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RESEARCH ARTICLE

HOW THE FIRST BRITISH MODERN MEDICAL TRAINING INSTITUTE NATIVE MEDICAL INSTITUTION (NMI) BEGAN TO START FUNCTIONING

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Abstract

[Modified version of this paper has been included in my book The Calcutta Medical College, 1822-1897: Medicine, Social Psyche and the Making of Modern Citizenry (Primus, 2025)] On the 9th May 1822, the Medical Board of Bengal Province communicated to the Government a memorandum, pointing out the want of native doctors for the supply of the various establishments connected with the civil and military branches of the service, and suggesting the establishment of a school for native doctors, to be maintained at the expense of the Government, as the only means by which the deficiency could be supplied. Governm ent highly approved of the suggestion, and called upon the Medical Board to submit more detailed arrangements of their plan, in the form of a regulation for the proposed institution. Accordingly on the 30th of May, the Board submitted their plan of a school for native doctors, which meeting with the approbation of the Government, a general order was issued on the 21st of June 1822, establishing the school on the proposed plan. It has been shown that from October 3, 1823, the teaching and other academic activities of the School really started.

Introduction:-

As we have mentioned previously about the military need leading to the foundation of the NMI, the fact is substantiated by no other than the then Secretary to the Bengal Presidency Charles Lushington. He observed – "Owing to the extension of our territory, and the consequent wide distribution of the army for it's (sic) protection, a great number of the Native Battalions had been broken down into two and sometimes more sub-divisions."[1] As a result, the medical list "was far too limited to allow of the allotment of an European Surgeon to each of these numerous detachments, which were thus frequently confided to the case of ignorant and inexperienced Natives."[2] Hence to have somewhat better qualified medical and surgical attendants a teaching school for the Indians were almost mandatory.

[1] Charles Lushington, The History, Design, and Present State of the Religious, Benevolent and Charitable Institutions, Founded by the British in Calcutta (Calcutta: 1824): 313.
[2] Ibid.

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Lushington goes on to explain – "The system adopted for the Instruction of the Native Medical Students, corresponds with that introduced by Colonel PASLEY (Sir Charles William Pasley), of the Royal Engineers, for the education of the Non-Commissioned Officers and Privates of the Royal Sappers and Miners, in Geometry and Mathematics."[3] To note, what has been said previously regarding "secular social hierarchy" is further substantiated by that "any coolie attached to the army, once he became well versed in the Nagri script and qualified in basic hospital skills, could rise to become a native doctor."[4] Moreover, "they started their career as dressers in the medical establishment and rose to become compounders and finally native doctors, the last being the highest position in the hierarchy of native subordinate medical staff."[5]

However, "When the Native Medical Institution for educating and training native doctors in Calcutta was founded in 1822 Surgeon James Jameson was appointed Superintendent."[6] He died on January 20, 1823 – only after seven months of his service. At the NMI, men irrespective of caste, creed and social background could start their medical studies in Urdu on a clean slate. "The 1831 list of students appointed to the service of government showed a nice mix of Hindus and Muslims who came from Upper India and Bengal. As Native doctors they were scattered all over the Bengal Presidency in both civil and military postings ... In 1833 there were 38 Muslim students in the NMI and the rest of the 60-plus students were Hindus."[7]

To its credit, the NMI systematized medical instruction and laid out strict codes of medical apprenticeship and training. For the first time in India during medical training of the Indian students the term "class of public servants" was applied.[8] Hence professional public service came into being under the superintendence of military.In the first few months there were not enough students to begin classes at the NMI. So, in September 1822, Medical Board wrote a letter to the government requested to circulate the rules and regulations of this institution (to be printed in Bengali) among the educated urban people of Calcutta.[9] Most likely, as a result of this effort "thirty students had previously existed under Dr. Jameson, a knowledge of Hindustani was required, they received eight rupees monthly during the course of three years' study"[10]. However, NMI initially started at the old house of Ramkamal Sen (the Diwan of the Treasury, Treasurer of the Bank of Bengal and Secretary of the Asiatic Society, Calcutta), which was known as the Albert College. Jameson used to give lecture in Urdu or Hindi primarily on anatomy, surgery and materia medica.[11]

After the demise of Jameson, Peter Breton was appointed the superintendent of the NMI. NMI started its classes and training with only a single teacher, without any fixed curriculum or definite period of time. Historically it was the first educational institution of its kind in British India. The "period of nativity/gestation period" for "hospital medicine" began to function as the harbinger of modern medicine in India.[12]Truly speaking, NMI started its functioning in 1823. It was located in a rented house at Park Street, Calcutta, on the estate of its superintendent Peter Breton. The superintendent lived on the estate and the teaching and residential areas were all on the campus. On his death in 1830, a rent of Rs. 230 was paid to the estate's executors.[13] On taking charge of the superintendent Breton

[3] Ibid, 318.
[4] Seema Alavi, Islam and Healing: Loss and Recovery of an Indo-Muslim Medical Tradition, 1600-1900 (Delhi: 2007), 71.
[5] Ibid, 71-72.
[6] D. G. Crawford, A History of Indian Medical Service, 1600-10913 (hereafter HIMS), in 2 volumes, vol. 1, 318.
[7] Ibid, 74.
[8] William Casement, "Formation of a Native Medical Establishment, Asiatic Journal and Monthly Register for British India and its Dependencies 15 (1823): 170-172. This particular term of "public servants" was mentioned in the Clause 29 of the government order. Clause 29 read thus – "With a view of encouraging this important class of public servants ... the Government have resolved, that the pay of native doctors educated at the institution shall be raised above the rates which have been hitherto ordinarily allowed to the same description of persons".
[9] Binoy Bhushan Roy, Chikitsabijnaner Itihs (Unis Satake Banglay Paschatya Sikshar Prabhab) (Calcutta: 2005), 27.
[10] James Long, "Vernacular Education in Bengal", Calcutta Review 1854 (Vol. 22): 329.
[11] Binoy Bhushan Roy, ibid, 27,
[12] For a detailed study on this issue see, Jayanta Bhattacharya, "The genesis of hospital medicine in India: The Calcutta Medical College (CMC) and the emergence of a new medical epistemology", Indian Economic and Social History Review 2014, 51 (2): 231-264.
[13] Alavi, Islam and Healing, 73.

devoted his time to produce texts for his students. All these texts from English were translated or reproduced in vernaculars for the first generation learners exposed to European medical knowledge system.

The first book which Breton wrote in 1824 was Hindoostanee Version of the London Pharmacopoeia. Next, in 1825, he wrote A vocabulary of the names of the various parts of the human body and of medical and technical terms in English, Arabic, Persian, Hindee and Sanscrit for the use of the members of the Medical Department in India. Following this he translated or originally wrote for his Indian students about 15 books. Some of these were Essays on poison, viz.: On the venom of Serpents; On mineral poisons; On vegetable poisons (in Hindi, 1826), Introductory Lecture on Anatomy (in Persian language, 1829) etc.[14]

Regarding Indian students' knowledge of anatomy and understanding of various organs inside the body, Breton observed – "they [i.e., the "Asiatics"] have no distinct words for nerve and therefore call it Nus, Asub, Shirra, etc. in common with Ligaments and Tendons…they know not the distinction between an Artery and a Vein and consequently the appellation of Rug and Shirra are indiscriminately applied to both. The Hindee word Rug and Shirra according to the Soosrut, a Sanskrit work on Anatomy and Pathology, means blood vessels or tubular vessels of any kind."[15] It is profitable to review Khaleeli's remark in this regard – "Indian inferiority was mapped to the very land. Thus while there was an attempt to investigate India, its cultures and its medicine, much of the motivation behind the moves is far from an appreciative interest in an alternative culture. In discussing the interchange between the medicine of East and West"[16]It can be once again said that the G.O. for the formation of the NMI consisted of 39 clauses elaborately elucidating requirements and proto-syllabus of the NMI. Sharp describes the phenomenon tersely:

In 1822 the establishment of a medical school to consist of 20 students with allowances of Rs. 8 per mensem each, and a superintendent on Rs. 800 was settled. The Court did not altogether approve and expressed a preference for the Fort St. George plan of training half-castes as dressers. The Court also thought the salary of the superintendent excessive. In 1825 the Medical Board explained their reasons for not adopting the Madras system and the superiority of their own scheme. During the prevalence of cholera in 1825 the students were most usefully employed. In 1826 the number of students was increased to 50 and the stipends to Rs. 10. The Court approved and sent out certain Models (anatomical models like Lizar's and Cloquet's ones).[17]

In 1825, it was observed that notwithstanding their acknowledged utility and visible necessity the Honorable Court of Directors "have unfortunately, with a view to economy, ordered its abolition; but the government of India, bound by their sacred duty to their native subjects, have unanimously recommended in the strongest possible terms its continuance…"[18] Two issues should be brought into consideration. Firstly, whether the Madras system of half-caste training or full-scale for training Native Doctors to be adopted was resolved, and secondly, as the monopolist traders like the East India Company Directors favored the abolition of the college, the Government of India (not the EIC House) upheld the continuation of the college. The strife between the Court of Directors of the EIC and the policy of the Government of India became apparent and visible, which was finally resolved in 1835. In 1826, Dr. Breton, successor of the first Superintendent Dr. Jameson, remarked:The grand object of the Native Medical Institution, if I judge rightly, is to diffuse amongst the natives, generally of Hindustan, medical knowledge according to European principles; but the ostensible one is to educate Hindus and Musulmans to enable them to fill efficiently the situation of native doctors in the civil and military branches of the service.[19]

[14] Transactions of the Royal Asiatic Society of Great Britain and Ireland, Vol. II (1835), Appendix, lxxxiv.
[15] Peter Breton, A vocabulary of the names of the various parts of the human body and of medical and technical terms in English, Arabic, Persian, Hindee and Sanscrit for the use of the members of the Medical Department in India (1825): 1.
[16] Zhaleh Khaleeli, "Harmony or Hegemony? The Rise and Fall of the Native Medical Institution, Calcutta, 1822-35", South Asia Research 2001, 21 (1): 77-104 (81).
[17] H. H. Sharp, Selections from Educational Records, Part I, 1781-1839 (Calcutta, 1920), 184. Also see, GRPI, 1851, p. 184.
[18] Anonymous, "Debate at the E.I.H, June 21 – Education of the Native Doctors," Asiatic Journal and Monthly Register, vol. 22.127 (1826): 111-121 (113).
[19] Mahendra Lal Sircar, "The Calcutta Medical College," The Calcutta Journal of Medicine vol. 6.3-4 (March & April 1873): 123-128 (127).

