

The Hospital Transcends into Hospital Medicine: A Brief Journey through Ancient, Medieval and Colonial India*

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Abstract

This paper aims at giving an overview of hospitals in India from ancient to modern times. It deals with European hospitals in India prior to the 19th century, the rise of hospital medicine and the foundation of the Calcutta Medical College (CMC), and, finally, briefly discusses about the colonial encounter between modern medicine *vis-à-vis* Āyurveda, and some of its consequences at the level of epistemology. In our era of bio-medicalization, the hospital and the experience of the patient assume a figure completely different from that of pre-hospital medicine era. From the description of hospital in *Caraka Saṃhitā* to the provision of medical facilities made in the Brahminical religious institutions of Northern India during the early medieval period, hospitals primarily served for caring and lodging of the sick. A clear distinction between a physician and a surgeon was apparent in a 12th-century epigraphic record. The decline of surgical knowledge and practice in the scholarly tradition of Indian medical practice was evident. The development of hospitals is among the contributions that Muslim culture brought to Indian society, where hospitals were not extremely common. In the early 19th century, the brief phase of the Native Medical Institution and medical classes at the Calcutta Sanskrit College nurtured the *gestation* of hospital medicine. The new secular medicine started at death, when the bedside-practitioner gave up and the scientist-practitioner took over, and these were the same person. Aspiring to talk in the language of modernity, in mimicry of English medical college and hospitals, Āyurvedic institutions began to emerge since the late nineteenth century. Āyurveda was reconstituted in terms of modern medicine. Historically, CMC played its role in the entire process, ushered in the era of hospital medicine, and became instrumental in the marginalization of traditional Indian medicines.

Key words: Anatomy, Ancient India, Calcutta Medical College, *Caraka Saṃhitā*, Dissection, Hospital medicine

1. INTRODUCTION

The Profession of medicine seems to be as early as the dawn of human civilization. So long as health is there, there remains disease as its “other”, one may say as well. In Sanskrit, etymologically speaking, *svāsthya* (which has become coterminous rightly or wrongly with health in English) stands thus – *sva* + *sthā* + *ya*. It signifies that one has to revert to his/her “*sva*” or

natural state to be healthy. Minoru Hara observes that there remains a general semantic atmosphere around the Sanskrit word *svastha*. “It implies not only a healthy physical condition, but also a serene state of mind. The usage, however, is not limited to the state of individual human beings, but is extended to those of the *state and government*” (Hara, 1995, pp. 55-87). To restore this process we need at the most basic level medical/surgical

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personnel, medical/surgical attendants to provide care and assistance and a space for recovery. This particular *space* for attending the sick and curing the person and, finally, restoring him/her to the previous state of life may be called the hospital.

From Western perspective, taking the risk of a lengthy quotation, Guenter B. Risse, in his magnum opus, observes –

To assess with greater clarity the nature of the hospital in the Western world and its place in medicine and society, we must examine its origins and evolution. Above all, we must probe the social and cultural currents that have set the hospital on its trajectory to our time. Such forces include the changing definitions of health and illness, shifts in the ecology of disease, the role of religion, and the fluctuating sense of responsibility for welfare and health care that societies in the West have had. Moreover, the more recent history of hospitals is inextricably linked to developments in the modern science and the practice of medicine; they also function as sites for professional training and clinical research. In sum, hospital history is cultural, social, and medical history.

(Risse, 1999, p. 4).

Risse asks further,

“A complete historical reconstruction of hospitals from charitable guesthouses to biomedical showcases presents a formidable challenge. How can one reduce the enormous variability displayed by hospitals at any historical moment and geographic locale to a common denominator when in fact each establishment is the distinctive and proud product of a prominent patron or a defined community?”

(Risse, 1999, p. 4).

Coming to ancient India, *Caraka-Saṃhitā* (or *The Compendium of Caraka, hereafter CS*), one of the earliest medical texts of India, provides description of building a hospital, or “a kind of infirmary”¹. Chapter fifteen (1.15.1-7), called *upakalpanīya*, describes thus:

Thus, an expert in the science of building should first construct a worthy building. It should be strong, out of the wind, and part of it should be open to the air. It should be easy to get about in, and should not be in a depression. It should be out of the path of smoke, sunlight, water, or dust, as well as unwanted noise, feelings, tastes, sights, and smells. It should have a water supply, pestle and mortar, lavatory, bathing area, and a kitchen.

(Wujastyk, 2003, p. 36).

Moreover, there were also provisions for number of men who were “skilled in singing, making music, telling or reciting various kinds of stories in prose and verse (*ullāpaka, śloka, gāthā, ākhyāyikā, itihāsa, purāṇa*).” (Meulenbeld, *HIML*, IB, 19) “There should be bustard-quails, grey partridges, hares, black-buck, Indian antelope, black-tails, sheep, and nice, healthy milk cow with a live calf and good arrangements for grass, shelter, and drinking water” (Wujastyk, 2003, pp. 36-37).

Arguably, in an era of bio-medicalization as well as techno-medicine, the hospital and the experience of the patient assume a figure completely different from the previous description and experience. It is tellingly described in an important textbook of internal medicine:

The hospital is an intimidating environment for most individual. Hospitalized patients find themselves surrounded by air jets, button, and glaring lights; invaded by tubes and wires; and beset by the numerous members of the health care team – nurses, nurses’ aides, physicians’ assistants, social workers, technologists, physical therapists, medical students, house officers, attending and consulting physicians, and many others. ... It is little wonder that patients may lose their sense of reality.

(Longo et al, vol. I, p. 6)

In such a hospital, patients almost cease to be persons, and the person of the patient gets

¹ G. Jan Meulenbeld has written his magnum opus *A History of Indian Medical Literature* (hereafter *HIML*). It deals with supposedly all manuscripts and published or printed materials related to Āyurveda since ancient times to the most recent times. The work is comprised of 5 volumes (1999-2002). This quotation is from volume IA (Groningen: Egbert Forsten, 1999), 17.

reconstituted to be some conglomerations of pathology inside the body, an objectified spectacle of biochemical, genetic or pathological markers. “Removed from their normal surroundings they can be treated in ways that ignore those surroundings precisely because the physician is now focusing on disease entities” (Henderson, Horden and Pastoe, 2007, p. 18). Risse comments, “As depicted by contemporary narratives, going to hospital resembles a journey to a foreign, exotic land, an often too common pilgrimage in which patients cross into a world of strange rites, miraculous interventions, and frequent death” (Risse, 1999, p. 9). Additionally, in this present setting of health care, “discussions about health care delivery have focused on value, defined as health outcomes achieved per dollar spent” (Meyer et al., 2012, pp. 2147-49). While charting out the history of hospitals, which, as scholars argue, evolved into the phase of hospital medicine, Risse points out that for those who enter the *space* of hospital have to undergo *temporally* built normative formal initiations (Risse, 1999, p.8). Rebuilding of hospital *space* and architecture and reconstruction of the notion of *time* are two important aspects of the new medicine. It is not merely description of hospitals.

2. HOSPITAL AS IN THE CS

It may be beneficial to have a closer look into the date of *CS*. Wujastyk places it between third or second centuries BCE and the period of Gupta dynasty (320 – 420 CE). The latter date corresponds to the period when *CS* gets frequently quoted (Wujastyk, 2003, p. 4). Meulenbeld on the other hand scrutinizes the philosophical material of *CS*. “The same material suggests that the author called Caraka cannot have lived later than about CE 150-200 and not much earlier than about 100 BCE” (Meulenbeld, *HIML*, IA, 1999, p.114). References to a king, certain types of officials, and of hospital, together with signs showing that the central administration of the state was

growing weak point to the fact that *CS* “belongs to the Mauryan empire or the period of Śuṅgas” (Meulenbeld, *HIML*, IA, 1999, p.112).

In the narrative of *CS*, we find the patient in a milieu which actually does not dissociate him from his domestic setting, rather the hospital becomes an extension of home. “Beds and chairs should be provided with a (flower) vase and spittoon, bed well-equipped with carpet, bed sheet and pillow along with supporting pillows; and should be comfortable for attending to lying down ...” (Sharma, vol. I, 2010, p. 105). Needless to say, all these arrangements were meant for a king or wealthy persons of high social standing - *rājānaṃrājamaṭramanyaṃ*. In Meulenbeld’s terse expression, “Chapter fifteen, called *upakalpanīya*, on the equipment of a physician, describes a kind of infirmary, with its personnel and equipment, suitable to the treatment of persons of high social status with full course of *pañcakarman*” (Meulenbeld, *HIML*, IA, 1999, p. 17). Moreover, “[t] here should be drugs for throwing up, soothing, and those which have both effects, as well as medicines well-known for constipating, for kindling the digestion-, digestives, and those which remove wind” (Wujastyk, 2003, p. 37).

