for the colonial state to provide money and other forms of aid to such institutions.[64]

However, the significant condition that Sircar put on such aid was that it would not interfere with the independence of the Association: 'All this [if the] government can do without touching the independence of the Association, the Association will make much more rapid progress that it can with its own unaided resources.'[65] Sircar's preoccupation with such a notion of independence, and the identification of modern science as both Western and virtuous, shaped his attitude towards colonialism. Although an advocate of self-reliance and intensely nationalistic, Sircar did not produce a political, economic or even a cultural critique of British

[59] IACS, *Annual Report*, 1899, pp. 25–26.
[60] Sircar, 'A sketch', p. 71.
[61] *Ibid.*
[62] *Ibid.*, p. 77.
[63] *Hindu Patriot*, 1 June 1891, p. XXXV.
[64] IACS, *Annual Report*, 1898, p. 25.
[65] *Hindu Patriot*, 1 June 1891, p. XXXV.

rule. Unlike Bankim, he did not see British rule as 'invasive'. For him it was a positive force within the country bringing about desired cultural and social change:

> I am not ignorant of the fact that adverse circumstances for a series of centuries have had a most paralysing influence upon our energies, but these energies, as we have abundant evidence, are not altogether gone beyond recovery, and we have this advantage that we are now given, under a beneficent rule, opportunities for intellectual activity such as never existed even in days of our greatest glory.[66]

His appeal to the British was to fulfil, 'the mission for which Providence has appointed them,...to raise the Indian people to a level with themselves'.[67] While asking for aid from the British, Sircar suggested that: 'To the latter [British people] we doubt not, it will be gratifying to see that we have at least learnt to beg for such noble purposes which we must gratefully set to the credit of their own example....'[68]

Clearly, Sircar's reverence for Western scientific thought had ruled out the scope for any real antagonism towards British rule. Sircar's acknowledgment of the cultural superiority of Western knowledge had confirmed the power equation. India had to be eternally grateful to the West for having bestowed science on the country. It was due to such sentiments that Amrita Lal Sircar later took the initiative to help the British in their war effort during World War I. Speaking as the Secretary of the IACS he said: 'Both man-power and wealth-power of India should be sacrificed for the cause of our benign Government—a government which has given us peace, prosperity, wealth and order.'[69] His appeal was mixed with elements of loyalism, obedience as well as a celebration of the insulation of the scientist in search of higher truth. Arguing that if scientists help the government during war, the government would certainly help the IACS in the future, he added: 'Gentlemen, I do not dabble with politics, nor have I a mind to do so. I am a Hindu of the Hindus and I know too well that if I behave well, my governor can never be harsh with me. We must not find fault with others, but must know what we are.'[70]

Amrita Lal in fact described the coming of the British not in terms of conquest but as intimate family bonding.

> Britannia expanded her empire all over the Seas but she came to India not with the idea of conquest but to meet her elder sister as it were. The younger sister, seeing the lawlessness and disorder, prevailing over the whole country of her elder sister, gave her law and order and the elder in return bedecked her with pearls and gold....[71]

[66] IACS, *Annual Report*, 1899, p. 17.
[67] IACS, *Annual Report*, 1898, p. 21.
[68] Sircar, 'On the desirability', pp. 8–9.
[69] IACS, *Annual Report of the IACS*, Calcutta, 1915, p. 26.
[70] *Ibid.*
[71] *Ibid.*

The metaphor of the elder sister used here for India and the younger sister for Europe is very interesting. Although Mahendra Lal had generally referred to Indians as 'children', the evidence of India's ancient civilization and the Orientalist glorification of the same paved the way for such a comparison between India and Europe. The roots of the present state of India, in spite of such an illustrious heritage, lay, predictably enough, in its 'lawlessness and disorder'. Now, if the two metaphors used by Mahendra Lal and Amrita Lal are combined, we get an interesting picture. The elder sister (India) in spite of her age and wisdom had lost her glory due to lawlessness and disorder. As a result, she could not guide her children to maturity, which her younger sister (Europe), with her more superior order and new knowledge was able to do.

Mahendra Lal Sircar's self-reliant science was thus an offshoot of his moral nationalist project. This independent scientific research, in turn, was to be the crux of the Indian search for self-reliance in the political and economic arena. He used the phrase 'idle and passive murmuring' to indicate his attitude towards the nascent moderate political nationalism of his times. He always felt that nationalism could be achieved far more effectively through the practice of science than through 'platform blustering':

> We are justly desirous of having the privilege of self-government. We cannot have better fields than these (cultivating science independently) for the exercise of the virtue of self-reliance and for the display of our fitness for self-government for here we shall have help from all quarters and hindrance from none, if we only know to *help ourselves* (emphasis added).[72]

One way to achieve self-reliance was, as shown above, to focus on original research in science. The second was in the sphere of organization, primarily by arranging funding, necessary because science was expensive and, as Sircar understood well enough, 'men have stomachs as well as minds. The mind must have leisure to think that it may think with any advantage, and this can only be secured by providing the demands of the stomach.'[73] In his scheme funding had to come from Indians, to make both the IACS and Indians 'self-reliant'. In the annual meeting of 1887, he asked: 'But where are the funds to come from? Your Honour must have observed, that it has been my endeavour all along to make the Institution purely and entirely a national one.... I therefore expect and wish that the funds should come from my countrymen....'[74]

On another occasion, Sircar discussed how true self-reliance could grow out of two sources:

> And the only way, which I can think of by which this (growth of IACS) may be effected is to set free and properly direct the two forms of energy that are to be

[72] IACS, *Annual Report*, 1899, p. 20.
[73] IACS, *A Century*, p. 9.
[74] IACS, *Annual Report of the IACS*, Calcutta, 1887, p. 15.