Breton started his classes at his own residence, as then there was no separate building with class rooms, museums and laboratories. On his exhortation and definite guidance, after registration the students used to be distributed at the General Hospital, King's Hospital, the Hon'ble Company's Dispensary and the Native Hospital. This arrangement then rotated among the students groups enabling each of them to have the experience of the four hospitals.[20]
Doing rounds in the hospitals and learning from patients and autopsy done at those hospitals provided them a new world of visual images, medical experience, a new individual psyche for this new kind of medicine, and new kind vocabularies which would lead new auditory experience. An altogether new world was in the making. "Demonstration of the Human Body", Breton informs us, was given as opportunities offer at the General and Native Hospitals. Lectures on comparative anatomy illustrative of the structure and functions of the various parts of the animal Body, and discourses on Materia Medica and Practice of Physic are also given to the students in the Superintendent's own Premises … assisted by my own private Persian and Nagree and are subsequently printed in Lithography for the instructions of the Students and the Native Practitioners of Hindoostan.[21]

Besides exposure to human diseases, comparative anatomy and autopsy the students would also observe and learn chemical and physical lessons. Various experiments were shown including preparations of different substances such as sulfate of soda, magnesia, muriatic and nitric acids, calomel, hyd. precip. rubrum, caustic bougies, spirits of wine from rice and gur (molasses), and distilling the same. He also demonstrated to the students a variety of experiments with the air-pump and on electricity with the object of giving them some idea on the properties of air and the phenomenon of lightning.[22] Truly speaking, the dividing line between the two knowledges was anatomy: "The basis of all medical and surgical knowledge is anatomy…there can be no rational medicine, and no safe surgery, without a thorough knowledge of anatomy"[23].

Every Monday, Wednesday and Friday night from 8 to 10 o' clock, the students were convened and made to read the medical texts prepared for them. This kept their mind constantly exercised and impressed thoroughly in their recollection what they saw and learned.[24] Lushington informs:

Even the Hindoo students, persuaded that nothing which has for it's object the preservation of human lives, is repugnant to the tenets of their religion, regularly attend and readily assist in dissections as opportunities offer, and the majority of the students who arrived in Calcutta in 1823, can themselves give a clear demonstration of the Abdominal and Thoracic Viscera, of the Brain, and of the Structure of the eye; and have distinct notions of other parts of Medical Science which have been explained to them.[25]
Breton also introduced the system of monitors and assistants. According to this system all the trained students of the school should not be made available, after qualification, for appointment as native doctors. Four of the most capable students should be permanently attached to the school as monitors and assistants on the same emoluments as those of native doctors. These persons were to assist the Superintendent. Their main duties would be teach the elementary part of medical science to the junior students:

In 1826, the Superintendent obtained 4 monitors or assistants, of whom one was attached to the General Hospital for giving demonstrations in anatomy as opportunities offered; one to the Company's Dispensary practically teaching pharmacy and material medica; one to the Native Hospital to act as a clinical instructor, and the fourth to assist the Superintendent in conducting the business of the School. The students used to receive stipends, the amount of which varied from time to time. At the outset the school did not much attract the native youths, but it soon became a very popular institution under the able management of Dr. Breton and his successor Dr. Tytler.[26]Breton thought that between three and four years should be sufficient for the students to be qualified for any kind of duty that could be allotted to a native doctor. We come across a few names for their excellence in the acquisition of knowledge. One of them was Sautcouree (Satkari) who expert in the removal of cataract. Sautcouree was also skilled in performing operations for the dropsy, hydrocele, spleen etc. Another student was Pursun (Prasun) Singh performed the

[20] S. N. Sen, Scientific and Technical Education in India: 1781-1900 (New Delhi, 1991), 135.
[21] Ibid.
[22] Ibid, 135.
[23] Southwood Smith, Use of the dead to the living, From the Westminster Review (Albany, 1827), 4.
[24] O. P. Jaggi, Medicine in India: Modern Period (New Delhi, 2011), 43.
[25] Lushington, The History, Design, and Present State, 319. According to Lushington, "in the course of one month, A Mussulman Practitioner operated successfully for the cataract on 11 patients…" Ibid, 319).
[26] Mahendralal Sircar, "Calcutta Medical College" (part 1): 126.

operation successfully on the cataract as a result of which the eye sight of two old men was restored. Both of them were monitors in the institution.[27]

On taking a closer look to these feats it should be evident to us that all these operations were traditionally performed by Indian practitioners for centuries. What the NMI training actually did was refine the methods. Still one may wonder if their anatomical knowledge was to the extent of organ localization of disorder and surgery based on sound knowledge of organs. Only point which can be stressed here is that the repugnance about touching the dead and acquiring practical anatomical knowledge was efficiently overcome.

It is important to note here that a few fundamental changes occurred in the lives in the students and, as an extension, in their family lives and, to an extent societal life too. In the first place, they had to make them compatible with the new clock-time pattern of their quotidian life. Second, at the same time had to imbibe new idioms of expressions – both auditory and verbal – and the new way of seeing (gaze) inside the body (third dimension of the body). Third, it was an altogether new visual and psychic experience to see post-mortem by the teacher and moribund patients with different symptoms and signs – living together – in a hospital setting. Fourth, and not to belittle, the extant aesthetical part of the body expressed through Sanskrit, Urdu or Arabic texts on human body was desiccated. As a result, the body now appeared to be dry, expression-less object to be measured, compared and verified thorough dissection only.

How medical learning in early modern England had produced medical dispassion is nicely represented by Linda Payne through a student's account – I have been driven from my Country, House, Family, Books, Friends, and Acquaintance; and wholly depriv'd of all the chief endearments of life; insomuch that I am a perfect stranger to any such thing as comfort, but what I sometimes form to myself out of the assurance of my Innocence, and the hope of that compensation that is ordained for Patience in unjust sufferings.[28]

It was more explicitly told by William Hunter to his students in these terms –:-
It is dissection alone that can teach us, where we may cut the living body, with freedom & dispatch; and where we may venture, with great circumspection and delicacy, and where we must not, upon any account attempt it. This informs the head, gives dexterity to the hand, and familiarises the heart with a sort of necessary inhumanity, the use of cutting instruments upon our fellow-creatures.[29] Against such a historical perspective the role of anatomy and dissection was introduced to the students of the NMI. It was a historical beginning and, following Foucault, we can call it as proto-clinic or preamble to "hospital medicine".

During the initial months of John Tytler's (successor to Breton as Superintendent of the NMI) he found that pupils had nothing to do with dissection except examining the intestines of morbid subjects, and consequently "had no notion of it as a means of acquiring knowledge".[30] According to S. N. Sen, "On one occasion the students expressed surprise when Tytler proposed to exhibit a sheep's heart and wondered how the human heart could resemble the sheep's"[31] We can understand that knowledge of anatomy advanced from texts and scholastic discussion to anatomical plates to zootomy (sheep's dissection). As a historical fact NMI stopped at this point. But anatomical knowledge had definitely gained momentum which could attain "escape velocity" at the CMC only, as we shall come to see sometime later.Notably, vernacularization of English medical texts in Arabic, Persian or Hindi (Nagree) led to a situation of almost trivializing the texts and, also, damaging the contents of the texts. Tytler seems to admit the fact, "I could not however render it more general without the risk of its being condemned as incomplete or incorrect."[32] However one important change began to occur at the same time. As Seema Alavi has shown how,

[27] Sen, Scientific and Technical Education, 136-137.
[28] Linda Payne, With Words and Knives: Learning Medical Dispassion in Early Moderns England (England: 2007): 39.
[29] Two Introductory Lectures, delivered by William Hunter, to his last course of Anatomical Lectures, at his Theatre in Windmill-Street: As they were left corrected for the Press by himself. Printed by order of the Trustees, for J. Johnson.
London, p, 62
[30] Sen, Ibid, 141.
[31] Ibid, 141-42.
[32] Letter of John Tytler to James Hutchinson, dated May 21, 1832 (Proceedings of the Medical Board, National Archives, New Delhi). Hutchinson was surgeon on the Bengal Establishment. [Emphasis added]

"[m]ost of this training took place not in a classroom but at the bedside of the patient. It was here that British doctors instructed native doctors on matters of medical practice".[33] Often passages from medical journals were read out to them: "The native doctor noted this medical knowledge with a piece of chalk on the floor, at the foot of the patient's bed. Later they memorized it".[34] Earlier to this, one of the best anatomical engravings by John Lizars[35] was bought by Breton at a cost of Rs. 130 "to aid his staff in the publication of Urdu texts on anatomy."[36] As an aside, it is quite relevant to mention that Tytler himself had studied Sanskrit and translated a few chapters from the Sushruta Samhita, of which a sample had been earlier communicated to Troyer in connection with his examination of Sanskrit medical class in January 1834. His translation bore the title "Translation of two chapters of the First Part of the Soosroota" (by John Tytle).[37]

As I stated earlier, visual and verbal acculturations began to take shape, especially at the NMI. The superintendent of the NMI was to "direct the studies…to give demonstrations…to take every available means of imparting to them a practical acquaintance with diseases of most frequent occurrence in India, the remedies best suited to their cure, and the proper mode of applying those remedies".[38]From its inception (21 June 1822) to its abolition (1835), the NMI was a colonial institution serving colonial ends. Khaleeli notes, "The Indians were to watch and learn rather than contribute."[39] M'Cosh specifically noted the duty of native doctors as "to…see that the prescriptions are taken, attend to the sick in the absence of the surgeon…and perform minor operations of surgery".[40] Moreover, he expresses his fear about untrustworthiness of the Native doctors, "I have rarely found Native doctors, of the old school, worthy of trust; and on most occasions, when it was possible, saw the medicines given during the visit; still, with a rigid scrutiny and careful superintendence, they were capable of being made very useful."[41] Thus said, M'Cosh made some important observations regarding Indian habits –

Generally speaking, the Natives prefer their own countrymen as their medical attendants on ordinary occasions, and take the advice of the European in extreme cases. To one not initiated in the customs of the East, the manner of attendance on Native ladies of rank must appear very absurd. The doctor is rarely indeed allowed to see his fair patient face to face. For the most part the lady throws the door ajar, and extends her hand through the slit for him to feel her poise, or in the event of his being admitted to the haram, the patient lies in bed shrouded with curtains, and exposes her tongue, or the part diseased, through a hole in the curtain, made expressly for the purpose. Nor is it the young and the beautiful that are so modest and retiring, but the old, and for what is known to the contrary, the ugly also are equally careful of their person.[42]