A few issues open up before us. First, the hospital described here does not seem to be a usual one – the receptacle of the sick. It is meant for wealthy people and for a particular medical purpose (*pañcakarman*). “Ḍalhaṇa notes that a poor person will not benefit from medical advice because he will not be able to afford the medicine prescribed” (Wujastyk, 2003, p. 13). It does not seem to be equivalent to hospitals of the medieval period – East or West. Second, the evolution of the concept of *pañcakarman* itself is quite intriguing. Zimmermann finds that it might have been originally synonymous with *śodhana*, as both categories encompassed emetics, purgatives, drastic enemas, and errhines. “However, since bloodletting (the fifth of evacuant therapies) has fallen into disuse, it was removed from the set

of *pañcakarman*, and replaced by oily enemas” (Zimmermann, 1989, p. 149). It is understandable that in the hospital of Caraka there was no surgical procedure, but only a medical one. Third, in Caraka’s account, the body is assumed to be a two-dimensional frame through which *doṣa-s*, *dhātu-s* and *mala-s* (three morbid entities or humors), and saps flow. But in a modern hospital perception of the body is unwaveringly three-dimensional – in the depth of which resides the harbor of disease in tissues, which finally becomes the discipline of pathological anatomy. Moreover, modern hospital becomes a space where the body can be brought under the gaze of medicine and controlled therapeutic trials can be conducted over it.

A comparison with European medieval hospitals can illustrate the issue with more clarity. As Porter points out, medieval hospitals were religious foundations through and through. St. Leonard’s in York had 225 sick and poor in 1267; still larger were the civic hospitals of Milan, Siena and Paris. Small hospitals were essentially hostels or hospices lacking resident medical assistance, but physicians were in attendance by 1231 at the Paris Hotel Dieu. “In hospital expansion the Crusades played their part, since crusading orders such as the Knights of St John of Jerusalem (later the Knights of Malta, the Knights of Templar, and the Teutonic Knights built hospitals throughout the Mediterranean and German-speaking lands” (Porter, 1999, pp. 112-113).

Another fact of some interest can be adduced here. Various symbols, signs and index emblematic of religious connotations were strongly associated with ancient and medieval European medical practices. One example is Chaucer’s *Canterbury Tales*. The physician of Chaucer’s *Canterbury* pilgrimage was proud of his astrological learning. In Chaucer’s *Canterbury* tales –

With us ther was a doctour of phisik;
In al this world ne was the noon hymlik,
To speke of phisik and of surgerye

For he was grounded in astronomye.

He kepte his pacient a ful greet deel
In houres by his magyk natureel.
Welkoude he fortunen the ascendent
Of his ymages for his pacient.
He knew the cause of everich maladye,
Were it of hoot, or coold, or moyste, or drye,
And where they engendred, and of what humour.
He was a verray, parfitpraktisour:
The cause yknowe, and of his harm the roote,
Anon he yaf the sike man his boote.

(The General Prologue, *Canterbury Tales*,
Lines 411-424. Middle English spelling
retained, not changed.)

These examples from medieval European practices and experiences affirm that there was no fundamental difference between Indian subcontinent and Europe in the perception of disease, body, human sufferings and their cure. Changes began to happen during the last quarters of the 18th century. It led to the firm conviction hierarchy of human civilization – India remaining at the lowest rung of civilization, while Europe being located at the topmost rung.

3. HOSPITALS IN ANCIENT AND MEDIEVAL INDIA

“Medicine and healing were integral parts of Buddhist monasticism from its inception” (Zysk, 2000, p. 44). Zysk contends that the much discussed second rock edict of Aśoka “in no way proves that hospitals existed in India in the third century BCE, but suggests that the monk healers’ role of extending medical aid to the laity coincided with the spread of Buddhism during Aśoka’s reign” (Zysk, 2000, p. 44). An inscription from Nagarjunikonda, dating from the third century CE, suggests that a health house for the care of those suffering and recovering from fever was part of this famous Buddhist monastery (Zysk, 2000, p. 44). Though there remains confusion regarding the exact meaning of fever. Zysk notes, “When Buddhism was submerged in India after 1200, these Hindu institutions seem to have assumed

the responsibility for medical services previously provided by the Buddhist monasteries” (Zysk, 2000, p. 46). A sixth century CE inscription from the Duḍḍavihāra in Gujarat states that the use of medicines and remedies was for all those who are sick, not only for the monks (Zysk, 2000, p. 44).

In seventh-century India, there are oft-quoted records of Hiuen Tsiang or Xuanzang (CE 690). In his description, “in all the highways of the towns and villages throughout India he erected hospices, provided with food and drink, and stationed there physicians, with medicines for travelers and poor persons round about, to be given without any stint” (Beal, vol. i, 1884, p. 214)². He also mentions of *punyaśālā* or “a house of merit” or “houses of charity”. “The nobles and householders of this country have founded hospitals within the city, to which the poor of all countries, the destitute, cripples, and the diseased may repair. They receive every kind of requisite help gratuitously. Physicians inspect their diseases, and according to their cases order them food and drink, medicine or decoctions, everything in fact that may contribute to their ease” (Beal, vol. i, 1884, p. lvii). Importantly, Unschuld observes that the lack of normative structures that could have supported a specific social system “may have contributed to the ease with which Buddhist literature fused various secular and pre-Buddhist non-secular systems of Indian medicine into a conglomerate of differing concepts” (Unschuld, 1985, p. 138).

It should be remembered that until the twelfth century, as already noted by Porter, in Europe, most hospitals were small and basic and seldom offered medical care. The hospital was a guest house and infirmary in one. The care of the

sick poor was a duty incumbent upon Christians from the earliest times. Quite earlier, Guthrie made a useful comment, “Whatever obstacles the Church may have placed in the path of scientific medicine, there was no hindrance, but rather encouragement, in the provision of housing and nursing for sick and wounded persons” (Guthrie, 1945, 128). These early hospitals were refuges for sick poor people who were admitted for shelter and basic nursing care and were also a means of isolating those with infectious diseases (McKee and Healy, 2002). An old estimate informs that there existed “upwards of 750 such charitable institutions in Mediaeval England” (Clay, 1909, p. xviii). In an earlier account we find that the story of the birth and evolution of the hospital has even been seen as a record of the conquest of barbarism by civilization and of the triumph of Christian altruism over the selfishness of the pagan ideal (Foote, 1913, pp. 478-491). In more recent research, it is stressed that the scientific evidence for how or whether the environment within the medieval hospitals produced a sense of well-being and the extent to which this factor mediated illness “remains a topic for further exploration” (Bowers, 2007, p. 102).

Interestingly, surgeons, by contrast, remained within an amorphous group of individuals who shaved and cut hair and performed cupping, leeching, and bleeding, as well as pulling teeth and treating wounds, sores, and traumatic injuries. Their hands-on approach was perceived as less prestigious than and socially inferior to that of physicians (Risse, 1999, p. 153). We would find similar phenomena in Indian context too. Moreover, “In the fourteenth century, hospital services remained largely traditional and thus

² Si-Yu-Ki: Buddhist Records of the Western World, trans. Samuel Beal, vol. I (London: Trubner & Co., 1884), 214. The text may otherwise be read as “doctor’s medicines” or “physicians and medicines”. In Li Ronxi’s recent translation, *The Great Tang Dynasty Record of the Western Regions* (Berkeley: Numata Center for Buddhist Translation and Research, 1996) the description is somewhat different – “In this country there were formerly many alms houses to render help to the poor and needy, or give them free food and medicine, and provide travelers with meals so that they might dispel their fatigue.” (p. 113)

custodial: religious ceremonies, rest, warmth, food, and perhaps some medications” (Risse, 1999, p. 155).

Somewhat comparable developments are seen in Indian subcontinent too. The provision of medical facilities was made in the Brahminical religious institutions of Northern India during the early medieval period. King Śrīcandra (c. 925-75 CE) of South-East Bengal made provision for two physicians, though, to state, not for any hospital. It appears that the people “working in the temple of Brahman received their medical aid from these two physicians” (Sircar, 1971, p. 163). By this shift in providing medical care, two counteracting issues seem to have arisen. First, medical personnel, very often despised by Brahminic culture, begin to be adopted by this culture itself. Second, through this adoption, secular nature of Buddhist medicine begins to crystallize into orthodox Brahminic tradition³. Chakravarti and Ray note, “Prior to c. CE 500, most of our references to physicians and healing-houses are located within urban contexts. The physician appearing in a land grant record is often situated in a rural milieu” (Chakravarti and Ray, 2011, p. 20).

In his important contribution, Wujastyk has provided a brief of history of hospitals in India, especially in Bengal and South India (Wujastyk, 2012, <http://univie.academia.edu/DominikWujastyk/Talks>). Wujastyk specifically talks about his aim: to bring to the surface and organize important information about hospitals in peninsular South Asia. This preliminary information deserves further study, comparison with related data, philological examination and thoughtful interpretation. We may never get the rich detail of patients’ experiences that fills the pages of Risse’s *Mending Bodies, Saving Souls*. But we do, at least in the case of Caraka’s

Compendium, see into the mind of the physician when he planned his house of healing, and through Vallāla’s *Dānasāgara* and the Tirumukkūḍal inscription we gain valuable insights into patronage and funding.