> found in the country, partly latent and party working or rather, to speak in more appropriate terms, being dissipated in wrong directions, I mean the energy of intellect and the energy of hoarded wealth.[75]

This 'energy of hoarded wealth' was with rich Indians. Sircar's appeal for funds was mainly to them. Citing the example of Pearson and Carnegie of the United States of America, he added:

> May I not hope that the happy contagion will spread in our country, and bring under its blessed influence her patriotic sons, who will thus be enabled by the proper use of their wealth to wipe off for ever the stigma that has been cast by the poet upon her as being a land of 'barbaric pearl and gold'.[76]

He urged rich Indians not to 'squander whatever wealth you possess in idle amusements', and that donating money to the IACS would surely prove their 'enlightened liberality for the amelioration and elevation of your country'.[77] That would be their sacred contribution to nationalism:

> There is I believe potential energy in the shape of hoarded wealth. It has only to be set free for this purpose to be transformed into kinetic energy of the highest kind, because intellectual and moral, to raise your country from its present degraded position to the high level of the highest intellectual nation on earth. The possessors of this wealth have only to be awakened to their true interest and then things will be done.[78]

Sircar compared the costs of running laboratories worldwide to the funds available to the IACS, to emphasize the huge gap between costs and funds.[79] The most important need, Sircar felt, was to have paid professorships as it was important not to depend only on honorary lectures.[80] Almost all of Sircar's speeches were accompanied by an appeal for funds to this cause. But in reality, apart from Jamshedji Tata very few people came forward. Others showed little interest in Sircar's moral and socialist appeals. Sircar reacted sharply, feeling let down by his countrymen and protesting against the 'positive antagonism towards the Association'.[81]

[75] IACS, *Annual Report of the IACS*, Calcutta, 1891, pp. 26–27.

[76] IACS, *Annual Report*, 1901, p. 31.

[77] IACS, *Annual Report*, 1902, p. 27.

[78] *Ibid.*, p. 28. Such appeals based themselves on the 'moral and intellectual' aspect of 'nation-building'. However, Sircar also had an innate belief in the socialist distribution of 'hoarded wealth': '.... The money ought, in my humble opinion, to come from the rich whose wealth is ultimately traceable to the sweat of the brow of the poor. In contributing towards the advancement of science the discoveries of which tend more for their benefit than the benefit of the poor, the rich only repay a double debt which they are bound in all fairness to pay.' IACS, *Annual Report*, 1898, p. 25.

[79] *Ibid.*, p. 23.

[80] IACS, *Annual Report of the IACS*, Calcutta, 1900, p. 19.

[81] IACS, *Annual Report*, 1898, pp. 23–24.

> Strange as it may appear, it is a fact and a fact that remains a blot in the national character of the present time that the Association, though struggling for existence for upwards [of] a quarter of a century, is ignored and even looked down upon with cold disdain by those whom it gave not only the heartiest welcome but gave all the help and encouragement in its power to work within the walls.[82]

He observed that the wealthy sections of Indians were more interested in donating money to build a memorial to the late Queen Victoria. Hoping to lure them to the cause of scientific research, he offered to endow a chair in Queen Victoria's name. However, even that failed to take off.[83] Frustrated with such indifference, the doctor exclaimed: '...oh, that they would understand,...that there cannot be a worthier object of charitable endowment than learning....'[84]

Sircar's reactions were strong because for him Indian self-reliance and thus Indian adulthood was at stake. It seemed that Indians had failed to stand up on their own feet, and become 'men'. What frustrated Sircar most was the realization that very little fundamental research was actually being undertaken by young Indians in his Association. This indifference to the fundamentals of science, he felt, reflected Indian moral immaturity and thus the fallacy of Indian nationhood. He called the lack of enthusiasm to 'cultivate' science a 'conceit'.[85] In the last few years of his life, Sircar became increasingly restless and frustrated at the state of affairs. His anger was directed particularly towards young students: '...not a single student either during college life or after, has come forward, ever since the foundation of the Association, *to cultivate science for the sake of science*'.[86]

In his last speech in the annual meeting of the IACS he talked of how he felt he had 'wasted' his life:

> I do not know how to account for this apathy of our people towards the cultivation of science. And therefore I am forced to confess that I made a mistake in starting the project of founding a Science Association at all, and that I have wasted a life, as I have told you, in attempting to make it a national institution.[87]

Moreover, glimpses of India as a glorious, ancient civilization had made the task of introducing Western science into India even more complicated for Sircar and his colleagues. How Sircar and IACS tried to resolve certain contradictions in this regard constitutes the final subject for discussion.

[82] *Ibid.*

[83] IACS, *Annual Report*, 1901, pp. 25, 30; also see IACS, *Annual Report*, 1902, p. 18.

[84] IACS, *Annual Report*, 1902, p. 18.

[85] IACS, *Annual Report*, 1901, p. 33.

[86] *Ibid.*, p. 32.