Against this perspective, the importance of male midwifery introduced at the CMC a few years later should emerge with a different significance and relevance in the history of medicine in India. As already clearly described, for the purpose of acquiring practical knowledge of pharmacy, surgery, and physic, the pupils of the NMI were attached to the Presidency General Hospital, the King's Hospital, the Native Hospital and the Dispensary. The only practical information given on the subject was obtained from the dissection of lower animals and from the post mortem examination of persons dying in the General Hospital.[43] To be more specific, they received practical knowledge of anatomy at the General Hospital and Company dispensaries. Here they observed British surgeons dissect human body. In 1825 an assistant surgeon, William Twining[44], posted at the General Hospital in Calcutta, regularly demonstrated to them the anatomical details of bodies he dissected. And the apothecary, Mr. Reid, at the Calingah

[33] Seema Alavi, Islam and Healing, 71.
[34] Ibid.
[35] John Lizars, A system of anatomical plates; accompanied with descriptions, and physiological, pathological, and surgical observations (Edinburgh, 1822).
[36] Alavi, Islam and Healing, 80.
[37] Sen, Ibid, 152.
[38] Minutes of Evidence taken before the Select Committee on the Affairs of the East India Company with Appendix and Index, 1, Public (London, 16 August, 1832), 447.
[39] Khaleeli, "Harmony or Hegemony?", p. 95.
[40] John M'Cosh, Medical Advice to the Indian Stranger (London: Wm H. Allen & Co., 1841), 6.
[41] Ibid, p. 8.
[42] Ibid, p. 11. [Emphasis added]
[43] Chuckerbutty, Popular Lectures, p. 142.
[44] William Twining is the author of an important book – Clinical Illustrations of the More Important Diseases of Bengal with the Result of an Enquiry into their Pathology and Treatment (Calcutta: Baptist Mission Press, 1832).

dispensary, located close to the NMI, trained students in chemistry. Students got clinical experience in their interactions with patients at these institutes.[45]

The exposure to dead bodies began to erase the social taboo against touching the dead. Before the foundation of the CMC, students were exposed to the post- mortem examination and attended clinical classes at the General Hospital. This prepared the environs for exposing the new generations of pupils to *visual and psychological acculturations* with the new culture of medicine. When the cholera epidemic struck Calcutta in the 1820s, twenty of Breton's (a superintendent at the NMI) "most experienced pupils" were dispatched among the local population with the hope that a "decrease in the number of cases of cholera in the town will now admit of the aid" of his students.[46] In a letter to Dr Breton, Radhakanta Deb wrote, "I shall introduce and recommend your advice and medicine, both here and in the interior; and the human lives which will thereby be saved."[47]

Thus the background for the gestation of public health in India was prepared. Western education became successful in producing its agency through elite people like Radhakanta. Moreover, by suiting the desires of the government and the population at large, the NMI avoided "confrontation with the established medical men of pre-colonial India".[48] New experiments and trials in a hospital setting were also conducted, for example, by Dr Gilchrist,…a quantity of finely powdered bark and cinnamon, with a due proportion of lau- danum, into a bottle of Madeira wine, to shake the mixture well…to take a wine glassful of the medicine, to be repeated every half hour, until one of ourselves could attend in person. This experiment was tried with the utmost success…[49]The year 1826 is significant because it is then that Dr Tytler commenced his lectures according to the Western method at the College on medicine, and "Professors were appointed to teach Caraka, Suśruta, Bhāva Prakāśa, etc. Classes for the Āyurvedic students were opened in 1827".[50] Tytler organised his classes around four major departments of medical science, namely, Anatomy, Pharmacy, Medicine and Surgery.[51] According to Tytler, it was "no small recommendation of Anatomy, that it has a most powerful influence in counteracting prejudices that arise from birth, or station, or cast, by demonstrating that, however mankind may differ in their externals, their internal organization is the same".[52] Anatomy, in this description, becomes the great social leveller – "Before the knife of the anatomist every artificial distinction of society disappears; and if all the individuals of the human race be equal in grave, they are still more so on the dissecting table."[53]

To the beginners in the fourth class he taught anatomy in the following way:
After a preliminary lecture, I begin with the bones and commencing as usual with the head go regularly through the whole…on the bodies of sheep begin- ning with the Viscera and Thorax, then the Abdomen, the Pelvis and Brain and organs of sense…there are frequent opportunities of seeing these in Post Mortem examinations at the General Hospital.[54]The gradual marginalisation of Indian medical texts was coterminous with the extension of western medical pedagogy in India. Although the original intention was to instruct boys in the Ayurvedic and Unani systems of medicine without excluding the European system, "the latter gradually and inevitably gained importance under European superintendence".[55] The process reached such a height that Durshun Lall, a Hindu pupil, brought Tytler a

[45] Alavi, Islam and Healing, p. 87.
[46] Anonymous, "Education of the Native Doctors", p. 115.
[47] Ibid, p. 114.
[48] Alavi, Islam and Healing, p. 73.
[49] Anonymous, "Liberality of the Indian Government towards the Native Medical Institution of Bengal," Oriental Herald 10 (July-September, 1826), 17-25 (20).
[50] Girindranath Mukhopadhyay, History of Indian Medicine Containing Notices, Biographical and Bibliographical, of the Ayurvedic Physicians and their Works on Medicine from the Earliest Ages to the Present Time, vol. II, 2nd edition (originally published in 1922-29 by the University of Calcutta). Reprint (New Delhi: Oriental Books Reprint Corporation, 1974), 15.
[51] S. N. Sen, "The Pioneering Role of Calcutta in Scientific and Technical Education in India," Indian Journal of History of Science 29.1 (1994): 41-47 (43).
[52] Tytler, trans., The Anis Ul Musharahhin or Anatomist's Vade-Mecum by Dr. Robert Hooper (Calcutta: Education Press, 1830), 14.
[53] Tytler, Anatomist's Vade-Mecum, p. 14.
[54] Sen, Scientific and Technical Education, pp. 139-40.
[55] Ibid, p. 149.

skull his friend had picked up in the banks of the river. "The skull was much injured and in a putrid state, but sufficient of the Dura mater had remained to enable exhibition of its processes."[56]

Tytler's trope of visual and psychological acculturation attained such a crescendo that Durshun Lall, a Hindu pupil, brought him a skull his friend had picked up in the banks of the Ganges.[57] The anatomical learning was regarded as a universal referent and social leveller. According to Tytler, "Before the knife of the anatomist every artificial distinction of society disappears…"[58] Modern anatomical knowledge began to reconstitute the psyche of the new entrants who would learn about a human body with "necessary inhumanity" and clinical detachment. The body became an object, not an embodied entity.

Opening up the cavity of an organism made pupils further aware of the depth and the third dimension of the body, as opposed to the received understanding of the two-dimensional idea of the body upheld by both Ayurvedic and Unani systems of medicine. Students would learn zootomy by dissecting goats and lambs. But, at the CMC, the subjects were taught practically "by the aid of the Dissecting Room, Laboratory, and Hospital".[59] Additionally, new instruments of investigations like the thermometer and stethoscope and new modes of physical examination like inspection, palpation, percussion and auscultation were introduced. It is important to note, however, that the NMI did not have a proper institutional structure to incorporate the new medical education as yet, or in the offing. Additionally, as Bonner points out, the training of doctor was "inevitably influenced by the rising power of the middle classes in Europe and America as they demanded more medical services and a higher standard of medical competence."[60] This was also true for Calcutta as well as India. The newly rising middle class did show their demand for better Western medical treatment. As a consequence, the foundation of a modern medical college was a historical necessity and inevitability.

Since its very beginning, the new medical training was secular in nature. A report from a Select Committee was to state: "Hindoos and Mussulmans were equally eligible, if respectable."[61] Alavi has further pointed out that "… any coolie attached to the army, once he became well versed in the Nagri script and qualified in basic hospital skills, could rise to become a native doctor".[62] For the first time in India, at the NMI, students were inducted into the procedures of individual case-history formulation. "The pupils," wrote Tytler, "keep a case-book of the symptoms and treatment of the sick on the establishment."[63]

Another dimension in the changes inaugurated by western medicine lay in the temporality of disease investigation and cure. The materiality of western medical practice lies in the transcription of evidence in written form which is thereafter abstracted as a medical record of observed events.[64] The conceptual basis of the clinical case thus lies in the ordering of its facts by the agency of time. The introduction of time as an ordering variable in the construction of clinical cases was completely new in Indian practice; gradually the "seasonal time" of indigenous Indian medical practice transformed into the clinical time of Western practice.It became widely accepted that "the British government could not have established an institution calculated to be of greater benefit…than the Native Medical Institution [NMI]".[65] Macaulay's efforts seemed only to add a snowballing effect to the process already started by the students of the NMI and Calcutta elites taken together. During the decade of its existence, the number of native doctors "which this institution furnished to the public service between that period 1825 to 1835…was 188".[66] Eight of

[56] Ibid, p. 142.
[57] Ibid., p. 142.
[58] John Tytler, The anis ul Mushrrahin or the Anatomist's Vade-Mecum (Calcutta: Education press, 1830), p. 14.
[59] Report of the General Committee of Public Instruction (henceforth GCPI), 1941, p. 34.
[60] Bonner, Becoming a Physician, p. 158.
[61] Appendix to the Report from the Select Committee of the House of Commons on the Affairs of the East- India Company, 1, Public, 16 August, 1832, and Minutes of Evidence (London: Honorable Court of Directots, 1833), p. 270.
[62] Alavi, Islam and Healing, p. 71.
[63] Monier Williams, History of The Application Of The Roman Alphabet To The Languages Of India (Calcutta: Longman, Green, 1859), 31.
[64] Stanley Joe Reiser, "Technologies of Time Measurement: Implications at the Bedside and the Bench," Annals of Internal Medicine 4.132 (2000): 31-36 (31).
[65] Anonymous, "Liberality of the Indian Government", p. 24.
[66] Centenary Volume of the Calcutta Medical College (Calcutta, 1935), 9.

the pupils "who had been educated in this seminary were appointed native doctors, and sent with the troops serving in Arracan".[67]