He has also discussed about hospitals of Bengal and Kashmir of the twelfth century. Regarding King Vallāla’s hospital, he notes that “The hospitals he was proposing to fund were to be substantial (“made of bricks”) and well-equipped and staffed. These institutions seem to be hospitals in a recognizable and formal sense, rather than mere dormitories or religious shelters” (Wujastyk, 2012, <http://univie.academia.edu/DominikWujastyk/Talks>, p. 26). As one would understand, here the primary shift has occurred from religious shrines to an abode of care and healing.

Some interesting facts from Nandipurāṇa (a medieval Hindu religious text) can be referred to here. Though the exact date of the text is difficult to ascertain, it must antedate eleventh century CE as “Aparārka (1125 CE) quotes a long passage from the *Nandipurāṇa* about the founding of hospitals (*ārogyasāla*) where medicines were supplied free to patients. ... The passage further states that a competent physician should be appointed. Hemādri (*Dāna*, pp. 893-95) quotes the same passage and another from the *Skandapurāṇa* to the same effect” (Kane, vol. II, part II, 1941, p. 885). Chandavarkar finds that Nandipurāṇa extols the philanthropist “whose charities are devoted to the erection of health homes and sanatoria for the benefit of the people” (Chandavarkar, 1912, p. 25). Mukhopaddhyaya has cited a long passage from Nandipurāṇa:

Good health is a step to the acquirement of religious merit, wealth, pleasure and final emancipation, and so the man who bestows cure to the sick and

³ For transformation of the nature of medical profession, see, Debiprasad Chattoopadhyaya, *Science and Society in Ancient India* (Calcutta: Research India Publications, 1977). Debiprasad has nicely dealt with the trajectory of how *daiva-byapaśraya bheṣaja* transformed into *yukti-byapaśraya bheṣaja*. In his analysis, to safeguard their professional integrity and passion for healing medical men had to succumb to Brahminic in many cases.

also he who erects a hospital equipped with good medicaments, dresses, learned doctors, servants and rooms for students, always gain them. The doctor should be well-versed in the religious treatises, experienced, familiar with the actions of medicines, a discriminator of the colour of the roots of the herbals and well-acquainted with the proper season of raising them from the ground, well-trained with the qualities of the juices, (their strength and actions), śāli rice, meat and medicaments, trained in compounding medicines, one who knows well of the physique of men by intelligence, one who knows the temperament and the qualities of the diet, a pathologist who is not idle, well acquainted with the remedial agents for the premonitory signs and sequelae of diseases, proficient in the requirements of time and place, well-read in the medical text-books ...

The pious man who erects such a hospital in which the services of good physicians of this nature are retained, becomes celebrated as the virtuous, the successful and the intelligent man in this World. If in such a hospital the kind-hearted man can cure a single patient of his maladies by simple medicines, oleaginous remedies and compounds of medicinal decoctions, goes to the Brahma's residence with his seven generations upwards. The rich and the poor acquire religious merit in proportion to the amount of riches they possess; where would the poor man get a hospital and a young physician to cure his diseases? The man secures the eternal regions mentioned before by rendering the sick healthy by the use of roots to some and by good rubbing (with external applications) to others. He who cures the sick suffering from an increase or decrease of the Air, the Bile and the Phlegm by simple remedies, he too goes to such blessed regions (after death) as are secured by those who perform many religious sacrifices (Yajñas)⁴.

Chandavarakar's monograph was published in 1912, followed by Mukhopadhyaya's in 1913. So it can be reasonably deduced that the text of

Nandipurāṇa was extant at least till the first quarter of the last century. The text is now lost. Aparārka is also cited by Hoernle for "the recensions of non-medical version of Ātreya" (Hoernle, 1994, pp. 197-200). It should be apparent that Aparārka, belonging to the twelfth century, was a person with medical understanding. So it is no wonder if he quotes a long passage from the Nandipurāṇa. Caveat may still remain if we look at the two dates of Chandavarakar and Mukhopadhyaya. This was the period of the nationalist construction of the history of science.

As pointed out by Chakrabarti in case of *Hindu Chemistry*, "the history of science only had a political and historical value for Ray; it could never become the epistemological tool to unravel the problems of modern science" (Chakrabarti, 2000, p. 212). A closer scrutiny of the material should help us not to be entangled in the tenor of the nationalist project. P. V. Kane is famous for his magnum opus *History of Dharmasāstra* which has been referred to. He cites Nandipurāṇa (Pūrvaṛdha chap 23 verses 12 ff) in another occasion "to give a comparatively but brief description of *ekādaśīvrata* (a religious vow taken on the 11th day of the month)" (Kane, vol. 5, part 1, 1958, p. 104). Another eminent scholar R. C. Hazra discussed the Nandipurāṇa (Hazra, 1945, pp. 305-320). Taking all these facts into consideration it seems cogent to deduce that the reference to Nandipurāṇa with regard to hospitals in medieval India is not a unique thing and does not perhaps feed the nationalist construction of history of science⁵.

In his epigraphic studies on South India, Gurusurthy finds that a large number of inscriptions speak of the establishment of

⁴ Girindranath Mukhopadhyaya, *The Surgical Instruments of the Hindus, with A Comparative Study of the Surgical Instruments of the Greek, Roman, Arab and the Modern European Surgeons*, vol. I (Calcutta: Calcutta University, 1913, 52-54. It should be noted that Nandipurāṇa was still extant, in whatever form may be, during the early twentieth century. However, it is no more found in manuscript form anywhere. It is a historical loss.

⁵ Two things should be mentioned here. First, at the beginning of the twenty-first century, it is of little value to re-fight every historiographical battle of the early 20th-century. Second, in recent times, Ludo Rocher has dealt with these questions in an excellent and up-to-date study.

dispensaries called as *ātulasālai* or *vaidyasālai* in Sanskrit. “Most of them seem to have been manned by a local doctor of hereditary nature, for whose maintenance provision of tax-free land offered to the medical man is called in the records as *vaidyakkāniorvaidyavṛtti*, *kānior vṛtti* meaning share of tax-free land” (Gurumurthy, 1970, pp. 76-79).

An inscription of the king Vīrājendra, dated in his sixth year (CE 1069), is engraved on the east wall of the first *prākāra* (wall) of the Viṣṇu temple of Venkaṭeśa-Perumāl at Tirumukkūḍal in the Madhurantakam taluk (area) of the Chingleput district. The inscription consists of 55 lines of writing and is engraved in two sections. The first section runs to distance of 55 feet. The entire space covered by the inscription is 540 square feet. The language characters of the inscription belong to the latter half of the eleventh century CE. There were different types of allocations for maintaining different establishments. The last item of expenditure was for the maintenance of a hospital wherein were treated students living in the hostel, and temple servants that were sick (Ayaar, 1931-32, pp. 220-250).

A clear distinction between a physician (*Savarṇan Kodanḍarāman Aśvatthāma-Bhaṭṭan*) and a surgeon (*Calliyakkiriyai Pannuvā*) becomes evident. The hospital had fifteen beds. Twenty different types of medicines were stored in the hospital. Some of the medicines were of animal origin, most were of vegetable origin. One item seems to be mineral in nature (Ayaar, 1931-32, p. 224).

According to this epigraphic record, the physician in charge of the hospital was paid annually 90 *kalam* (old South Indian unit of measuring weight, which varied from area to area) of paddy and 8 *kāśu* (equivalent to 30 grains) in addition to a grant of land. Contrarily, the surgeon of the hospital received 30 *kalam* of paddy. Two persons for fetching medicinal herbs were paid 60 *kalam* of paddy and 2 *kāśu*. A barber who

performed minor operations in addition to his professional duties received 15 *kalam* of paddy (Ayaar, 1931-32, pp. 223-224).

We must note, at least in this case, that the physician was the highest paid, while the surgeon received payment one-third that of the physician, and lower than persons fetching medicinal herbs and equal to that of barbers. If we remember the previous transformation of *pañcakarman* into an entirely medical practice, stripped out of its surgical content, inferior position of the surgeon in the eleventh century Brahminic temple makes sense to us. It indicates that there was a downhill journey of surgical knowledge and practice in the scholarly tradition of Indian medical practice. We should also remember the status of surgeons in medieval Europe. Moreover, there were provisions for preserving medicine throughout the year – “An amount of 40 *kāśu* (is provided) for purchasing ... and for 1 *padakku* of bovine ghee required to be kept under the earth annually for Purāṇasarpi” (Ayaar, 1931-32, p. 250).

The thirteenth-century king Viśeśvara established a monastery. The third share endowed by him “was granted in favour of three different institutions which were a *Prasūti-śālā*, an *Ārogya-śālā* and a *Vipra-satra*. The reference to a *Prasūti-śālā*, i.e., maternity or lying-in hospital, in a record of the thirteenth century is very interesting” (Sircar, 1971, p. 159).