[87] IACS, *Annual Report*, 1902, p. 19. At times Sircar felt the project had not even taken off. He found the task too imposing if not impossible:

Western Science and the Eastern Mind

Having defined Western science as essentially of European origin and pedigree, the problem Sircar faced was that of preaching it in a country that appeared so very different. The problem was indeed of a great magnitude to Sircar for he believed in the existence of an essential 'Eastern' mind and culture comprising the Asiatic world.

One of the main issues of the nationalist scientific endeavour was the need to locate European science within the Indian cultural context. The task was complicated because the knowledge that came to India was accompanied by a cultural re-definition, by an essentialism, which proclaimed its own universality and validity. It was a part of a discourse of power in an imperialist context. Natural sciences had become the paradigm of all rational knowledge in the post-Enlightenment view of the world. Rationality was seen as incorporating a certain way of looking at the properties of nature, of ordering the knowledge of those properties in a certain consistent and coherent way, and of using this knowledge of adaptive advantage vis-à-vis nature. What accompanied this development was the 'essentialism' of the rationalist ethic. This particular form of rationality, located in the historical specification of Europe, was seen as a characteristic of 'scientifically' oriented cultures. Other cultures were viewed as 'unscientific' societies which, in the cultural values of post-Enlightenment thought, were seen as 'backward' and 'uncivilized'.

Sircar's construction of 'Easternness' was often directly based on the Orientalist classifications of the East and the West, in which the Oriental man was essentialized in a manner that emphasized the differences between him and the modern Western man. If the distinctive culture of the West was its science, its technology and its love for progress with reason at its heart, the distinctive culture of the East was its spirituality. Quoting liberally from European Orientalist texts, Sircar had constructed the India of his ideas. Thus the India of antiquity was a land of 'all the wealth, power and beauty that nature can bestow'.[88] The Indian mind had 'most fully developed some of its choicest gifts, ha[d] most deeply pondered on the greatest problems of life, and ha[d] found solution of some of them which well deserve[d] the attention even of those who ha[d] studied Plato and Kant'. The literature that it produced was concerned with the inner and eternal life.[89] Indians were supposed to take pride in the fact that they 'own such a land as the land of

...But unless this be the faith of all my countrymen, or at least of our leaders, no amount of faith of a single individual will avail. Strangely enough, the experience of a whole life compels me to say that faith in the elevating and regenerating influence of science, if it does exist in the mind of our community, has not grown yet to bear fruit. Oye! Gentlemen, pardon me, if I question if it is a living faith at all.

[88] IACS, *Annual Report*, 1899, p. 15.
[89] *Ibid.*, p. 16.

their birth and [that they] have the privilege of having come from such a glorious ancestry'.[90] Sircar often referred to an 'Aryan vigour', while talking of Indian regeneration by which he meant the dormant but not dead spirit of the Indian mind. Not very clearly formulated, this concept acted as Sircar's link between the past and the present. He used it to argue that Indians were capable of pursuing scientific research.[91]

Sircar's cosmology was based on a distinction and yet an interrelation between the Eastern and the Western mind. The world consisted of things material and spiritual, of matter and the mind. They were intimately connected as matter was the manifestation of the Supreme Mind with the impress of His image upon it and, therefore, capable of development from lower to higher forms through fixed and eternal laws.[92] Thus, science, which to Sircar was the enquiry into the laws of so-called matter, was ultimately an enquiry into the thoughts of the Eternal Mind. It is possible to see that Sircar's cosmology of mind and matter was influenced by Bacon's notion of the Divine Mind and the new scientific method of grasping the same. In Sircar's opinion the West and East had pursued two different trajectories of development. While the West pursued the study of the laws of matter, the East had only been involved with the mind. Eastern spirituality, according to Sircar, had become meaningless without matter and 'reason'. Thus begins his critique of the East. This critique reflects the Orientalist obsession with—and the romanticization and overvaluation of—Eastern spirituality, which had suddenly and paradoxically given the East a lamentable, backward appearance. In other words it was the opposite 'back swing of the pendulum' referred to by Said.[93] The confinement to the spiritual domain was the crux of the decline of the East because, as Sircar put it: 'To despise matter and to neglect the study of its laws is to despise ourselves and to neglect our own interests.'[94]

Similarly, in the Orientalist pattern, Sircar went on to produce a critique of the aggressive materialism of the West. In doing so Sircar came close to his contemporary and prominent nineteenth century Bengali intellectual—Bankim. He, too, like Bankim, stressed on how Christianity had failed to counter material culture:

> The Civilisation of the west, notwithstanding its profession of the blessed religions of love preached by Jesus Christ two thousand years ago, is still and threatening to become more and more the civilisation of iron and blood, whose aim seems to be to polish the weaker nations and the so-called savage races off the face of the earth, forgetful or unmindful of a cardinal doctrine of that religion, that 'of one blood hath God made all the nations of man'.[95]

[90] *Ibid.*
[91] IACS, *Annual Report of the IACS*, Calcutta, 1896, p. 20.
[92] IACS, *Annual Report*, 1902, pp. 20–21.
[93] Said, *Orientalism*, p. 150.
[94] IACS, *Annual Report*, 1902, p. 22.
[95] IACS, *Annual Report*, 1900, p. 25.