It may be added here that the system "adopted for the Instruction of the Native Medical Students, corresponds with that introduced by Colonel Pasley, of the Royal Engineers, for the education of the Non-Commissioned Officers and Privates of Royal Sappers and Miners, in Geometry and Mathematics."[68]My contention is that the brief phase of the NMI and the medical classes at the Calcutta Sanskrit College represents the period of gestation of hospital medicine in India. Medical classes at the Sanskrit College started in 1827. But the preparatory phase to introduce pupils to modern science – its technology and technique – had begun earlier. The report of 1828 stated that the progress of the students of the medical classes had been satisfactory "in the study of medicine and anatomy; and particularly that the students had learned to handle human bones without apparent repugnance, and had assisted in the dissection of other animals".[69] They also "performed the dissection of the softer parts of animals', and opened 'little abscesses and dressing sores and cuts".[70] Moreover, at the Sanskrit College of Calcutta the number of pupils was then 176, and was rapidly increasing and of these only ninety-nine received allowances from the college.[71]

This estimate makes it clear that seventy-seven students were without allowances and still pursuing their studies at their own expense—the lure of English medical education can be unmistakably discerned from these facts. Another issue of importance in this regard is the dissemination of the new knowledge of medicine throughout Indian society, whatever be the quanta of dissemination. In Alavi's insightful observation,Awareness of the new medical ethos slowly spread through society via the wide range of service gentry attracted to the press for employment form all over northern India. Such knowledge was disseminated through the person of the native doctor as well, and texts literally moved around with the marching regiments, who had their native doctors.[72]

As found in Fisher's memoir, "The report of 1829 states that 300 rupees per month had been assigned for the establishment of a hospital in the vicinity of the college".[73] Though curricula were in accordance with Sanskrit medical works, a hospital of some kind was thought absolutely necessary for proper medical teaching. As a letter written in 1831 conveys, "[t]here is now every reason that medical education in India will be improved in a very material degree by this institution".[74] It was thought that the institution would have the benefit of "affording to the medical pupils ample opportunities of studying diseases in the living subject".[75] One graduate, N.K. Gupta, who had been trained as an apothecary, was apparently doing quite well in the position at the hospital. "Though no Hindu had yet performed a major operation, they regularly performed minor ones such as 'opening little abscesses and dressing sores and cuts'."[76] In 1833, Dr J. Grant wrote to Major Troyer, the then secretary of the Sanskrit College,

The students of the Medical Class having attained a respectable knowledge of elementary Anatomy and Physiology as far as the means at our disposal permitted consistent with Native prejudices: The next point of importance was to give them some correct notions of European Medical and Surgical knowledge.[77]

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[67] Minutes of Evidence, 1832, p. 448. Interestingly, in mimicry of the NMI, the earliest record of an association of indigenous practitioners is the Native Medical Society, founded in Calcutta in 1832. It was solely confined to the Vaidya caste, "the Byodya practitioners should refuse to undertake any case where medicine has been administered to the patient by any practitioner of another caste". It was also decided that medicines of all sorts will be prepared by the Society "but will be sold to no one who is not of the Byodya caste". See, Anonymous, 'Native Medical Society," Asiatic Journal 7.26 (1832): 84–85.

[68] Lushington, The History, Design, and Present State, p. 318.
[69] Anonymous, 'Native Medical Society," Asiatic Journal 7.26 (1832): 84–85.
[70] David Kopf, British Orientalism: The Dynamics of Indian Modernization, 1773-1835 (Calcutta: Firma K. L. Mukhopadhyay, 1969), 183-84.
[71] Minutes of Evidence, 1832, p. 494.
[72] Alavi, Islam and Healing, p. 89.
[73] H. SHARP, SELECTIONS FROM EDUCATIONAL RECORDS. PART I: 1781-1839 (CALCUTTA, 1920), 183.
[74] Letter, in Public Dept. to Bengal, 24 August 1831, Appendix to the Report, p. 346.
[75] Ibid.
[76] Kopf, British Orientalism, p. 184.
[77] Centenary Volume, pp. 126-27 (126).

In the same letter he made mention of "ninety-four House Patients (as stated earlier) and one hundred and fifty-eight out-patients. Of the Two Classes of Patients, the House ones sleep and dieted (sic) in the Hospital".[78] He also stated that the out- patients were "visited if unable to come at their own residence by the Apothecary, when practicable…"[79] The Asiatic Journal (1832) also published a similar report regarding the hospital: "The poor afflicted and helpless sick are now admitted to this hospital, and are furnished with medicine, food and beds; and, in fact, they are attended better than they could be by their own families at home."[80]

I suggest that these were the first instances when Indian patients were dislocated from their domestic setting to the environs of the hospital. A new notion of treatment, which found its final shape in the CMC, began to emerge within social life. By this time, a shift in the vocabulary of medicinal pedagogy was effected and the word "education" in lieu of the older "training" gained currency. One example should clarify it. Native Doctors were subject to military laws and regulations, while the graduates of the CMC – a few years later – were under the supervision of civil education committee. A report related to court martial of two Native Doctor was published in the Asiatic Journal. The report goes thus:

Shaik Mohamed Morad and Mirza Allyar Beg, native doctors of the 50th N.I., have been tried by a native court-martial "for scandalous and disgraceful conduct, in having, when several men of the regiment were about to proceed on sick leave, fraudulently demanded and received, either from the men themselves, or through the agency of others, certain sums of money, on various pretences;…[81]

Mr. Wilson, who examined the medical class in 1830, ecstatically claimed, "the triumph gained over native prejudices is nowhere more remarkable than in this class", where "not only are the bones of the human skeleton handled without reluctance, but in some instances dissections of the soft parts of animals performed by the students themselves".[82]It would be judicious to add that with the introduction of medical texts, especially European one, in the Sanskrit College indigenous as well as traditional knowledge system was being replaced epistemologically. In the Annual Report of 1834, Troyer, then Secretary of the College, wrote:The students belonging to the medical caste of the Hindus have the choice, instead of entering the class of Logic [Nyaya], to attend the medical lectures of the Sanskrit as ewll as of the English lecturer on medicine, and they do not study the law [Smriti]. As their object to follow the profession of their fathers, they cannot but wish to acquaint themselves with the Hindu practice of physic and with the sorts of medicines most easily obtainable and most generally used in this country…[83]

Mahendra Lal Sircar comments, "even anterior to the foundation of the Medical College, prejudices of students in pre-existing institutions were observed to have given way to the light of knowledge."[84] The acquisition of anatomical knowledge played the pivotal role. It is again reinforced by Ram Comul Sen, a member of the Education Committee. He seems to have observed:The Vaid students at the Sanscrit College, would be glad to avail themselves of opportunities to acquire a knowledge of practical anatomy tomorrow, if the thing could be managed in secret. They have themselves entirely got rid of their prejudices on this head, and their wish to cultivate such pursuits in secret, is merely a sacrifice of policy to the prejudices of those among whom they are to acquire their bread: for if it were known generally that during the hours of tuition, they touched a human bone, much less a dead body; it would create a repugnance to employing them, that must end in their ruin.[85]Similar modes of acculturation processes – visual, verbal and psychic – were in operation in both the NMI and Sanskrit College. Moreover, a copy of the number of patients treated in the hospital attached to the College should testify the impact of Western medicine on the acquisition of learning medicine as well as its social significance.[86] In his "Introductory Address" to the students of the Medical College in 1863, Fayrer made it particularly clear –

[78] Ibid, p. 127.
[79] Ibid.
[80] Anonymous, "The Hindu Hospital," Asiatic Journal and Monthly Register, New Series 9.33 (September 1832): 8.
[81] Anonymous, "Native Doctors," Asiatic Journal 21 – New Series (September-December 1838): 137.
[82] Minutes of Evidence, 1832, p. 494.
[83] Brajendranath Bandyopadhyaya, Kolikata Sanskrita Kolejer Itihas (History of the Calcutta Sanskrit College), part I: 1824-1858 (Calcutta: Calcutta Sanskrit College, 1948), 35.
[84] Sircar, "Calcutta Medical College (part 2)," Calcutta Journal of Medicine 6.5 (1873): 175-80 (177).
[85] Ibid, p. 175. [Emphasis added]
[86] Sen, Scientific and Technical Education, p. 148.

Sights and objects to the untutored mind, revolting and disgusting; matters to be committed to memory that are at first dull, uninteresting and incomprehensible, or, at the best, but half understood; the greatest difficulty of all, the inaptitude, at first, for application to study of any kind; inability to fix the attention on strange matters taught in a foreign language, and of which, beyond the most ordinary expressions, the very meaning of its words is obscure—withal, [87]

At this juncture it should be remembered that favorable attitudes towards Western medical practice, I argue, was an outcome of general scientific education which began in India during the late eighteenth and early nineteenth century. The introduction of stethoscope was one of the most potent tools in this regard. Conwell, a staff surgeon of the East India Company, Madras, was possibly the first person to submit the cases he studied and his notes on the stethoscope in 1827.[88] In similar ways (but in a slightly different context) the Serampore missionaries pioneered popularization of general scientific education in the subcontinent. Sivasundaram, for example, exposes how the Serampore Mission of Bengal sought to bring indigenous traditions into a dialogue with European science, so that the former could give way to the latter.[89] For an example:

For Ward, the India in which he lived possessed an intellectual culture which had been stunted and which only followed the corrupted wisdom of the past. He described how men of learning only possessed between 10 and 20 Sanksrit works, while the 'great bulk of the people' were 'perfectly unacquainted with letters, not possessing even the vestiges of a book'. Indian women, in the meantime, were said to be 'almost in every instance' unable to read. Of 100,000 Brahmans, Ward noted that only 10 would become learned in the astronomical shastras, while 10 more might understand them imperfectly.[90]

Further in their efforts, "In pursuing a course of experimentation and in using so many scientific instruments, the Serampore evangelists taught Indians how to relate to the visible and how to avoid deifying nature."[91] In his brilliant analysis, Raj depicts how Calcutta gradually became the capital city for a world of scientific knowledge construction. The British could not sustain control over the territory "by relying solely on the mere 1200 civil and military agents of the Company, who were, in addition, poorly trained for administrative tasks",[92] They were, therefore, always in need of people who could internalise Western science. In Raj's argument, for the "construction of knowledge as such" one should look "to the process rather than to the event".[93]