The Srirangam inscription, dated Śaka 1415 (1493 CE), registers the gift of two *veli* land (old South Indian unit) made by Śrīnivāsa *alias* Śrīraṅgam Garuḍavāhana-bhaṭṭa who repaired and renovated the *Ārogya-śālā* or hospital (Sircar, 1971, p. 162). An *ārogya-śālā* or a healing-house explicitly figures in an inscription from Siyan (Birbhum, West Bengal), dated to the reign of the Pala ruler Nayapala (c. CE 1027-43). This inscription speaks of a large Śiva temple within the precincts of which stood this hospital. “Medical facilities were made available for both the

religious community and the people in general; it has been argued that the inscription indicated that the physicians lived close to the sacred shrine” (Chakravarti and Ray, 2011, p. 21).

Speziale comments, “The development of hospitals is among the contributions that Muslim culture brought to Indian society, where hospitals were not extremely common institutions at the time that Muslims arrived” (Speziale, 2012, p. 2). Unlike numerous hospitals in the Christian world, as Speziale notes, hospitals in Muslim cities were not “founded or directed by religious in particular” (Speziale, 2012, p. 3). For example, under Śīr Śāh Sūrī (r. 1540-1545), separate services for Hindus were introduced in caravansaries established along Indian roads and financed by the state (Speziale, 2012, p. 8). Two Āyurvedic physicians, whose stipends were paid by the government, “worked at the *dār al-ṣifa* of the Śāh Wajīh al-Dīn (d. 1589) shrine in Ahmedabad” (Speziale, 2012, p. 8). During the reign of Muhammad bin Tughluq (reign 1325-52), “there were around 70 hospitals in Delhi, while 1,200 *hakims* found employment through the state” (Liebeskind, 1995, p. 50). From the book *Sirat-e-Fiuz Shahi*, it appears that Muhammad bin Tughluq “had established mobile as well as fixed hospitals and appointed competent physicians for each of them” (Verma, 1970, p.351). Sultan Mahmud Khalji of Malwa also erected a hospital at Shādiabad (Mandu) in (CE 1445) (Verma, 1970, p.352). “Many hospitals devoted to the service of the sick were established in the capital and the outlying cities during the reign of Aurangzeb” (Verma, 1970, p.359).

In Bengal, people came to Pandua from all over Hindustan to receive spiritual training under the sage Nur Qutb al-Alam. He maintained a college, hospital and a *langar* (Ali, 1998, p. 180). Ala al-Din Husayn Shah (1493-1519) made land grants to this college and hospital.

The Bahamani king Alā-ud-Dīn Shāh, the eldest son of Ahmed Shāh al-Walī, built a large hospital at Bidar of South India and endowed lands from the income of which medicine, food, and drink were provided for the sick. He also appointed physicians, both Hindu and Muslim, to treat the patients (Yazdani, 1944, p. 130). It is a sign of accommodating different systems of thought in the operation of the state. During the transition period from Buddhism to Brahminism, as we have seen, similar measures were adopted.

Mahomed Quli built a large hospital Dar-us-Shifa sometime around 1595, now used to accommodate the Hyderabad Municipality offices. The building is a square of 175x175 feet. The hospital was meant to serve the people. The medicines and food to the patients were given free. All the leading Hakeems of the Qutb Shahi period worked in this hospital (Bolar, 2011, pp. 489-498).⁶

Quaiser shows that during the time of Muhammad Tughlaq Delhi alone had 70 hospitals to which Feroz Shah Tughlaq added 15 more. In addition to general physicians, specialists were also associated with them. The Mughals too built many hospitals in many of the major urban centres where both hakims and vaidas (practitioners of Āyurveda, the traditional Hindu

⁶. With the advent of the Muslims, in the fourteenth century, the Unani system of medicine, thought to be derived via medieval Muslim physicians from Byzantine and Greece was practiced not only in parts of India, but in Karnataka too. The Unani doctors (hakims) did not penetrate into the rural areas, their practice being generally continued to the town. They employed not only the patronage of the Muslims aristocracy but also of a considerable section of Hinduism. The Bahamani King Allauddin Ahmed-II (1436 -1458 CE) ordered the construction of a splendid Shafa Khana (Hospital) at Bidar for which several villages were endowed to meet its expenditure. Both Hindu-Muslim physicians were appointed to look after his hospital which catered for patients of all communities. Also see, D.V. Subba Reddy, “Dar-us-Shifa Built by Sultan Muhammad Quli: The First Unani Teaching Hospital in Deccan,” *Indian Journal of History of Medicine* II (1957): 102–05.

science of medicine) generally worked together” (Quaiser, 2006, pp. 324-325). M. N. Pearson notes, “In certain specific areas it seems that surgery was relatively advanced at the Mughal court, though their *general anatomical knowledge* was inferior to Europe. Head wounds were routinely trepanned” (Pearson, 1995, pp. 141-170). He further emphasizes, the “use of Indian practice even, on at least a few occasions, led to some transference from India to Europe. At least in this early modern period, it is then by no means a matter only of European treatments spreading to India, but rather of a mixture in India itself, and some reverse flow also” (Pearson, 1995, p. 162). It may be deduced that until the early modern period the knowledge exchange was not “asymmetrically overdetermined” – it had both ways of exchange and assimilation.

As I am not an expert to talk about hospitals during the Muslim period in India, interested readers may go through more helpful resources besides the texts cited⁷. To mention with special importance of the research paper by Askari on “Medicines and Hospitals in Medieval India”. Askari, while commenting on hospitals in pre-colonial India, especially in 16th and 17th centuries, makes an interesting observation regarding the public health services, “They have hospitals here for cows...and are charitable to dogs, ... being more merciful to beasts than [to] men” (Askari, 1957, p. 21).

As an important aside, it may be added that in all these hospitals – both Hindu and Muslim – the human body was perceived to be a living agency, a two-dimensional structure, not any objectified figure. There remains little or no anatomical education in the pedagogy of acquiring medical art. But, in sharp contrast, in Buddhist

monasteries of the medieval period anatomical illustrations were taught.

Though anatomical illustrations are not quite known in the Indian subcontinent, in Tibet it was in vogue. George Sarton, the doyen of history of science, comments, “Every Tibetan doctor is taught anatomy from it (“rnyud-bṣi” or “The Four Tantras” or the four Tibetan anatomical plates). It is called *Pyong-khok Las-thig*, i.e. the chart divided by lines; it is divided into number of squares to identify the locations of particular organs” (Sarton, 1927, p. 538). Here is an example of Tibetan anatomical illustration of the period.



[Ludwig Cholant, *History and Bibliography of Anatomical Illustration* (Leipzig, 1852), 63]

⁷ For comprehensive discussion see, S. Ali Nadeem Rezavi, “Physicians as Professionals in Medieval India,” in *Disease and Medicine in India: A Historical Overview*, ed. Deepak Kumar (Delhi: Tulika, 2001), 40-65; O. P. Jaggi, *Medicine in India: Modern Period* (Delhi: Oxford University Press, 2011), 70-85. One of the highly regarded and oft-quoted earlier references in this regard is from Askari. Cf. S. H. Askari, “Medicines and Hospitals in Muslim India,” *Journal of Bihar Research Society* 43.1 (1957): 7-21.



As long as the doctors thought that only the curing of internal affections belonged to them, they considered that the mere knowledge of the viscera was abundantly sufficient. They neglected the fabric of bones, muscles, nerves, veins and of the arteries which creep through the bones and muscles, as being of no concern of theirs. When the whole business was committed to the barbers, not only did the true knowledge of the viscera disappear from among the doctors, but also their activity in dissecting straightway died.

4. TRANSITION TIMES: EUROPEAN HOSPITALS IN INDIA

Since most of Asia's fundamental tools and mathematical conceptions were familiar to Europe before 1500, the Europeans of the sixteenth century and beyond concentrated upon products rather than devices or ideas (Lach, 1994, p. 444). 1735 in more than one ways is a watershed in the history of European scientific attitude. One was the publication of Carl Linnaeus's *Systema Naturae* (*The System of Nature*). In this work, the Swedish naturalist laid out a classificatory designed to categorize all plant forms on the planet, known or unknown to Europeans. The other was the launching of Europe's first major international scientific expedition, a joint effort intended to determine one and for all the exact shape of the earth (Pratt, 1992).

In India, at this early colonial moment, the British grouped indigenous medicine with literature and the arts "considering it to be a part of local tradition distinct from universal science" (Weiss, 2009, p. 22). It is consistent with the evolution of the concept and meaning of science in Europe. Science came into English in C14. It became more generally used, often interchangeably with art. "But from mC17 certain changes became evident. In particular there was the distinction from art" (Williams, 1983, p. 277). The practice of what we would now call experimental science, and indeed of what is now called, retrospectively, the scientific revolution, had been growing remarkably since mC17 (Williams, 1983, p. 278). Calcutta Review commented, "the great mass of the Hindus are apparently now what the Europeans were three centuries before the Christian era."⁸ W. W. Bird noted, "The Natives have an idea that we have gained everything by our superior knowledge ... and they want to put themselves as much as they can upon an equality with us" (*Reports from the Committee*, vol. XXXII, 1852-53, P. 248).