For Sircar, the solution was thus not in European Christianity which seemed, before this aggression, 'to be absolutely impotent'.[96] According to Bankim the answer was to be sought in the spirituality of the East. Bankim's synthesis was to produce a complete and perfect man—learned, wise, agile religious and refined—a better man than the merely efficient and prosperous one of the West.[97] Sircar, too, believed that Eastern spirituality could 'humanize' the West: 'Even at the risk of raising the smile or even the laughter of contempt at the audacious declaration, I cannot help giving expression that that influence will proceed from India....'[98]

Central to such a claim was Sircar's belief that religion and spirituality could play an important role in science. Spirituality was not opposed to science; it was the crowning glory of man's rational pursuits, the ultimate sphere for man's search for the truth of nature or the Supreme Mind:

> I cannot believe that faith is blind and religion is irrational, that is, that they have no basis in the understanding as they have in the heart. What truly constitute man's higher and spiritual nature are, it must be remembered, *super-addition to his animal and intellectual nature, which they were intended to crown, and not supersede*. They stand enthroned on their conjoint platform. And the more elevated the platform the sublimer must be the flight of that which stands by the platform (emphasis added).[99]

India, Sircar believed, could provide this 'sublime' spirituality to Western materialistic science. This ultimate refuge in Indian spirituality was an interesting reflection of the romantic Orientalism of Bouvard, Schlegel and Novais. The latter believed that a study of Indian spirituality would defeat the materialism and mechanism of the West, leading to the regeneration of Europe.[100] Sircar's nationalism altered this vision slightly for an Indian regeneration.

[96] *Ibid.*

[97] Chatterjee, *Nationalist Thought and the Colonial World: A Derivative Discourse?* Delhi, 1986, p. 67. However, in Bankim Chandra Chattopadhyay's case, the reconstruction of the perfect man was perhaps not as straightforward as suggested by Chatterjee. Sudipto Kaviraj argues that Chatterjee exaggerates the Victorian elements in Bankim's Krsna—the perfect man. According to Kaviraj, Bankim reconstructed Krsna within a traditional framework of re-definition. In the Gaudiya Vaisnava tradition, Krsna was transformed from a warrior-rationalist figure to a man of action and serious philosopher of praxis. Bankim reconstructed Krsna from within that tradition to provide a rational (as different from 'rationalist') solution to the crisis of the colonial situation. Krsna, through this 'rational' reconstruction, was transformed into the God of a dependent nation and had to help the nation to cross, nullify, reject, and transcend (in practice) the historic indignity, subjugation. This is part of Kaviraj's larger contention that Bankim was a man of both the traditional and the modern worlds. Bankim's aesthetic can be set against that of classical Sanskrit literature, and at the same time, that of the modern. See Sudipto Kaviraj, *The Unhappy Consciousness: Bankimchandra Chattopadhyay and the Formation of Nationalist Discourse in India*, Delhi, 1995, particularly, pp. 74–106.

[98] IACS, *Annual Report*, 1900, p. 26.

[99] Ghosh, *Life of Dr. Mahendralal Sircar*, p. 317.

[100] Said, *Orientalism*, p. 115.

But which India could fulfil the imposing task of humanizing Western science? The present degraded, divided, immoral one? Bankim had imagined an ideal India which had a strong, aggressive Hindu national culture and pride.[101] Mahendra Lal Sircar, the scientist, sought a different route. To influence Western civilization, the East must morally regenerate itself through Western science and 'rational' culture. Both men were talking of a cultural assimilation, a national regeneration of the East and 'moral conquest' of the West, although in different terms.

Sircar's concept of true religion was at variance with that of Bankim. Sircar's monotheism, his belief in the Almighty Father, differed from Bankim's trinity.[102] Along with it went his critique of Hinduism, particularly its idolatrous priesthood. He actively supported movements aiming to reform Hindu social systems, and placed additional emphasis on the 'unscientific customs'. He was a great advocate of the raising of the marriageable age of boys and girls in the Brahmo Marriage Act inaugurated by Keshab Sen, and of the Age of Consent Bill. His argument was based on scientific analysis of anatomy and health.[103] He was a monotheist and his writings show his reverence for the Creator, his faith in His Dispensation and a thorough resignation to His Will. He denounced idolatry and saw 'God in Nature' and 'Nature in God'.[104]

It was with such faith in monotheism and the Supreme Mind that Sircar sought to question Darwin's theory of natural selection. And it was here that he found an ally in his life-long partner Father Lafont, the Jesuit Missionary who had urged Indians, not to '...attach undue importance to discoveries on the material side of the Universe'.[105]

Father Lafont's (1837–1908) career was closely linked to the history of St Xavier's College (1860), an important institution of science education in nineteenth century Calcutta. Lafont received his training in science at Namur. As soon as he reached Calcutta, he started popularizing and demonstrating elements of science and acquired apparatus for his laboratory. In St Xavier's College, Lafont was primarily involved in meteorological studies and had an observatory built on the college terrace. He was soon well known for his accurate prediction of the cyclone of 1867. In 1874 he initiated investigation in spectro-telescopic studies and started astronomical studies, in which he was helped by Father Penaranda.[106] The Jesuits had a long tradition of scientific research and publication dating from the early seventeenth century. As men travelling to far corners of the earth to preach their faith, they facilitated research, particularly in the fields of astronomy, celestial mechanics and geodesy. Travelling in various parts of Asia, Africa and America they carefully studied and documented diverse natural phenomena.[107]

[101] Chatterjee, *Nationalist Thought*, pp. 56–57.