Initially, the introduction of modern medical education in India had to overcome the impact of traditionally accepted healing systems contained primarily in Ayurveda, Unani and Siddha as well as the conventional repugnance of touching dead bodies instilled by social habits and custom. Curiously, even as late as the 1830s, Company surgeons seemed to be treated with low esteem in England: "the medical practitioner, in the service of our Honorable East India Company, is estimated somewhat under a butler in London! By the said Company a man is considered as far inferior to a horse – and consequently a surgeon is sub- ordinate to a black-smith!"[94] In the reporting just mentioned there was a "Memorial" "On the Medical Officers of the Bengal Presidency, whose Signatures are Hereunto Annexed, to the Chairman, Deputy Chairman, and Directors of the Honorable The East India Company, &c. &c. &c.". The unnamed signatories stated in clear terms,

[87] Fayrer, "An Introductory Address," p. 6. [Emphasis added]
[88] W. E. E. Conwell, Observations Chiefly on Pulmonary Disease in India and an Essay on the Use of Stethoscope (Malacca: Mission Press, 1829). William Eugene Edward Conwell, a student of the inventor of the stethoscope, René Théophile Hyacinthe Laënnec himself, was probably the first person to use the stethoscope for quantification of pulmonary case records, and to relate the cause of death to pathological anatomy, in the Indian subcontinent; at least, he seems to have been the first to publicly comment upon the matter.
[89] Sujit Sivasundram, "'A Christian Benares': Orientalism, Science and the Serampore Mission of Bengal," Indian Economic and Social History Review44,2 (2007): 111-145.
[90] Ibid, p. 131.
[91] Ibid, p. 137.
[92] Kapil Raj, "The Historical Anatomy of a Contact Zone: Calcutta in the Eighteenth Century," Indian Economic and Social History Review 2011, 48 (1): 55-82 (65).
[93] Ibid, 56.
[94] Anonymous, "Review of the Medical Department of the East India Company," Medico-Chirurgical Review (New Series) 1830, 13 (25): 112-122 (113).

We, the undersigned Medical Officers of the Bengal Presidency, most humbly and respectfully solicit the attention of your Honorable Court to the existing state of the medical department of this country hitherto in force, is so entirely changed in its character and provisions that … under which they at present suffer.[95]Such efforts were prelude to the formation of the CMC. Another point of consideration is the act of translation itself. In recent scholarship it has been argued that the English term translation itself could be seen as untranslatable,[96] and "the change or alteration is intentionally brought about by actors who are intent on making the subject utilizable for a new audience."[97]

Teaching at NMI:-

In 1825, it was observed that notwithstanding their acknowledged utility and visible necessity the Honorable Court of Directors "have unfortunately, with a view to economy, ordered its abolition; but the government of India, bound by their sacred duty to their native subjects, have unanimously recommended in the strongest possible terms its continuance…"[98] Two issues should be brought into consideration. Firstly, whether the Madras system of half-caste training or full-scale for training Native Doctors to be adopted was resolved, and secondly, as the monopolist traders like the East India Company Directors favored the abolition of the college, the Government of India (not the EIC House) upheld the continuation of the college. The strife between the Court of Directors of the EIC and the policy of the Government of India became apparent and visible, which was finally resolved in 1835. In 1826, Dr. Breton, successor of the first Superintendent Dr. Jameson, remarked:

The grand object of the Native Medical Institution, if I judge rightly, is to diffuse amongst the natives, generally of Hindustan, medical knowledge according to European principles; but the ostensible one is to educate Hindus and Musulmans to enable them to fill efficiently the situation of native doctors in the civil and military branches of the service.[99]

Breton started his classes at his own residence, as then there was no separate building with class rooms, museums and laboratories. On his exhortation and definite guidance, after registration the students used to be distributed at the General Hospital, King's Hospital, the Hon'ble Company's Dispensary and the Native Hospital. This arrangement then rotated among the students groups enabling each of them to have the experience of the four hospitals.[100]
Doing rounds in the hospitals and learning from patients and autopsy done at those hospitals provided them a new world of visual images, medical experience, a new individual psyche for this new kind of medicine, and new kind vocabularies which would lead new auditory experience. An altogether new world was in the making.

"Demonstration of the Human Body", Breton informs us, is given as opportunities offer at the General and Native Hospitals. Lectures on comparative anatomy illustrative of the structure and functions of the various parts of the animal Body, and discourses on Materia Medica and Practice of Physic are also given to the students in the Superintendent's own Premises … assisted by my own private Persian and Nagree and are subsequently printed in Lithography for the instructions of the Students and the Native Practitioners of Hindoostan.[101]Besides exposure to human diseases, comparative anatomy and autopsy the students would also observe and learn chemical and physical lessons. Various experiments were shown including preparations of different substances such as sulfate of soda, magnesia, muriatic and nitric acids, calomel, hyd. precip. rubrum, caustic bougies, spirits of wine from rice and gur (molasses), and distilling the same. He also demonstrate to the students a variety of experiments with the air-pump and on electricity with the object of giving them some idea on the properties of air and the phenomenon of

[95] Ibid, 114.
[96] Tara Alberts, Sietske Fransen, and Elaine Leong, "Translating Medicine, ca. 800-1900: Articulations and Disarticlations", Osiris 2022, 37: 1-21 (6). For more detailed discussion on translation and the conquering new epistemological space, see Jayanta Bhattacharya, "Translations, the Making of New Curricula and Epistemological Mutations of Āyurvedic Medical Knowledge in India in the Early Nineteenth Century", Traditional South Asian Medicine 2017, 9: 1-56.
[97] Alberts et al, Ibid, 7.
[98] Anonymous, "Debate at the E.I.H, June 21 – Education of the Native Doctors," Asiatic Journal and Monthly Register, vol. 22.127 (1826): 111-121 (113).
[99] Mahendra Lal Sircar, "The Calcutta Medical College," The Calcutta Journal of Medicine vol. 6.3-4 (March & April 1873): 123-128 (127).
[100] S. N. Sen, Scientiifc and Technical Education, 135.
[101] Ibid, 135.

lightning.[102] Every Monday, Wednesday and Friday night from 8 to 10 o' clock, the students were convened and made to read the medical texts prepared for them. This kept their mind constantly exercised and impressed thoroughly in their recollection what they saw and learned.[103] Lushington informs:

Even the Hindoo students, persuaded that nothing which has for it's object the preservation of human lives, is repugnant to the tenets of their religion, regularly attend and readily assist in dissections as opportunities offer, and the majority of the students who arrived in Calcutta in 1823, can themselves give a clear demonstration of the Abdominal and Thoracic Viscera, of the Brain, and of the Structure of the eye; and have distinct notions of other parts of Medical Science which have been explained to them.[104]Breton also introduced the system of monitors and assistants. According to this system all the trained students of the school should not be made available, after qualification, for appointment as native doctors. Four of the most capable students should be permanently attached to the school as monitors and assistants on the same emoluments as those of native doctors. These persons were to assist the Superintendent. Their main duties would be teach the elementary part of medical science to the junior students:

In 1826, the Superintendent obtained 4 monitors or assistants, of whom one was attached to the General Hospital for giving demonstrations in anatomy as opportunities offered; one to the Company's Dispensary practically teaching pharmacy and material medica; one to the Native Hospital to act as a clinical instructor, and the fourth to assist the Superintendent in conducting the business of the School. The students used to receive stipends, the amount of which varied from time to time. At the outset the school did not much attract the native youths, but it soon became a very popular institution under the able management of Dr. Breton and his successor Dr. Tytler.[105]

Breton thought that between three and four years should be sufficient for the students to be qualified for any kind of duty that could be allotted to a native doctor. We come across a few names for their excellence in the acquisition of knowledge. One of them was Sautcouree (Satkari) who expert in the removal of cataract. Sautcouree was also skilled in performing operations for the dropsy, hydrocele, spleen etc. Another student was Pursun (Prasun) Singh performed the operation successfully on the cataract as a result of which the eye sight of two old men was restored. Both of them were monitors in the institution.[106]

On taking a closer look to these feats it should be evident to us that all these operations were traditionally performed by Indian practitioners for centuries. What the NMI training actually did was refine the methods. Still one may wonder if their anatomical knowledge was to the extent of organ localization of disorder and surgery based on sound knowledge of organs. Only point which can be stressed here is that the repugnance about touching the dead and acquiring practical anatomical knowledge was efficiently overcome.

During the initial months of John Tytler's (successor to Breton as Superintendent of the NMI) he found that pupils had nothing to do with dissection except examining the intestines of morbid subjects, and consequently "had no notion of it as a means of acquiring knowledge".[107] According to S. N. Sen, "On one occasion the students expressed surprise when Tytler proposed to exhibit a sheep's heart and wondered how the human heart could resemble the sheep's"[108] We can understand that knowledge of anatomy advanced from texts and scholastic discussion to anatomical plates to zootomy (sheep's dissection). As a historical fact NMI stopped at this point. But anatomical knowledge had definitely gained momentum which could attain "escape velocity" at the CMC only, as we shall come to see sometime later.Notably, vernacularization of English medical texts in Arabic, Persian or Hindi (Nagree) led to a situation of almost trivializing the texts and, also, damaging the contents of the texts. Tytler seems to admit the fact, "I could not however render it more general without the risk of its being condemned as incomplete or

[102] Ibid, 135.
[103] O. P. Jaggi, Medicine in India: Modern Period (New Delhi: Oxford University Press, 2011), 43.
[104] Lushington, The History, Design, and Present State, 319 (Emphasis added). .According to Lushington, "in the course of one month, A Mussulman Practitioner operated successfully for the cataract on 11 patients…" Ibid, 319).
[105] Mahendralal Sircar, "Calcutta Medical College" (part 1), p. 126.
[106] Sen, Scientific and Technical Education, pp. 136-137.
[107] Ibid, p. 141.
[108] Ibid, pp. 141-42.

incorrect."[109] However one important change began to occur at the same time. As Alavi has shown how, "[m]ost of this training took place not in a classroom but at the bedside of the patient. It was here that British doctors instructed native doctors on matters of medical practice".[110] Often passages from medical journals were read out to them: "The native doctor noted this medical knowledge with a piece of chalk on the floor, at the foot of the patient's bed. Later they memorized it".[111] Earlier to this, one of the best anatomical engravings by John Lizars[112] was bought by Breton at a cost of Rs. 130 "to aid his staff in the publication of Urdu texts on anatomy."[113]