Francois Payrard, a seventeenth-century French traveler, found the Portuguese hospital at Goa to be "finest in the world". In his experience, "Nothing is done until the physician, surgeon, or apothecary has seen them and certifies that they are sick, and of what ailment, that so they be placed in the proper part of the building" (Gray, 1888, vol. 2, part I, p. 3). In the hospital "the great care taken of the sick, and the supply of all comforts that can be wished for, whether in regard to doctors, drugs, and appliances for restoring health, the food is given to eat, or the spiritual consolation that is obtainable at any hour" (Gray, 1888, vol. 2, part I, p. 5). Physician's job was clearly defined, but not that of the surgeon (Gray, 1888, vol. 2, part I, p. 9).

⁸ Anonymous, "Hindu Medicine and Medical Education," *Calcutta Review* xlii (1866): 106-125 (111).

In India, Calcutta and Madras were the two cities where military establishments focused on hospital practice. There was visible drive for producing native doctors to reduce the burden of the Company's exchequer (Bhattacharya, 2008, pp. 163-209). As early as 1707, in Calcutta, hospitals were built "to keep the men in Health" (Wilson, vol. 1, 1906, p. 68). It was reported, "Having abundance of our Soldiers and Seamen Yearly Sick and this year more particularly our Soldiers, and the Doctors representing to us, that for want of an Hospitall or Covenant Lodging for them is mostly the occasion of their Sickness, and Such a place as the Company's Charter party Shipping to keep the men in health" (Wilson, vol. 1, 1906, p. 68). By 1762 the East India Company's Bengal army employed nineteen native doctors (Leslie, 2009, pp. 39-54). In January 1764, the Bengal Medical Service was founded. In Madras, similar developments took place. The surgeons were attempting to establish the city as an important site of medical research and treatment. "The hospital had in fact emerged as a valuable training ground for young medical professionals: by 1772, it was training Europeans, Eurasians, and Tamils in allopathic methods of diagnosis and treatment, and the preparation of medicines" (Chakrabarti, 2006, pp. 23-24). The Madras system was actually lacking the orientation of simultaneous development of dexterity of both surgery and medicine, as demanded by the new medicine. It was content with primarily producing dressers from the half-castes of the army. "But let not these be confounded with the native surgeons who were attached to our army" – was the cautionary note.⁹

As Harrison argues, "[i]t is possible that the early history of hospitals beyond the West may shed some light on this and on the general problem of what constitutes a modern hospital ... modern hospital practices had multiple origins, some of which lay beyond Europe" (Harrison, 2009, p.

6). In his insightful work, Harrison traces the dissection-based clinical practice in the East India Company's medical service, which became one of the key factors in the development of hospital medicine in India. In his opinion, "developments within the armed forces prefigured those normally associated with the "birth" of clinico-anatomical medicine at the Paris hospitals in the 1790s" (Harrison, 2007, p. 89). He also notes that certain other features of "hospital medicine" are also evident in the Company's service – "systematic bedside observation, the statistical analysis of cases, and the testing of what were presumed to be economical mass remedies" (Harrison, 2007, p. 89).

Focusing on a prerequisite of hospital medicine, he argues, "In Britain, the supply of bodies for dissection was still severely restricted, but there were no such constraints in the colonies, where cadavers were plentiful" (Harrison, 2010, p. 4). As a result, practitioners working in the colonial hospitals were "able to compare post-mortem findings with the symptoms of disease in living patients, giving rise to a system of medicine not unlike that which later developed in revolutionary Paris" (Harrison, 2010, p. 4). Along with this, there was the growing awareness that "men had economic value – and the articulation of this in systems of military accounting – provided a powerful stimulus to the improvement of medical provisions in foreign stations and other measures to conserve manpower" (Harrison, 2010, p.18). The hospitals of three presidencies – Calcutta, Madras, and Bombay – were "capable of providing the kind of environment that was conducive to medical innovation" (Harrison, 2010, p.22).

5. HOSPITALS AND HOSPITAL MEDICINE: EUROPEAN PERSPECTIVE

During the late eighteenth century there emerged epistemological transformations in

⁹ Anonymous, "Education of the Native Doctors," *Asiatic Journal and Monthly Register* XXII (July 1826): 111-121 (121).

the understanding of hospital and medicine. Ackerknecht has designated it as “hospital medicine” (Ackerknecht, 1967). Summarily speaking, hospitals were for large numbers of sick people to be investigated and treated; doctors examined patients routinely by techniques such as palpation, percussion, and auscultation; necropsy was a routine way of learning about the nature of diseases and explaining clinical findings; diseases were envisaged as lesions of the tissues that could be analyzed experimentally with the hope of eradicating them altogether; statistical studies of patients and clinical trials were undertaken; and doctors were trained in both medicine and surgery and learnt their profession largely by working with established practitioners at the bedside, embodied in clinical teaching (Gabbay, 1989, pp. 106-109).¹⁰

To put it in other words, quantification of natural events replaced almost all qualitative aspects of human world. In the world of medicine, it can be seen in the use of new diagnostic technologies. Attempting to distil disease into medicine-by-numbers, Dr. Brown envisaged a thermometer calibrated upon a single scale, rising from zero to 80 degrees. “The device of a single axis objectified illness into something quantifiable, and pointed to a therapeutics dependent upon dosage size” (Porter, 1999, p. 262).

In the first quarter of the 19th century, state and government, as we have seen in Minoru Haru’s observation, became intertwined. A new branch of medicine – hygiene – emerged. It was called *Political Medicine*. It was commented, “It would take in the physiological, industrial, and

moral life of people; and for its manifestation, it would have a corps of engineers and scientists who, united and centralized under a general view, would function continually and decide all questions pertaining to the health of the popular masses” (Murphy, 1979, p. 276).

In his now classic paper, Jewson has categorically argued that a dramatic transformation in the form of medical cosmology occurred at the Parisian hospital schools during the first three or four decades of the 19th century with the introduction of a new mode of production of medical knowledge, here termed Hospital Medicine. The raw materials of medical theorizing now became the innumerable morbid events, occurring within the gross anatomical structures, which presented themselves to the clinical gaze on the crowded wards. Medical investigators concentrated upon the accurate diagnosis and classification of cases rather than upon the prognosis and therapy of symptom complexes. The sick-man became a collection of synchronized organs, each with a specialized function. “The four great innovations of Hospital Medicine were structural nosology, localized pathology, physical examination and statistical analysis” (Jewson, 2009, p. 625).

With institutional cross-infections and persistent high mortality, these hospitals provided the necessary human tools for advances in clinical medicine and pathological anatomy. Risse argues, “In the controlled ward environments, substantial numbers of inmates, alive and dead, were selected for systematic study, classification, and dissection. Most remarkable were the implications of

¹⁰ The French Revolution totally reshaped medicine. Within three tumultuous decades much of what we now take for granted had become the hallmark of the new medicine pioneered in France. Hospitals were for large numbers of sick people to be investigated and treated; doctors examined patients routinely by techniques such as palpation, percussion, and auscultation; necropsy was a routine way of learning about the nature of diseases and explaining clinical findings; diseases were envisaged as lesions of the tissues that could be analyzed experimentally with the hope of eradicating them altogether; statistical studies of patients and clinical trials were undertaken; and doctors were trained in both medicine and surgery and learnt their profession largely by working with established practitioners at the bedside. Yet before the revolution none of these statements would have been true. Moreover, there were equally fundamental changes in many other sciences and professions too. Also see, Ann La Berge and Caroline Hannaway, ed. *Constructing Paris Medicine* (Amsterdam, Atlanta, GA: Rodopi, 1999).

accurately mapping the sick body with the new techniques of physical examination” (Risse, 1999, p. 330). A newly conceptualized medicine started at death, when the bedside-practitioner gave up and the scientist-practitioner took over – and these were the same person (Lawrence, 1996, p. 1). With the rise of hospital medicine it was no longer possible to practice without examination. Surgeons, used to extirpating the lesions of the disease, and physicians, used to administering systemic medicaments, all suddenly now needed a blanket system that could unite heretofore disparate perspectives on the ‘seats and causes of disease’ (Maulitz, 1993, p. 178). To this day, this method of bedside teaching at hospitals – previously noted in Edinburgh and Vienna – has remained one of the central aspects of medical education. New in Paris, however, was the strategy of total immersion in hospital life – reflected in management routines with long and exhausting hours of work – that similarly survive as a rite of passage for professional and later specialty certification (Risse, 1999, p. 331). Every time the new diagnostic technique like stethoscope was (and is) applied to a patient, it reinforced the fact that the patient possessed an analyzable body with discrete organs and tissues which might harbor a pathological lesion (Armstrong, 1994, pp. 17-27). The new Parisian style of hospital based practice, research, and teaching had a resounding impact on medicine throughout Europe and America.