[102] *Ibid.*, p. 67.

[103] Bose, Chunilal, 'The science association and its founder', pp. 45–46.

[104] *Ibid.*, p. 46.

[105] IACS, *Annual Report of the IACS*, Calcutta, 1907, p. 45.

[106] *Ibid.*, pp. 80–84.

[107] Steven J. Harris, 'Transporting the Merton thesis: Apostolic spirituality and the establishment of the Jesuit scientific tradition', *Science in Context*, Vol. 3: 1, pp. 29–65.

In the early 1880s Percival Spencer, a ballooning expert, organized a show in front of a huge crowd who had bought tickets for the event at Ballygunje *maidan*. The gas company involved failed to inflate the balloon, Spencer's attempt was unsuccessful and tickets were refunded. Lafont, never to lose out on a chance to demonstrate the wonders of science to an Indian crowd, volunteered to generate the hydrogen required if Spencer agreed. This was settled and a few days later another huge crowd assembled at the Race Course; the Grand Stand Course and *maidan* were packed. The Viceroy Lord Ripon was present and, much to everyone's joy, the balloon slowly rose, helped by a high southerly breeze.[108]

If Lafont indulged in flights of fancy, Sircar sought to ground his ideas in practical considerations. In Sircars's scheme of Eastern spirituality the Eastern mind was endowed with a high imagination which could give a new direction to scientific research. But he was careful to stress that an Oriental imagination was meaningless if it lacked 'rationality'. It had to be brought under the control of reason, so that it 'may not run wild regardless of or in opposition to, positive facts'.[109] Reason would be the string to tie the balloon of the Indian imagination to the ground; imagination without reason had been the root of Indian misery.

> (How) the Asiatic mind can be developed to its full proportions, is by the cultivation of physical sciences, where the imagination may take its sublimest flights, but always as a captive balloon, though with an ever lengthening chain of positive facts, which, while it gives it ample scope to soar beyond the region of senses, keeps it bound down to the solid ground of truths already discovered.[110]

Thus on the one hand while Indians were taken on a fascinating ride into the world of scientific wonders, on the other, they were taught the virtues of scientific control, order and rationality. Western science was to take total control of Indian emotions and their intellect. This was how the project of their 'regeneration' was supposed to take off.

The Jesuit scholars of St Xavier's college, such as Lafont, used the college laboratory to demonstrate scientific theories and experiments with the help of instruments. They also encouraged students to take part in such experiments. During the 1870s while a few pieces of scientific equipment languished in Presidency College, the St Xavier's laboratory was vibrant with activity and was the 'cynosure of all eyes'.[111] Lafont wrote to his Superior in Belgium to send the college more priests with scientific learning. During his visits to the Paris Exhibitions (1879 and 1900), Lafont procured the latest equipment for his laboratory.[112]

[108] Udayan Namboodry, *St. Xavier's: The Making of a Calcutta Institution*, Delhi, 1995, p. 69.
[109] IACS, *Annual Report*, 1900, p. 22.
[110] *Ibid.*, pp. 22–23.
[111] Biswas, 'Revered Father Eugene Lafont', p. 86.
[112] *Ibid.*

Moreover, under his leadership the Society of Jesus sought to develop a scientific culture not only in Calcutta, but also through the metropolis, in other parts of the country.[113]

Father Lafont, like Sircar, was a crusader for fundamental research. His advocacy of greater stress on science—experimental science in particular—and more laboratories in colleges convinced the members of the 1903 Indian University Commission to develop more laboratories and museums.[114] To Lafont, fundamental science had a great appeal because as a missionary, a teacher and a scientist in colonial India, he found in such science the means to enlighten Indians about the 'truths' of nature. Technical training could be helpful only after that: 'It would be difficult to teach a nation how to apply things they do not know anything about. It is necessary, therefore, to teach the sciences before their application to the arts could be taught with advantage.'[115]

Sircar could not have found a better supporter for his own project of enlightening Indian minds with the virtues of science. It is not surprising that Lafont was the first to respond positively to Sircar's 1869 article. Lafont subsequently assisted Sircar in establishing and developing the IACS. Significantly the Catholic priest considered this to be the best thing he did in India.[116] The most crucial area in which their ideas met was in their concepts of spirituality, religion, mind and matter. They met in Sircar's monotheism and Lafont's Catholicism. Being a Catholic priest and a scientist was problematic, particularly when modern scientific theories were rejecting Christian theology. It was necessary for Lafont to reconcile the two worlds. For Lafont the study of scientific truth was the 'study of God's works'.[117] About being a Christian missionary he said: 'I belong to a community commonly, though erroneously, regarded as antagonistic to science. Well gentlemen, I declare to you, though Catholic and a Priest, I hail with delight and pursue with love any advance of true science.'[118] Lafont often asserted: 'Truth cannot be opposed to truth.'[119] For him the study of science was compatible with the unearthing of the spirituality of Christianity. As science dealt with nature, the study of the natural laws was the study of God's creation. Thus to Lafont also the practice of science had a moral significance: 'The more we study the works of God, the more are we convinced of the "vastness", the "glory" and the "splendour" of the Mind which is often beyond our grasp.'[120] Thus their project was a joint one. The roots of this project lie in the relationship between natural philosophy and theology in early modern Europe. As is being increasingly recognized, they