For the first time in India, at the NMI, students were inducted into the procedures of individual case-history formulation. "The pupils," wrote Tytler, "keep a case-book of the symptoms and treatment of the sick on the establishment."[114]Breton reported that the students prosecuted their studies with zeal and diligence even in the least attainable part, e.g. anatomy. The boys regularly attended the hospitals and readily assisted the surgeons in dissecting human bodies whenever opportunities presented themselves. "The majority of students who arrived in Calcutta in 1823", wrote Breton, "can themselves give a clear Demonstration of the thoracic and abdominal viscera, of the Brain, of the Bones, and the structure of the Eye, and have distinct notions of other parts of medical science which have been explained to them."[115]

Breton also emphasized that he had no hesitation in saying that "they already knew as much anatomy and medicine as the generality of medical students in England (who have not the advantage of seeing Hospital Practice and attending public lectures) do after their completion of the apprenticeship."[116] It is important to note here that the period of study at the NMI was not specified. Breton thought that between three and four years should be sufficient for the students to be qualified for any kind of duty that could be allotted to a native doctor. By 1826 eight of the students were already appointed to the army and four best informed as assistant teachers in the permanent establishment of the school. Breton also mentioned the operational skill of one Sautcouree who was expert in the removal of cataract. [117] Sautcouree was also skilled in performing operations for the dropsy, hydrocele, spleen etc. Another person was Pursun Singh who performed successfully cataract operation in the left eyes of the two men in Breton's house and restored their sight.[118]

On taking a closer look to these feats it should be evident to us that all these operations were traditionally performed by Indian practitioners for centuries. What the NMI training actually did was refine the methods. Still one may wonder if their anatomical knowledge was to the extent of organ localization of disorder and surgery based on sound knowledge of organs. Only point which can be stressed here is that the repugnance about touching the dead and acquiring practical anatomical knowledge was efficiently overcome.Breton himself wrote a small book of 40 pages titled On the Mode Native Couching (1826) in his own hand writing. His book was highly appreciated in review in no other journal than the Lancet.[119] As teaching aids human skeletons, dissecting instruments and other appliances arrived from London. Breton also got, with the permission of the Medical Board, dissecting and tooth instruments, lancets and chemicals from the Hon'ble Company's Dispensary.[120] 18 students trained by Breton were appointed to positions of native doctors at various stations like Saugor, Meerutt, Governor General Household, Lunatic Asylum,

[109] Letter of John Tytler to James Hutchinson, dated May 21, 1832 (Proceedings of the Medical Board, National Archives, New Delhi). Hutchinson was surgeon on the Bengal Establishment. [Emphasis added]
[110] Seema Alavi, Islam and Healing: Loss and Recovery of an Indo-Muslim Tradition, 1600-1900 (New Delhi: Permanent Black, 2007), 71.
[111] Ibid.
[112] John Lizars, A system of anatomical plates; accompanied with descriptions, and physiological, pathological, and surgical observations (Edinburgh: D. Lizars, 1822).
[113] Alavi, Islam and Healing, 80.
[114] Monier Williams, History of The Application Of The Roman Alphabet To The Languages Of India (Calcutta: Longman, Green, 1859), 31.
[115] Sen, Medical and Technical Education, 136.
[116] Letter dated April 20, 1826 from P. Breton to Dr. Adam, Secretary of the Medical Board, giving an account of the work of the School for the Native Doctors, Proceedings of the Medical Board (PMB), National Archives, New Delhi.
[117] Sen, ibid, 136.
[118] Sen, ibid, 137.
[119] Lancet, Vol. X (1826): 690.
[120] Sen, ibid, 137.

Balsore and Elauah.[121] Breton was eventually succeeded by John Tytler – a polymath, orientalist and enterprising person. As recorded, "a small 30 bed hospital for practical training in close proximity was set up in August 1831 and was attached to the Sanskrit college. Besides the efforts of Tytler, the hospital was established with a significant donation from Babu Ram Commul Sen."[122] During the initial months of John Tytler's (successor to Breton as Superintendent of the NMI) he found that pupils had nothing to do with dissection except examining the intestines of morbid subjects, and consequently "had no notion of it as a means of acquiring knowledge".[123] According to S. N. Sen, "On one occasion the students expressed surprise when Tytler proposed to exhibit a sheep's heart and wondered how the human heart could resemble the sheep's"[124] We can understand that knowledge of anatomy advanced from texts and scholastic discussion to anatomical plates to zootomy (sheep's dissection). As a historical fact NMI stopped at this point.

But anatomical knowledge had definitely gained momentum which could attain "escape velocity" at the CMC only, as we shall come to see sometime later. Notably, vernacularization of English medical texts in Arabic, Persian or Hindi (Nagree) led to a situation of almost trivializing the texts and, also, damaging the contents of the texts. Tytler seems to admit the fact, "I could not however render it more general without the risk of its being condemned as incomplete or incorrect."[125] However one important change began to occur at the same time. As Seema Alavi has shown how, "[m]ost of this training took place not in a classroom but at the bedside of the patient. It was here that British doctors instructed native doctors on matters of medical practice".[126] Often passages from medical journals were read out to them: "The native doctor noted this medical knowledge with a piece of chalk on the floor, at the foot of the patient's bed. Later they memorized it".[127] Earlier to this, one of the best anatomical engravings by John Lizars[128] was bought by Breton at a cost of Rs. 130 "to aid his staff in the publication of Urdu texts on anatomy."[129]

As I stated earlier, visual and verbal acculturations began to take shape, especially at the NMI. The superintendent of the NMI was to "direct the studies…to give demonstrations…to take every available means of imparting to them a practical acquaintance with diseases of most frequent occurrence in India, the remedies best suited to their cure, and the proper mode of applying those remedies".[130] From its inception (21 June 1822) to its abolition (1835), the NMI was a colonial institution serving colonial ends. Khaleeli notes, "The Indians were to watch and learn rather than contribute."[131] Against this perspective, the importance of male midwifery introduced at the CMC a few years later should emerge with a different significance and relevance in the history of medicine in India. As already clearly described, for the purpose of acquiring practical knowledge of pharmacy, surgery, and physic, the pupils of the NMI were attached to the Presidency General Hospital, the King's Hospital, the Native Hospital and the Dispensary. The only practical information given on the subject was obtained from the dissection of lower animals and from the post mortem examination of persons dying in the General Hospital.[132] To be more specific, they received practical knowledge of anatomy at the General Hospital and Company dispensaries. Here they observed British surgeons dissect human body. In 1825 an assistant surgeon, William Twining[133], posted at the General Hospital in Calcutta, regularly demonstrated to them the anatomical details of bodies he dissected. And the apothecary, Mr. Reid, at the

[121] Sen, ibid, 137-138.
[122] Michael John Whitfield, "Dr John Tytler (1787–1837), Superintendent of the Native Medical Institution, Calcutta", Journal of Medical Biography 2019, 29 (4): 1-6 (3).
[123] Ibid, p. 141.
[124] Ibid, pp. 141-42.
[125] Letter of John Tytler to James Hutchinson, dated May 21, 1832 (Proceedings of the Medical Board, National Archives, New Delhi). Hutchinson was surgeon on the Bengal Establishment. [Emphasis added]
[126] Seema Alavi, Islam and Healing: Loss and Recovery of an Indo-Muslim Tradition, 1600-1900 (New Delhi: Permanent Black, 2007), 71.
[127] Ibid.
[128] John Lizars, A system of anatomical plates; accompanied with descriptions, and physiological, pathological, and surgical observations (Edinburgh: D. Lizars, 1822).
[129] Alavi, Islam and Healing, p.80.
[130] Minutes of Evidence taken before the Select Committee on the Affairs of the East India Company with Appendix and Index, 1, Public (London, 16 August, 1832), p. 447.
[131] Khaleeli, "Harmony or Hegemony?", p. 95.
[132] Chuckerbutty, Popular Lectures, p. 142.
[133] William Twining is the author of an important book – Clinical Illustrations of the More Important Diseases of Bengal with the Result of an Enquiry into their Pathology and Treatment (Calcutta: Baptist Mission Press, 1832).

Calingah dispensary, located close to the NMI, trained students in chemistry. Students got clinical experience in their interactions with patients at these institutes.[134]The exposure to dead bodies began to erase the social taboo against touching the dead. Before the foundation of the CMC, students were exposed to the post- mortem examination and attended clinical classes at the General Hospital. This prepared the environs for exposing the new generations of pupils to visual and psychological acculturations with the new culture of medicine. When the cholera epidemic struck Calcutta in the 1820s, twenty of Breton's (a superintendent at the NMI) "most experienced pupils" were dispatched among the local population with the hope that a "decrease in the number of cases of cholera in the town will now admit of the aid" of his students.[135] In a letter to Dr Breton, Radhakanta Deb wrote, "I shall introduce and recommend your advice and medicine, both here and in the interior; and the human lives which will thereby be saved."[136]

Thus the background for the gestation of public health in India was prepared. Western education became successful in producing its agency through elite people like Radhakanta. Moreover, by suiting the desires of the government and the population at large, the NMI avoided "confrontation with the established medical men of pre-colonial India".[137] New experiments and trials in a hospital setting were also conducted, for example, by Dr Gilchrist,…a quantity of finely powdered bark and cinnamon, with a due proportion of lau- danum, into a bottle of Madeira wine, to shake the mixture well…to take a wine glassful of the medicine, to be repeated every half hour, until one of ourselves could attend in person. This experiment was tried with the utmost success…[138]

The year 1826 is significant because it is then that Dr Tytler commenced his lectures according to the Western method at the College on medicine, and "Professors were appointed to teach Caraka, Suśruta, Bhāva Prakāśa, etc. Classes for the Āyurvedic students were opened in 1827".[139] Tytler organised his classes around four major departments of medical science, namely, Anatomy, Pharmacy, Medicine and Surgery.[140] According to Tytler, it was "no small recommendation of Anatomy, that it has a most powerful influence in counteracting prejudices that arise from birth, or station, or cast, by demonstrating that, however mankind may differ in their externals, their internal organization is the same".[141] Anatomy, in this description, becomes the great social leveller – "Before the knife of the anatomist every artificial distinction of society disappears; and if all the individuals of the human race be equal in grave, they are still more so on the dissecting table."[142]