6. INDIAN SCENARIO: PRELUDE TO HOSPITAL MEDICINE

A very early account of English hospital in Calcutta is wryly provided by Alexander Hamilton – “*The Company has a pretty good Hospital at Calcutta, where many go in to undergo the Penance of Physick, but few come out to give Account of its Operation*” (Hamilton, vol. 2, 1722, p. 11). Hamilton was simply speaking of a Calcutta hospital of the old kind – the era of Hospital Medicine was not in the offing at all.

Historically, by then, the hospital did not *transcend* into hospital medicine.

Claude-Francois Lambert (1705-68) wrote about Indian physicians, “They cure the fevers which begin with shiverings, by making the patient take three large pills of ginger, cumin and black pepper, before the paroxysm. (Lambert, 1750, 1, p. 99).” He noted, “The physicians are more reserved than those of Europe in the use of sulfur, which they correct with butter... They with all success employ against all fevers, henbane corrected in cows urine, and orpiment corrected in lemon juice. A physician is not admitted to prescribe to a patient, till he finds out his disorder, and the humour which predominates in him, which he easily knows by feeling the pulse.” From these observations one would find some differences between an Indian and a European physician. While Indian practice is conservative about the use of sulfur they excel in feeling pulse – a deficit presumed to be a characteristic of European practice. Regarding Indian surgical procedures, he noted, “An obstruction of spleen, which has no other specific but the practice of the Indian devotees. They make a small incision over the spleen, and then insert a long needle between the fifth and skin. From this incision, by sucking thro’ a horn pipe, they obtain a certain pinguous matter which resembles pus (Lambert, 1750, 1, p. 99-100).”

About a century later, William Twining, first assistant surgeon, General Hospital, Calcutta, noted this practice in Bengal. “Long needles are said to be used by native practitioners, to puncture the spleen: and if they ever penetrated to the diseased organ, and a cure succeeded, it is very probable that the successful event might be ascribable to the peritoneal inflammation excited at the diseased part. I have seen them use needles, but so short, that I am quite certain the surface of the spleen was never touched in any of the operations which I witnessed ... it is probable that the use of needles for such purpose, is founded on practical

acquaintance of the benefits to be derived from such operation when more effectually done.”

Fra Paolino da San Bartolomeo (1748-1806) lauded Indian medical writings, “India alone contains more medical writings, perhaps than are to be found in all the rest of the world.” In his opinion, “As printing has never been introduced here, all hands are employed in copying manuscripts, and particularly such as relate to propagation of human life, viz. medical and botanical. . . . There are even boys who possess an extensive knowledge of botany; and this is surprising, as, from their earliest years, they are made acquainted with the nature of plants, and their different properties.” He was earnest in his remarks – “Did the religion of the Indian allow them to dissect and study anatomy, they would certainly attain to great proficiency in medicine; but as these are strictly forbidden, it may be readily conceived that the above sciences can make little progress.” He emphasized, “I have, however, seen instances of Malabar physicians curing patients who have been totally given up by the Europeans. The Malabar physicians, in general, are superior to most Europeans in the knowledge of simples.” He mentions of a local herbal medicine *Veppa*, which was in excellent service in tertian fevers. Tertian fever was a nightmare for the Europeans. To his notice, “The nettle *Cuditova*, as the Brahmans say, is an excellent remedy to purify and thin the blood, to expel the gout, leprosy, and malignant fevers. . . . *Ulatunwera*, the root of the *Ulam*, is an excellent remedy for the jaundice. It cleanses the urinary passage when obstructed by slimy accumulations and cures the *Gonorrohaea benigna*” (Bhattacharya, 2013, pp. 39-60).

These accounts are pointer to the fact that before the advent of Hospital Medicine, its

institutionalization and its ramification amongst general population, Indian and European medicine and, even, surgery were in a spirit and mood of mutual exchange.

W. E. E. Conwell was possibly the first person to submit the cases he studied and his notes on the stethoscope to judgments of his colleagues in India in 1827. In his own words, “By submitting to the Profession generally, detailed statements of pulmonary diseases in India; I fulfil (sic) my promise to that effect, made at the request of my excellent and learned master M. Laennec, of Paris”¹¹ He had reported 25 autopsies in his book out of which 23 cases were native.

In the late eighteenth-century Madras hospital training, the use of the stethoscope (invented by Laennec in 1816) was inconceivable. Following the foundation of the Native Medical Institution (NMI, 1822-1835) in 1822 in Calcutta for the instruction of native students in European medicine through vernacular, this new diagnostic technique became popular among the Company’s surgeons and Indian doctors. As we shall shortly see, the NMI students had their hospital exposure and clinical rounds at the different hospitals and dispensaries in Calcutta. They even for the first began to take case histories of individual patients. They used to see “bringing the ear close to the mouth or chest (*auscultation*) of the patient, or on applying the hand over the latter (*palpation*), as recommended for *percussion*” (Adam, 1829, p. 324). Adam noted, “The stethoscope, I have not had recourse to; but it is obviously an instrument well adapted to the diseases of the chest in children; and I have no doubt, if brought into more general use, it would found often materially to assist our diagnosis” (Adam, 1829, pp. 324-325).

¹¹ William Eugene Edward Conwell, a student of the inventor of the stethoscope, René Théophile Hyacinthe Laennec 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. W. E. E. Conwell, *Observations Chiefly on Pulmonary Disease in India and an Essay on the Use of Stethoscope* (Malaca: Mission Press, 1829), p. v.

So the stethoscope was an instrument in use in Calcutta.

John Gilchrist and others opined, “the Madras government had sent a particular class of individuals, the sons of soldiers – a sort of half-castes – to be educated at the hospitals as sub-assistant surgeons” (Anonymous, July 1826, p. 121). He also argued, “As to the Madras establishment, and the way in which the pupils were there instructed, it had not the smallest analogy to the medical school for native doctors. Every regiment had three or four native doctors attached to it” (Anonymous, July 1826, p. 121). Instead of Madras half-castes as dressers in a regiment, native doctors acted almost like a European doctor. “In May 1825, the Medical Board submitted a report, explaining the reasons why it appeared inadvisable to adopt the Madras system of employing as doctors those who served as dressers in the hospitals, and also explaining satisfactorily both to the Government and to the Court the superior usefulness and success of the school for native doctors, as it had been established, and was then conducted, in Calcutta” (*Minutes of Evidence ... Appendix and Index. I. Public, 16 August 1832*, p. 448).¹²

For the purpose of acquiring practical knowledge of modern medicine like pharmacy, surgery, and physic, the pupils of NMI, which lasted for about 14 years, were attached to the Presidency General Hospital, the King’s Hospital, the Native Hospital, and the Dispensary. “Eight of the pupils who had been educated in this seminary were appointed native doctors, and sent with the troops serving in Arracan” (*Minutes of Evidence*, 16 August 1832, p. 448). It was widely accepted that “the British government could not

have established an institution calculated to be of greater benefit ... than the Native Medical Institution.”¹³ Additionally, though the new kind of secular medicine was in the making, it had to accommodate specific socio-economic, political and military exigencies of the colony, which threatened the secular matrix of modern medicine – “Hindoos and Mussulmans were equally eligible. If respectable; the sons of native doctors in the service to be preferred” (Appendix to the Report from the Select Committee, I. Public, 1833, p. 270).

During the prevalence of cholera in Calcutta in 1825 the pupils of this institution “were most usefully employed distributing medicines in different thanah, stations, and in affording to the wretched and numerous victims of the disease, every assistance in the power of European art to bestow” (Appendix to the Report from the Select Committee, I. Public, 1833, p. 271). Besides ramifying the primordial tentacles of public health in India, NMI did another important job for military service, which became more conspicuous after its abolition, “The body of servants was much needed, as the requisite supply of these subordinates has entirely ceased since the abolition of Dr. Tytler’s Native Medical School, and the demand for their services, in the Native Regiments especially, has become very urgent” (*Report of General Committee of Public Instruction, for the Year 1839-40* (hereafter *GCPI*, 1841), p. 33). The differentiating feature between NMI and Calcutta Medical College (CMC) was the practice of cadaveric dissection in the latter. Unlike Tytler’s NMI, in CMC “the subjects are taught practically, by the aid of the Dissecting Room, Laboratory, and Hospital” (*GCPI*, 1841, p. 34).

¹² Regarding this school, Charles Lushington wrote in 1824, “The anxiety of the Medical Board, relative to the paucity and insufficiency of that useful body, the Native Doctors, induced them in 1822 to represent the matter to Government, in order that a remedy might be applied to an evil which was rapidly increasing, and threatened the most injurious consequences to the service.” *The History, Design, and Present State of the Religious, Benevolent and Charitable Institutions, Founded by the British in Calcutta* (Calcutta: Hindostani Press, 1824), pp. 312-13.