[113] *Ibid.*
[114] *Ibid.*
[115] *Ibid.*, p. 84.
[116] *Ibid.*
[117] IACS, *Annual Report of the IACS*, Calcutta, 1904, p. 29.
[118] Namboodry, *St. Xavier's*, p. 77.
[119] Biswas, 'Revered Father Eugene Lafont', p. 87.
[120] IACS, *Annual Report*, 1902, p. 32.

shared a deep conceptual influence and interaction.[121] The central feature of such an interaction was the concept of God. The role and point of natural philosophy was the study of God's creation and God's attributes. The central urge was to study God and God's creation: 'natural philosophy was *about God* and *about God's universe*. Indeed, this was the central pillar of its identity as a discipline, both with respect to its subject-matter and to its goals, its purposes, and the functions it served. This was what, more than anything distinguishes it from our modern science.'[122] The conflicts between science and religion were a much later phenomenon, particularly reflected in the debates around Darwin. Sircar and Lafont's ideas could be seen as a reiteration of this earlier European tradition.

However, the very fact that they had articulated it in a colonial world had attached new meanings to this concept. It had enriched science as a moral force in a different territory. Lafont recommended science as the ideal moralizing and learning experience for the 'regeneration' of the Indian 'mind', which was not true for 'many other products of western civilisation'.[123]

> When I took upon myself the task of diffusing and popularising Science in Bengal and joined my efforts to those of Dr. Sircar, I was compelled by the thought that I could in all conscience recommend to the natives of this country, the unrestricted study of Western Science without misgivings or restrictions, because. I saw in it the study of God's works and nothing but good can come out of it.[124]

For Lafont, such a study would ensure a higher morality and a new religious ethic among Indians which came tantalizingly close to Christianity. The moralizing tone of this passage reminds us that Lafont had come to India not just to teach science:

> In the study of the laws and facts of Nature, they ['the natives of this country'] would find an incentive to the love of Nature's God, they would increase in reverence for the Creator, they would in fact become not only *clever* men, but *better* men, knowing their duties towards their Almighty Father and towards their fellow creatures, in a word they would learn to become more useful and less selfish members of the Universal Brotherhood of mankind (emphasis added).[125]

[121] See Andrew Cunningham, 'How the *Principia* got its name: Or, taking natural philosophy seriously', *History of Science*, Vol. xxix: 83 (part 4), 1991, pp. 377–92; Amos Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century*, Princeton, 1986.

[122] Cunningham, 'How the *Principa* got its name', p. 381.

[123] IACS, *Annual Report*, 1904, p. 29.

[124] *Ibid.*

[125] *Ibid.*

To be fair to Lafont, however, he was not the only person preaching a new religious ethic bordering on Christianity in nineteenth century India. Rammohan's monotheism shared many of the aspects of Christian cosmology. In fact we have already seen how Sircar's monotheism shared some of the values of Lafont's spirituality and morality, and urged that Western science be infused with this new religious ethic. Both believed in taking the Indian mind to a higher morality and enlightenment with this combination of materialism and spirituality. The IACS had provided the ideal platform for this project. In an Orientalized India Lafont found an ideal field to re-activate the 'ideal', of a 'lost' spirituality to counter materialist Western science. And in the spirituality of science Sircar found the ideal justification for the study of science by Indians. Such was the common meeting ground for Lafont and Sircar.

In his attempt to build a bridge between Western science and the Eastern mind, Sircar found Comte's positivism too materialist, as it sought to eliminate the concept of the Supreme Mind from science. He remarked that it was 'a philosophy which had gone far beyond agnosticism, and audaciously taken up the position of an emphatic protest against all belief in a creative intelligence as opposed to all progress...'.[126] Indian positivists, of course, found Sircar's theological hypothesis regarding the origin and destination of the world incompatible with positive science. 'A man cannot serve two masters' they wrote; 'sooner or later, he, [Sircar] must make his election between theology and Positive sciences'.[127] But Sircar was firm in his faith in the need to spiritualize science. To demonstrate his point he challenged Darwin's theory of natural selection, in which he found support once more from his missionary friend.

In a famous lecture, called the 'Moral influences of physical science', Sircar argued that the history of evolution had to take note of the concept of first cause.[128] He showed that in the beginning even Darwin almost agreed to the existence of a Deity and a First Cause, but later doubted the ability of the human mind, which he believed had evolved from the lowest animals, to deal with such complex thoughts of its own origins. The implication of Darwin's arguments, that the mind of man could not be trusted to come to any conclusion, was unacceptable to Sircar. For it would lead men to 'suspend judgement in every matter and paralyse all action'.[129] For Sircar the human mind was capable of drawing legitimate conclusions from sufficient data using the 'scientific' method. Such methods would establish the legitimacy of the First Cause as it 'satisfies the very necessity of our being, and offers the only solution of the great mystery by which we are surrounded'.[130]

To the doctor it was not only the origin but also destination of life that was important. Death for him was a blessed event that freed the inner spirit from the trammels of its existence in this world. A concept of never-ending life was crucial

[126] Sircar, *Moral Influence*, p. 30.
[127] 'Dr. Sircar on Scientific Education', *The Bengalee*, 15 January 1870, pp. 20–22.
[128] Sircar, *Moral Influence*, p. 30.
[129] *Ibid.*, p. 22.
[130] *Ibid.*, p. 23.