To the beginners in the fourth class he taught anatomy in the following way:
After a preliminary lecture, I begin with the bones and commencing as usual with the head go regularly through the whole…on the bodies of sheep begin- ning with the Viscera and Thorax, then the Abdomen, the Pelvis and Brain and organs of sense…there are frequent opportunities of seeing these in Post Mortem examinations at the General Hospital.[143]The gradual marginalization of Indian medical texts was coterminous with the extension of western medical pedagogy in India. Although the original intention was to instruct boys in the Ayurvedic and Unani systems of medicine without excluding the European system, "the latter gradually and inevitably gained importance under

[134] Alavi, Islam and Healing, p. 87.
[135] Anonymous, "Education of the Native Doctors", p. 115.
[136] Ibid, p. 114.
[137] Alavi, Islam and Healing, p. 73.
[138] Anonymous, "Liberality of the Indian Government towards the Native Medical Institution of Bengal," Oriental Herald 10 (July-September, 1826), 17-25 (20).
[139] Girindranath Mukhopadhyay, History of Indian Medicine Containing Notices, Biographical and Bibliographical, of the Ayurvedic Physicians and their Works on Medicine from the Earliest Ages to the Present Time, vol. II, 2nd edition (originally published in 1922-29 by the University of Calcutta). Reprint (New Delhi: Oriental Books Reprint Corporation, 1974), 15.
[140] S. N. Sen, "The Pioneering Role of Calcutta in Scientific and Technical Education in India," Indian Journal of History of Science 29.1 (1994): 41-47 (43).
[141] Tytler, trans., The Anis Ul Musharahhin or Anatomist's Vade-Mecum by Dr. Robert Hooper (Calcutta: Education Press, 1830), 14.
[142] John Tytler, tr., The Anis Ul Musharahhin, or Anatomist's Vade-Mecum by Robert Hooper (1830), 14.
[143] Sen, Scientific and Technical Education, 139-40.

European superintendence".[144] The process reached such a height that Durshun Lall, a Hindu pupil, brought Tytler a skull his friend had picked up in the banks of the river.[145]

Opening up the cavity of an organism made pupils further aware of the depth and the third dimension of the body, as opposed to the received understanding of the two-dimensional idea of the body upheld by both Ayurvedic and Unani systems of medicine. Students would learn zootomy by dissecting goats and lambs. But, at the CMC, the subjects were taught practically "by the aid of the Dissecting Room, Laboratory, and Hospital".[146] Additionally, new instruments of investigations like the thermometer and stethoscope and new modes of physical examination like inspection, palpation, percussion and auscultation were introduced. It is important to note, however, that the NMI did not have a proper institutional structure to incorporate the new medical education as yet, or in the offing. Additionally, as Bonner points out, the training of doctor was "inevitably influenced by the rising power of the middle classes in Europe and America as they demanded more medical services and a higher standard of medical competence."[147] This was also true for Calcutta as well as India. The newly rising middle class did show their demand for better Western medical treatment. As a consequence, the foundation of a modern medical college was a historical necessity and inevitability.

Since its very beginning, the new medical training was secular in nature. A report from a Select Committee was to state: "Hindoos and Mussulmans were equally eligible, if respectable."[148] Alavi has further pointed out that "… any coolie attached to the army, once he became well versed in the Nagri script and qualified in basic hospital skills, could rise to become a native doctor".[149] For the first time in India, at the NMI, students were inducted into the procedures of individual case-history formulation. "The pupils," wrote Tytler, "keep a case-book of the symptoms and treatment of the sick on the establishment."[150]Another dimension in the changes inaugurated by western medicine lay in the temporality of disease investigation and cure. The materiality of western medical practice lies in the transcription of evidence in written form which is thereafter abstracted as a medical record of observed events.[151] The conceptual basis of the clinical case thus lies in the ordering of its facts by the agency of time. The introduction of time as an ordering variable in the construction of clinical cases was completely new in Indian practice; gradually the "seasonal time" of indigenous Indian medical practice transformed into the clinical time of Western practice.

It became widely accepted that "the British government could not have established an institution calculated to be of greater benefit…than the Native Medical Institution [NMI]".[152] Macaulay's efforts seemed only to add a snowballing effect to the process already started by the students of the NMI and Calcutta elites taken together. During the decade of its existence, the number of native doctors "which this institution furnished to the public service between 1825 to 1835…was 188".[153] Eight of the pupils "who had been educated in this seminary were appointed native doctors, and sent with the troops serving in Arracan".[154]

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[144] Ibid, p. 149.
[145] Ibid, p. 142.
[146] Report of the General Committee of Public Instruction (henceforth GCPI), 1941, p. 34.
[147] Bonner, Becoming a Physician, 158.
[148] Appendix to the Report from the Select Committee of the House of Commons on the Affairs of the East- India Company, 1, Public, 16 August, 1832, and Minutes of Evidence (London: Honorable Court of Directots, 1833), p. 270.
[149] Alavi, Islam and Healing, p. 71.
[150] Monier Williams, History of The Application Of The Roman Alphabet To The Languages Of India (Calcutta: Longman, Green, 1859), 31.
[151] Stanley Joe Reiser, "Technologies of Time Measurement: Implications at the Bedside and the Bench," Annals of Internal Medicine 4.132 (2000): 31-36 (31).
[152] Anonymous, "Liberality of the Indian Government", p. 24.
[153] Centenary Volume of the Calcutta Medical College (Calcutta, 1935), 9.
[154] Minutes of Evidence, 1832, p. 448. Interestingly, in mimicry of the NMI, the earliest record of an association of indigenous practitioners is the Native Medical Society, founded in Calcutta in 1832. It was solely confined to the Vaidya caste, "the Byodya practitioners should refuse to undertake any case where medicine has been administered to the patient by any practitioner of another caste". It was also decided that medicines of all sorts will be prepared by the Society "but will be sold to no one who is not of the Byodya caste". See, Anonymous, 'Native Medical Society," Asiatic Journal 7.26 (1832): 84–85.

It may be added here that the system "adopted for the Instruction of the Native Medical Students, corresponds with that introduced by Colonel Pasley, of the Royal Engineers, for the education of the Non-Commissioned Officers and Privates of Royal Sappers and Miners, in Geometry and Mathematics."[155]My contention is that the brief phase of the NMI and the medical classes at the Calcutta Sanskrit College represents the period of gestation of hospital medicine in India. Medical classes at the Sanskrit College started in 1827. But the preparatory phase to introduce pupils to modern science – its technology and technique – had begun earlier. The report of 1828 stated that the progress of the students of the medical classes had been satisfactory "in the study of medicine and anatomy; and particularly that the students had learned to handle human bones without apparent repugnance, and had assisted in the dissection of other animals".[156] They also "performed the dissection of the softer parts of animals', and opened 'little abscesses and dressing sores and cuts".[157] Moreover, at the Sanskrit College of Calcutta the number of pupils was then 176, and was rapidly increasing and of these only ninety-nine received allowances from the college.[158]

This estimate makes it clear that seventy-seven students were without allowances and still pursuing their studies at their own expense—the lure of English medical education can be unmistakably discerned from these facts. Another issue of importance in this regard is the dissemination of the new knowledge of medicine throughout Indian society, whatever be the quanta of dissemination. In Alavi's insightful observation,Awareness of the new medical ethos slowly spread through society via the wide range of service gentry attracted to the press for employment form all over northern India. Such knowledge was disseminated through the person of the native doctor as well, and texts literally moved around with the marching regiments, who had their native doctors.[159]As found in Fisher's memoir, "The report of 1829 states that 300 rupees per month had been assigned for the establishment of a hospital in the vicinity of the college".[160] Though curricula were in accordance with Sanskrit medical works, a hospital of some kind was thought absolutely necessary for proper medical teaching. As a letter written in 1831 conveys, "[t]here is now every reason that medical education in India will be improved in a very material degree by this institution".[161] It was thought that the institution would have the benefit of "affording to the medical pupils ample opportunities of studying diseases in the living subject".[162] One graduate, N.K. Gupta, who had been trained as an apothecary, was apparently doing quite well in the position at the hospital. "Though no Hindu had yet performed a major operation, they regularly performed minor ones such as 'opening little abscesses and dressing sores and cuts'."[163] In 1833, Dr J. Grant wrote to Major Troyer, the then secretary of the Sanskrit College,

The students of the Medical Class having attained a respectable knowledge of elementary Anatomy and Physiology as far as the means at our disposal permitted consistent with Native prejudices: The next point of importance was to give them some correct notions of European Medical and Surgical knowledge.[164]In the same letter he made mention of "ninety-four House Patients (as stated earlier) and one hundred and fifty-eight out-patients. Of the Two Classes of Patients, the House ones sleep and dieted (sic) in the Hospital".[165] He also stated that the out- patients were "visited if unable to come at their own residence by the Apothecary, when practicable…"[166] The Asiatic Journal (1832) also published a similar report regarding the hospital: "The poor afflicted and helpless sick are now admitted to this hospital, and are furnished with medicine, food and beds; and, in fact, they are attended better than they could be by their own families at home."[167]

I suggest that these were the first instances when Indian patients were dislocated from their domestic setting to the environs of the hospital. A new notion of treatment, which found its final shape in the CMC, began to emerge within

[155] Lushington, The History, Design, and Present State, p. 318.
[156] Anonymous, 'Native Medical Society," Asiatic Journal 7.26 (1832): 84–85.
[157] David Kopf, British Orientalism: The Dynamics of Indian Modernization, 1773-1835 (Calcutta: Firma K. L. Mukhopadhyay, 1969), 183-84.
[158] Minutes of Evidence, 1832, p. 494.
[159] Alavi, Islam and Healing, p. 89.