¹³ Anonymous, “Liberality of the Indian Government towards the Native Medical Institution of Bengal,” *Oriental Herald and Journal of General Literature X* (July-September 1826): 17-25 (24).

Actually, the school was established “to afford the civil and military branches of the service a class of native doctors superior to those who were then employed” (Philip, vol. II, 1977, p. 1399).

The differentiating feature between NMI and Calcutta Medical College (CMC) was the practice of cadaveric dissection in the latter. Unlike Tytler’s NMI, in CMC “the subjects are taught practically, by the aid of the Dissecting Room, Laboratory, and Hospital” (*GCPI*, 1841, p. 34). Besides this, the new techniques of investigations like thermometer and stethoscope and new modes of physical examination like inspection, palpation, percussion and auscultation, as discussed above, were introduced in these institutions. Importantly, the brief phase of NMI and medical classes at the Calcutta Sanskrit College was the period of the *gestation* of hospital medicine in India. It was important in another aspect. “The pupils of the Native Medical Institution ... keep a case-book of the symptoms and treatment of the sick on the establishment” (Williams, 1859, p. 57).¹⁴ This was for the first time in India that students were inducted in individual case-history taking, which was hitherto unknown to them.

In 1826, Dr. John Tytler, then Superintendent of NMI, began his lecture according to Western method at the Calcutta Sanskrit College on Medicine, and “Professors were appointed to teach Caraka, Suśruta, Bhāva Prakāśa, etc. Classes for the Āyurvedic students were opened in 1827” (Mukhopaddhyaya, 1974, p. 15). Tytler organized his classes around four major departments of medical science, viz Anatomy, Pharmacy, Medicine and Surgery (Sen, 1994, p. 43). A medical and an English class had been formed. 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” (*Minutes of Evidence*, 1832, p. 436). They also “performed the dissection of the softer parts of animals”, and “opened little abscesses and dressing sores and cuts” (Kopf, 1969, pp. 183-184). Trevelyan wrote, “The systems of Galen and Hippocrates, and of the Shasters, with the addition of a few scraps of European medical science, was (sic) taught in classes ... to the Arabic and Sanskrit colleges at Calcutta” (Trevelyan, 1838, p. 37).

Tytler’s training of surgery reminds us of the teachings of Suśruta where preliminary surgical practices were done on soft parts of dead animals or fruits and vegetables. Suśruta’s anatomy, learnt by the Ayurvedic students, was reconstituted into modern anatomical knowledge. Jaggi provides a list of books intended for the students at the Sanskrit medical classes (Jaggi, 2011, pp. 42-44). Earlier, in a letter of 18 August 1824, it was observed, “In proposing the improvement of men’s minds, it is first necessary to secure their conviction that their improvement is desirable.” Apprehension was evident in the observation too, “both the learned and unlearned classes ... generally speaking, they continue to hold European literature and science in very slight estimation.” To overcome this obstacle with any good effect it was stressed to qualify the same individuals highly in their own system “as well as ours, in order that they may be as competent to refute error as to impart truth, if we would wish them to exercise any influence upon the minds of their countrymen.” (*Sixth Report*

¹⁴ Recent scholarship argues that patient records are surviving artefacts of the interaction between physicians and their patients in which individual personality, cultural assumptions, social status, bureaucratic expediency, and the reality of power relationships are expressed. In Indian context, taking individual case records were in actual practice making a new type individual in the guise of patient and somewhat extricated from his social embeddedness. It was for the first time in the history of health in India that the big question of where the patient to be treated – at the domestic setting or in a hospital – was assuming a concrete shape. It also became a historical determinant in the direction of future medical and health activities.

from the Select Committee on Indian Territories, 8 August, 1853, p. 19).

To note, Tytler had done “Translations of two chapters of the First Part of the Soosroota” (Sen, 1991, p. 160). According to Sen, “This could probably be the earliest translation of part of the *Suśruta Samhitā*” (Sen, 1991, p. 161).

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” (Sharp, 1920, p. 183). Though curricula were in accordance with Sanskrit medical works, a hospital of some kind was thought absolutely necessary for proper medical teaching. “There is now every reason that medical education in India will be improved in a very material degree by this institution.”¹⁵ So, for “affording to the medical pupils ample opportunities of studying diseases in the living subject”, the hospital was established.¹⁶ 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 cut” (Kopf, 1969, p. 184). Return of the Hospital attached to the Sanskrit College for the year 1832 shows that out 94 House Patients 84 were discharged and six died (Sen, 1991, p. 148). Mr. Wilson, who examined the medical class, was ecstatic about “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” (*Minutes of Evidence*, 1832, p. 494). The great end was not to teach any religious learning but useful learning

which was gestating the new epistemology of hospital medicine. The English class in the Sanskrit College was eventually abolished in 1835. Interestingly, “this decision was hailed by a section of conservative diehards” (Ahmed, 1967, p. 146). It is understandable that there occurred a change in sign system. The essence of the Sanskrit texts was metonymically reconstituted to suit the purpose of modern medicine. An insidious reconstruction of indigenous cognitive world began its full-fledged operation.

Hooper’s *Anatomist’s Vademecum* was translated into Sanskrit as *Śārīra Vidyā* (“Science of Things Relating to the Body”) by Madhusudan Gupta, for which he was paid a sum of 1000 rupees. “It was intended to convey to the medical pandits throughout India, who are an exclusive caste of hereditary monopolists in their profession, and all study their art in Sanskrit, a more correct notion of human Anatomy.”¹⁷ Originally, the *Śārīra Vidyā* was destined to become a class-book in the medical branch of the Sanskrit College, “but that class had since been abolished, and the teaching of the medical art limited exclusively to English.”¹⁸ The metonymic reconfiguration of indigenous anatomical knowledge into modern anatomical knowledge was set into action. “Once placed in a Sanskrit dress, the European system of anatomy would be accessible all over India for subsequent transfer into Hindi dialects of every province if requisite, and it was no trivial argument that the same work had been already printed in Arabic, and thus made available for the Musalman practitioners and for translation into Urdu when called for” (Anonymous, 1838, p. 664). Through this process Sanskrit terms lost their original polysemous nature, and reconstituted as replica of modern scientific vocabulary.

¹⁵. Letter, in Public Dept. to Bengal, 24 August 1831, *Minutes of Evidence*, 1832, 498.

¹⁶. Ibid.

¹⁷. Anonymous, “Proceedings of the Asiatic Society,” *Journal of the Asiatic Society* 7.2 (1838): 663-669 (663).

¹⁸. Ibid, p. 663.

Prior to the CMC, NMI and medical classes at the Calcutta Sanskrit College and Madrassa were the conduits through which the new kind of anatomical knowledge could be taught to the students. Before reaching the goal of anatomical dissection preparatory psychological nurturing was done through introduction to *zootomy* of lower animals like goat and sheep, and handling of bones and skeletons.

This period – 1822 to 1835 – is the period of nativity and *gestation* of hospital medicine. Pupils were indoctrinated into the new kind of medicine through *visual, verbal* and *psychological acculturations* through paying attention to listen to new vocabularies of medicine, dissecting dead animals, handling human bones, visiting patients – both medical and surgical – in a very moribund state and wretched as well.

7. CMC: THE RISE OF HOSPITAL MEDICINE IN INDIA

By an order of January 28 1835, the Medical College, Bengal was established. The original order had 34 clauses. The first two teachers were the Principal M J Bramley and H H Goodeve. Within a few months W B O'Shaughnessy joined the CMC.

Since its inception, under the guidance of Dr. M. J. Bramley, the first principal of CMC, there appears a visible trend in the activities of CMC to introduce basic sciences to its students. During the second year, 1836-37, courses taught at the college were – (a) Practice of Physic by Dr. Goodeve, (b) Elements of Surgery by Dr. Eggerton, (c) Chemistry and Pharmacy by Dr. W. B. O'Shaughnessy, and (d) Introduction to Botany by Dr. Wallich. Third year's study (1837-38) comprised (a) Anatomy and Physiology by Dr. Goodeve, (b) Demonstrations and Dissections by Dr. R. O'Shaughnessy, (c) Natural Philosophy and Steam Engine by Dr. W. B. O'Shaughnessy, (d) Structural Botany by

Dr. Wallich, (e) Operative Surgery by Dr. Eggerton, (f) Materia Medica by Dr. W. B. O'Shaughnessy, (g) Practice of Physic by Dr. Goodeve, (h) Elementary Surgery by Dr. Eggerton, and (i) clinical practice in a small hospital attached to the college (Sen, 1991, p. 223-224). Each candidate attended three courses of anatomy and physiology, two of actual dissection, three of chemistry, one of natural philosophy, two of materia medica, two of general and medical botany, two of practice of physic, two of the principles of and practice of surgery and one of operative surgery. In CMC, the most eminent medical officers in the Indian Medical Service were placed in the professors' chairs. A library, dissecting rooms and a museum were established. "Efforts were made to procure every appliance necessary to place it on the same footing of efficiency as European colleges was (sic) furnished with a bountiful hand." (Marshman, vol. III, 1869, p. 68) The twelfth annual report CMC, for the session 1847-48, stated, "There is no institution, connected with the physical or material welfare of the people of this land, whose success we have viewed with more unfeigned satisfaction, than the Medical College of Bengal."¹⁹

8. CONCLUDING REMARKS

At its initial phase, CMC had created a space for the nurture of original, theoretical, and innovative scientific thinking. Unfortunately, it did not germinate. At a time when a chemical laboratory in an American medical school was rare, O'Shaughnessy started his chemistry and botany courses with lectures and "laboratory work was the equal of any in a European medical institution" (Gorman, 1988, p. 287). Gorman notes, "Most importantly, the students were just as capable and enthusiastic about chemistry as they were about anatomy, and the testimony of outside examiners gives ample proof as to the rigor of the examinations" (Gorman, 1988, p. 287).