to Sircar's scheme, for then man could see a beneficial meaning in the Universe and could be assured of his destiny and his reverence for the Supreme Mind. For Sircar, science was the knowledge which sustained this grand faith in the origin and destiny of life. True knowledge of science would sustain faith in the Creator and not oppose it.[131]

If such was the nature of true science, Sircar argued, it had great prospects in the land of spirituality—India. He suggested that the introduction of science to the Eastern mind would not be disruptive or shatter its spirituality—leaving behind a 'bitter atheism and sad agnoticism'—as was often feared. It would actually enrich its spirituality:

> I do not believe that man's higher nature has suffered in the least from the advance of science. I do not believe that the noblest aspirations of man have received any check from the unfolding of what are falsely called 'cold material laws'.
>
> I do not believe that man's primitive faith and with it his religion, has anything to fear from what are ignorantly apprehended to be encroachments of science.[132]

Darwin's theory which argued for the abolition of teleological evolution was highly disturbing to the late nineteenth century European intelligentsia. Both religious groups and biologists found it difficult to accept evolution merely as competition for survival and without a specified goal.[133] Sircar's reaction ran along lines similar to the contemporary European reaction to it.

It should also be mentioned here that Darwin's theory of evolution was widely contested in nineteenth century colonial India. Bankim's explanation of evolution rested on the concept of a Hindu trinity: creator, preserver and destroyer (Brahma, Vishnu, Maheswara). His attempt was to show that the trinity was not in opposition to science.[134] The other important critique came at a slightly later period from Ramendra Sundar Trivedi. Trivedi's ideas were similar to Sircar's, but he could not sustain his absolute faith in science. He came to the conclusion that the evolution of the world was ultimately *maya*—controlled by supernatural forces beyond the comprehension of science.[135]

Sircar and Lafont, however, remained faithful to their particular definition of science, particulary its moral message for Indians. In his last communication to the IACS, before his death, Sircar wrote: 'I have only to reiterate my conviction that if our country is to advance at all and take rank and share her responsibilities

[131] *Ibid.*, pp. 23–30.

[132] Ghosh, *Life of Dr. Mahendralal Sircar*, p. 317.

[133] Kuhn, *The Structure of Scientific Revolution*, Chicago, (1962) 1970, pp. 140–41; James R. Moore, *The Post-Darwinian Controversies: A Study of the Protestant Struggle to come to terms with Darwin in Great Britain and America, 1870–1900*, Cambridge, 1979.

[134] Chatterjee, *Nationalist Thought*, p. 67.

[135] Kumar, *Science and the Raj*, p. 195.

with the civilised nations of the world, it can only by means of science on positive knowledge of God's work....'[136]

Thus Sircar presents another instance of the negotiation between the material and spiritual domains that marked Indian nationalism. Partha Chatterjee puts forward an argument to explain this phenomenon, which he considers a 'fundamental feature of anti-colonial nationalism in Asia and Africa'.[137] According to him, anti-colonial nationalism created its own sphere of sovereignty within the colonial society where the 'material' was a domain of the 'outsider'. In this domain Western superiority was acknowledged and its accomplishments had to be studied and replicated. The 'spiritual', on the other hand, was an 'inner' domain, bearing the essential marks of a colonized society. It was essential as a part of the search for national identity to preserve this spirituality and to keep the West out of it.

Sircar's career, although conforming to Chatterjee's logic of Eastern spiritual essentialism, is problematic regarding the question of sovereignty. Sircar stressed the peculiarity of Indian spirituality but in doing so he did not deny the West its spirituality either. His project was to revive that spirituality which was lost to the West or to Western science. To that extent the East appeared to have been endowed with certain advantages, as it, unlike the West, was yet to lose its spiritual self. For Sircar, the spiritual domain was neither exclusive nor private to the East. His spirituality shared and acknowledged the vision of Christian cosmology. His association with Lafont and his rejection of positivism confirms this project of a joint vision. Moreover his discourse on Darwin showed that he was prepared to launch his debate at a public sphere with representatives of both the West and East. On the other hand, Sircar acknowledged at the public level the need to expunge the non-progressive elements from Hinduism in order to adjust its worldview with the requirements of a rational world order. It was through these negotiations that Sircar hoped to revive a universal spirituality in both East and West.

Conclusion

Science, for Sircar, was a moral force. The study of its material and spiritual aspects would reveal the Supreme Mind to human beings. The West was far ahead in this pursuit as it had developed the material study of the same. What it now had to do was to revive its spiritual side. The East, on the other hand, was in a worse situation. Not only had it failed to develop the material culture of science, but it had also lost its true spirituality because of the contemporary decadence in Hinduism. The task for the IACS here was thus two-fold—to inculcate materialistic research and at the same time orient it towards spiritual pursuits. And Indians had to perform this task themselves, as only that would ensure that they became responsible, self-reliant individuals.

[136] IACS, *Annual Report of the IACS*, Calcutta, 1903, p. 2.

[137] Partha Chatterjee, *Nation and Its Fragments: Colonial and Post-Colonial Histories*, Delhi, 1994, p. 6.