I. [160] H. SHARP, SELECTIONS FROM EDUCATIONAL RECORDS. PART I: 1781-1839 (CALCUTTA, 1920), 183.

[161] Letter, in Public Dept. to Bengal, 24 August 1831, Appendix to the Report, p. 346.
[162] Ibid.
[163] Kopf, British Orientalism, p. 184.
[164] Centenary of the Medical College, Bengal, 126-27 (126).
[165] Ibid, p. 127.
[166] Ibid.
[167] Anonymous, "The Hindu Hospital," Asiatic Journal and Monthly Register, New Series 9.33 (September 1832): 8.

social life. By this time, a shift in the vocabulary of medicinal pedagogy was effected and the word "education" in lieu of the older "training" gained currency. One example should clarify it. Native Doctors were subject to military laws and regulations, while the graduates of the CMC – a few years later – were under the supervision of civil education committee. A report related to court martial of two Native Doctor was published in the Asiatic Journal. The report goes thus:

Shaik Mohamed Morad and Mirza Allyar Beg, native doctors of the 50th N.I., have been tried by a native court-martial "for scandalous and disgraceful conduct, in having, when several men of the regiment were about to proceed on sick leave, fraudulently demanded and received, either from the men themselves, or through the agency of others, certain sums of money, on various pretences;…."[168]

Mr. Wilson, who examined the medical class in 1830, ecstatically claimed, "the triumph gained over native prejudices is nowhere more remarkable than in this class", where "not only are the bones of the human skeleton handled without reluctance, but in some instances dissections of the soft parts of animals performed by the students themselves".[169]

It would be judicious to add that with the introduction of medical texts, especially European one, in the Sanskrit College indigenous as well as traditional knowledge system was being replaced epistemologically. In the Annual Report of 1834, Troyer, then Secretary of the College, wrote:

The students belonging to the medical caste of the Hindus have the choice, instead of entering the class of Logic [Nyaya], to attend the medical lectures of the Sanskrit as ewll as of the English lecturer on medicine, and they do not study the law [Smriti]. As their object to follow the profession of their fathers, they cannot but wish to acquaint themselves with the Hindu practice of physic and with the sorts of medicines most easily obtainable and most generally used in this country…[170]

Mahendra Lal Sircar comments, "even anterior to the foundation of the Medical College, prejudices of students in pre-existing institutions were observed to have given way to the light of knowledge."[171] The acquisition of anatomical knowledge played the pivotal role. It is again reinforced by Ram Comul Sen, a member of the Education Committee. He seems to have observed:

The Vaid students at the Sanscrit College, would be glad to avail themselves of opportunities to acquire a knowledge of practical anatomy tomorrow, if the thing could be managed in secret. They have themselves entirely got rid of their prejudices on this head, and their wish to cultivate such pursuits in secret, is merely a sacrifice of policy to the prejudices of those among whom they are to acquire their bread: for if it were known generally that during the hours of tuition, they touched a human bone, much less a dead body; it would create a repugnance to employing them, that must end in their ruin.[172]

Similar modes of acculturation processes – visual, verbal and psychic – were in operation in both the NMI and Sanskrit College. Moreover, a copy of the number of patients treated in the hospital attached to the College should testify the impact of Western medicine on the acquisition of learning medicine as well as its social significance.[173] In his "Introductory Address" to the students of the Medical College in 1863, Fayrer made it particularly clear –

Sights and objects to the untutored mind, revolting and disgusting; matters to be committed to memory that are at first dull, uninteresting and incomprehensible, or, at the best, but half understood; the greatest difficulty of all, the inaptitude, at first, for application to study of any kind; inability to fix the attention on strange matters taught in a foreign language, and of which, beyond the most ordinary expressions, the very meaning of its words is obscure—withal... [174]

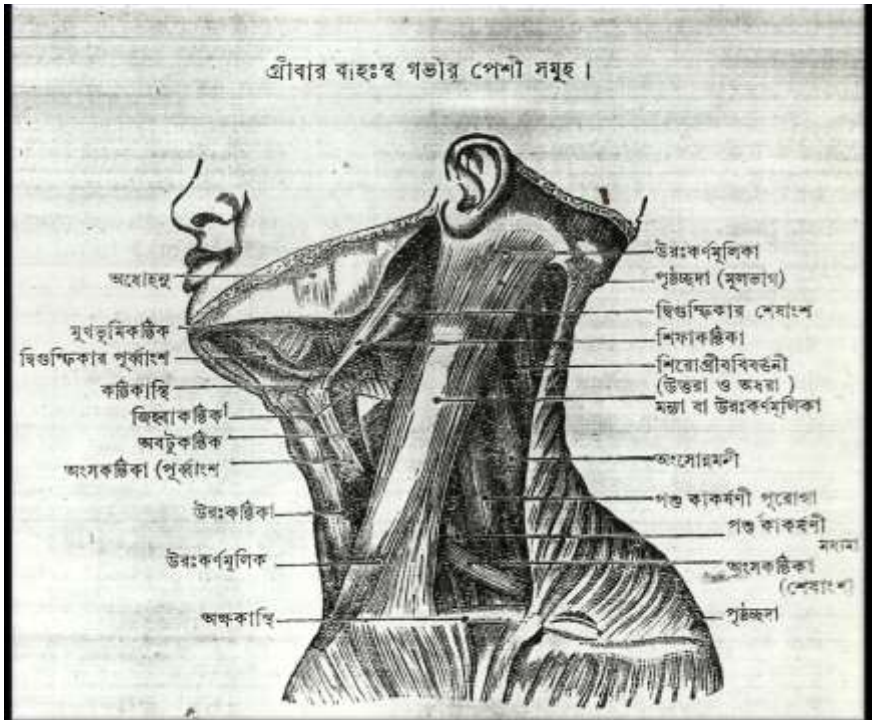
[168] Anonymous, "Native Doctors," Asiatic Journal 21 – New Series (September-December 1838): 137.
[169] Minutes of Evidence, 1832, p. 494.
[170] Brajendranath Bandyopadhyaya, Kolikata Sanskrita Kolejer Itihas (History of the Calcutta Sanskrit College), part I: 1824-1858 (Calcutta: Calcutta Sanskrit College, 1948), 35.
[171] Sircar, "Calcutta Medical College (part 2)," Calcutta Journal of Medicine 6.5 (1873): 175-80 (177).
[172] Ibid, p. 175. [Emphasis added]
[173] Sen, Scientific and Technical Education, p. 148.
[174] Fayrer, "An Introductory Address," p. 6. [Emphasis added]

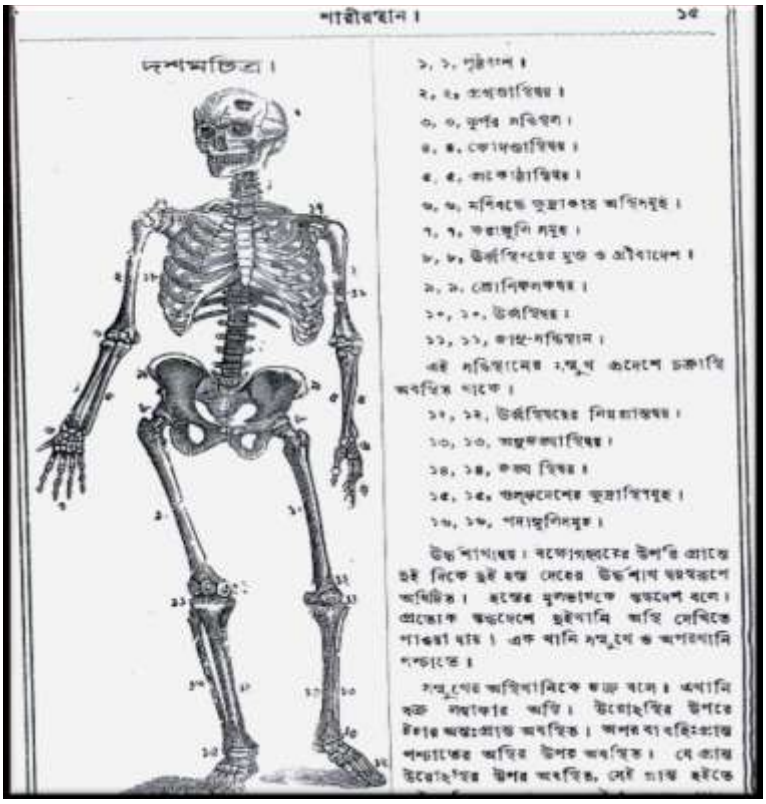
A few plates which were shown and taught to the students of the NMI, Sanskrit College, Calcutta, and the School for Native Doctors, Bombay, may be exemplary here to show how visual acculturation took place.

[Lizar's Anatomical Plates]

[Cloquet's Anatomical Plates]

Notably, such figures and others from any other English medical textbooks were adopted unhesitatingly and internalized (though replacing the English terms with Bengali or Sanskrit ones) in the late 19th-century Āyurvedic texts, which are shown below. This was basically an act of mimicry, reconstituting the core epistemological ontological issues of traditional medicine.




শারীরস্থান। ১৫
দশমচিত্র।
১, ১, পৃষ্ঠবংশ।
২, ২, প্রগণ্ডাস্থিদ্বয়।
৩, ৩, স্কন্ধের সন্ধিস্থল।
৪, ৪, কোণরাস্থিদ্বয়।
৫, ৫, অংসফলকাস্থিদ্বয়।
৬, ৬, মণিবন্ধে ক্ষুদ্রাকার অস্থিসমূহ।
৭, ৭, করাঙ্গুলি সমূহ।
৮, ৮, ঊর্দ্ধস্থিগণের মুণ্ড ও গ্রীবাদেশ।
৯, ৯, শ্রোণিফলকদ্বয়।
১০, ১০, উরুস্থিদ্বয়।
১১, ১১, জানু-সন্ধিস্থান।
এই সন্ধিস্থানের সম্মুখ ভাগে চক্রাস্থি অবস্থিত থাকে।
১২, ১২, ঊর্দ্ধস্থিদ্বয়ের নিম্নপ্রান্তদ্বয়।
১৩, ১৩, অঙ্গুলফলাস্থিদ্বয়।
১৪, ১৪, কক্ষ স্থিদ্বয়।
১৫, ১৫, গুল্ফদেশের ক্ষুদ্রাস্থিসমূহ।
১৬, ১৬, পদাঙ্গুলিসমূহ।
ঊর্দ্ধশাখাদ্বয়। বক্ষোগহ্বরের উপরি প্রান্তে দুই দিকে দুই হস্ত দেহের ঊর্দ্ধশাখ দ্বয়রূপে অধিষ্ঠিত। হস্তের মূলভাগকে স্কন্ধদেশ বলে। প্রত্যেক স্কন্ধদেশে দুইখানি অস্থি দেখিতে পাওয়া যায়। এক খানি সম্মুখে ও অপরখানি পশ্চাতে।
সম্মুখের অস্থিখানিকে ক্লম বলে। এখানি বক্র লম্বাকার অস্থি। উহোহস্থির উপরে ইহার অন্তঃপ্রান্ত অবস্থিত। অপরখানি পশ্চাতের অস্থির উপর অবস্থিত। যে প্রান্ত উরোহস্থির উপর অবস্থিত, সেই প্রান্ত হইতে