Sircar, at the same time, belonged to that group of nationalist thinkers who had produced a critique of the materialism and hedonism of the West. He found in the increasingly materialist science an immorality that symbolized modern Europe. This science, he found, was unable to fulfil his grand expectations of national awakening. This dual relationship with materialism and science defined Sircar's nationalist science. His nationalism called for not only the adoption of science but also its 'spiritualization'. This was his point of critique, his moment of departure. But what was the content of this re-definition of science?

To begin with, Sircar did not produce a political or cultural critique of colonialism. Also, his popular discourse had marked a clear hierarchy between Western and Eastern knowledge where the former was identified as mature and the latter as adolescent. Spiritualizing science was, however, essentially a modern European project. It was directed at a science that had in modern times consciously asserted itself as antagonistic to religion and at a religion that had undergone a divorce from natural philosophy. Sircar's re-definition of science was located within such a European problematic. His new science appealed to a pre-Darwinian search for the Supreme Mind. This was a reiteration of the values of seventeenth century European natural philosophy, a project already successfully marginalized by modern science.

The similarities of Sircar's thought to the ideas of Lafont illustrate the point. He shared Lafont's famous notion of 'from Nature's God to the God of Nature'. Both their ideas were mooted in that earlier project of the realization of the 'Supreme Mind'. Sircar's critique of Darwin could be located within the same context. It proposed nothing novel to the West, which had learnt to separate Christian cosmology from science and to marginalize the former. To that extent, the questions Sircar raised appeared archaic and obsolete to nineteenth century Western science. It came at a time when 'science' had comprehensively eclipsed natural philosophy. The marginalization was to such an extent that despite such philosophical differences the science practised by the Jesuit missionaries had the same cognitive content and symbolic language of the 'materialist' science. The formal structures of an alternative search were not designed. Sircar's IACS too suffered from a similar lacuna and thus in the subsequent years of Indian nationalist involvement with science these crucial areas of Sircar's project were easily forgotten.

Moreover Sircar's monotheism, like Rammohan's, was actually a modern development reflecting the impact of Christianity on Hinduism. For Sircar, contemporary Hinduism diverted the mind from God's work due to ritual and priesthood. An interesting way to situate Sircar's spirituality would be by analyzing his interaction with the mystic saint Ramkrishna. Sircar treated Ramkrishna for throat cancer towards the end of his life. The saint, an illiterate worshipper of Kali, who lived and preached in a mystic *tantric* world, exposed Sircar to complex *tantric* ideas. Dr Sircar acted as a friend and companion and as a professional doctor. He would come to treat Ramkrishna, ask him a few questions, and then stay for hours to talk to the saint and argue with the devotees about their belief, about the merits

of Western science and physiology, and about the meaning of Ramkrishna's trance (*samadhi*). But Sircar rejected Ramkrishna's *tantric* religion. For Sircar it represented a decadent Hinduism, although he respected the Saint for his wit and wisdom. He stated that *bhava* and *samadhi* were manifestations of mental perversion, and had particular objection to the deification of Ramkrishna by his disciples. According to Sircar, religion had to appeal to reason. Science and religion were the two strands of the same rationalist pursuit of understanding nature. One appealed to the material world and the other to the spiritual. Ramkrishna's religion was, of course, woven around the concept of love towards and worship of Kali, the Goddess of *shakti*.

To Ramkrishna and his followers, Sircar represented the Western rationalist man who had taken the attacks of the Christian missionaries on Hinduism seriously.[138] Ramkrishna's disciples believed that Sircar was a man who believed in God, but did not honour the scriptures, the gods and goddesses, or the strange powers that the sages were said to posses. They thought that the doctor 'could not understand such events' as he was 'so influenced by western education'.[139] Sircar remained a friend to them, but a critical non-believer. Within his rigid definition of Hindu spiritualism, men like Ramkrishna and his followers had become unacceptable. Thus, although Sircar had attempted to restore science to its earlier amorphous character by blurring the boundaries between science and religion, it was his definition of the two domains that restricted his project. Within his nationalist discourse European epistemology was ultimately entrusted with the dominant, paternal role which had defined both the material and spiritual domains. Thus, while the popular arena, in the process of appropriating science, had questioned some of its central themes, it had also, ironically, served finally to confirm it.

But it is because of this complex fusion of ideas that Sircar remains an important part of the Indian nationalist discourse. Although one of the earliest Indian nationalist enthusiasts of science and nationalism, Sircar does not fit into the modern Indian secular tradition, which Nandy calls 'official secularism'.[140] In fact, Nandy's categorizations of public/private and secular/religious do not apply to Sircar.[141] This is because Sircar had rejected the dichotomy between the secular and the religious and in doing so avoided the trap of the 'private' and 'public'. Sircar, therefore, could simultaneously establish the first Indian science association, remain a worshipper of rational values in his private and public life, and also find a friend in a missionary to critique Darwin in a public lecture or reject Comte's positivism. It was these elements which made his project particularly protean.

[138] Jeffrey J. Kripal, *Kali's Child; The Mystical and the Erotic in the Life and Teachings of Ramkrishna*, Chicago, 1995, pp. 253–55.

[139] *Ibid.*, p. 256.

[140] See Ashis Nandy, 'An anti-secularist manifesto', *Seminar*, October 1985, p. 15.

[141] See *Ibid.*; and his 'The politics of secularism and the recovery of religious tolerance', *Alternatives*, Vol. XII, 1980, pp. 177–94.