¹⁹ Anonymous, "Annual Report of the Medical College of Bengal. Twelfth year. Session 1846-47," *Calcutta Review* 7 (January-June 1847): xliii-xlix (xliii).

O'Shaughnessy proposed to construct, at CMC, a galvanic battery of one thousand cups, on Mullin's principle "for the purpose of exhibiting the extraordinary experiments recently described by Mr. Crosse and others, and for carrying original researches in electro-magnetism and galvanism."²⁰ He even undertook to conduct the "application of galvanism" in case of aneurism (Bellingham, 1847, p. 101). He was also a pioneer of intravenous fluid transfusion for cholera patients²¹ (O'Shaughnessy, vil. 1, 1831, pp. 366-371). In Calcutta, Dr. Duncan Stewart half-heartedly tried it for cholera patients, but without any results.²² Bramley's premature death as well as O'Shaughnessy's early dissociation with CMC seems to put an end to such initiatives at CMC.

In 1839, 70 patients, both European and Indian, suffering from medical and surgical diseases were under treatment at CMC, and the outdoor dispensary attended to 200 patients daily. A few years later, Dr. Mackinnon commented, "*Post Mortem* examinations were performed by each of the students in my presence and they wrote descriptions of the result" in which "they all evinced practical knowledge ... and an acquaintance with the healthy and morbid appearances of the different structures and organs." (*General Report on Public Instruction, 1852-1855*, p. 96. Hereafter *GRPI, 1855*)

This knowledge was well expressed in a case when "Rumnarain Doss, a student of the Medical College" saved the life of a native youth "who had, by fall, received a severe concussion of the brain."²³ In 1845, CMC made a great advance,

in remodeling its system of instruction "so as to bring it within the regulations of the Royal College of Surgeons in England, and of the Apothecaries Society of London" so that "the Institution may be duly registered and recognized' in England."²⁴

Incredibly, within a short span from 1837 to 1847, nearly 3500 bodies were dissected. Moreover, original researches were done in basic sciences – an amazing total of 537 books and articles with an average of 31 per professor.

Not only that, as early as 1839 a CMC student's skill was reported thus.²⁵

MEDICAL STUDENT'S SKILL.—Ramnarain Doss, a student of the Medical College, lately saved the life of a native youth, who had, by a fall, received a severe concussion of the brain. The native doctors had given the lad up, and he was about to be killed by *unter foilles*, when the Medical student operated on him, and restored him to consciousness, and ultimately to health. This is the first triumph of the Medical College, and must be highly gratifying to the Professors.

Notably, within a few months of the discovery of chloroform in 1847 "ether and chloroform" were applied in surgery in CMC (*GRPI, 1847-48*, Appendix E, No. VII, p. cli). As a result, it was remarkable that among the prominent points of interest were "the extraordinary success among the graduates of the College in the performance of the formidable operation of lithotomy, and the valuable results which had followed the introduction of chloroform into the practice of surgery." (*GRPI, 1851*, p. 122) The graduates coming out of CMC served four important purposes. First, it reduced economic expenditure of the Company as "appointing a Sub-Assistant Surgeon to each Native regiment

²⁰ Anonymous, "Medical and Physical Society (October)", *Journal of the Asiatic Society and Monthly Register* 24 (1837): 64.

²¹ W. B. O'Shaughnessy performed many other experiments on the discovery of transfusion of saline into cholera patient's venous blood. See, "Report on the chemical pathology of the blood in cholera, published by authority of the Central Board of Health," *Lancet* 17 (1832): 929-936.

²² Anonymous, "Proceedings of a Meeting of the Medical and Physical Society of Calcutta, 2nd July," *Calcutta Monthly Journal* July-December (1836): 313-14.

²³ *Calcutta Monthly Journal* LII (1839): 171.

²⁴ Anonymous, "Annual Report of the Medical College of Bengal; Session, 1844-45," *Calcutta Review* 3 (1845): xxxiii-xlvi (xxxv).

²⁵ *Calcutta Monthly Journal and General Register of Occurrences.....for the Year 1839*, 3rd Series, vol. 5: 171.

will cost 1,02,000 Rupees a year, whilst their recommendation of a third Native Doctor, will only cost 25,500 Rupees a year” (*GRPI*, 1847-48, p. 90). Second, specifically, their knowledge of stethoscope, microscope and pathological anatomy made them at par with European surgeons. Third, their example set the stage for a veritable flood of Indian students to England for study in all fields, a movement which continues to this day. “The British had invaded and conquered India politically and geographically, but now the Indians had done so in England academically” (Gorman, 1988, p. 290). Fourth, it met the “wants of the whole northern India by supplying sub-assistant surgeons and native doctors for civil duties and by training medical subordinates for the army.”²⁶

W. H. Sykes provided reports of 94, 618 patients who were relieved in the Charitable Dispensaries of India in 1847 (Sykes, 1847, pp. 1-37). All these facts make us believe that CMC and its extension through dispensaries into all the corners of Indian society increasingly provided medical and surgical benefit to the people. Initial resistance to hospitalization began to wane. It should be mentioned that dispensaries served two important purposes in India. Before the foundation of CMC dispensaries were the space where European surgeries and therapeutic experiments with European medicine could be tried. F. H. Brett gave descriptions of “surgical operations performed for expiration of tumours from various parts of the body, removing the cancer and other malignant morbid parts, tying arteries, cutting the stone...” (*General Committee of the Fever Hospital and Municipal Improvements, Appendices D-F*, vol. 7, p. 205). “The advantages of hospital over a Dispensary”, according to him, lay in the fact that in hospital the patient “is never lost sight of by his Medical attendant” (*General Committee of the Fever Hospital and Municipal*

Improvements, Appendices D-F, vol. 7, p. 206). Moreover, in dispensaries disease could not be watched. He employed “Bazaar Medicine” for both economy and watching responses in the patient’s body. After the foundation of CMC, it became a powerful tool to extend the tentacles of hospital medicine, and, thereby, public health in India. Though, to say, dissents against dispensaries were felt within a section of Bengali society as late as 1890.²⁷

The foundation of CMC and its subsequent developments became a tool for rewriting a new history of India too – “the seeds of knowledge we have thus sown fructify to a general and luxuriant harvest, that we shall have left a monument with which those of Ashoka, Chundra Goopta, or Shah Jehan, or any Indian potentate sink into insignificance; and their names will fall on men’s ear unheeded, while those of Auckland, as protector, and of Goodeve, Mouat, and others, as zealous promoter of scientific Native medical education shall remain embalmed in the memory of a grateful Indian posterity” (Sykes, 1847, p. 23). In the ladder of civilization Calcutta came closer to London as hundreds of dead bodies “are daily dissected in London and Calcutta, and new discoveries are being made ... bodies are dissected and practical anatomy taught to the pupils...” (*GRPI*, 1847-48, *Appendix*, p. lxxviii). Through the production of generations of students and reaching out to population at large, CMC etched out its indelible existence on Indian society. Importantly, unlike Europe, it did not arise out of historical developments in Indian society, rather implanted on India. The traditional practice of Āyurvedics “was challenged with introduction of modern anatomy and medicine ... Rather than raise the standards of Āyurvedic practice, these institutions (modern Āyurvedic institutions) reduced the Kavirāja to a simple medicine-man

²⁶ *Annual Report of the Administration of the Bengal Presidency for 1867-68*, p. 121.

²⁷ Anonymous, “Bhārate Dātavya Cikitsālaya,” *Cikitsak* 1 (1890, Bengali era 1297): 153-157.

who lacked specialized knowledge of either Āyurveda or allopathy” (Gupta, 1998, pp. 375-376).

Being acutely apprehensive of their gloomy future looming large over them 70 students of Sanskrit College submitted a petition to the Right Hon’ble Lord George Auckland on the 9th August, 1836, which remained totally unheeded as it was the period of victory of Anglicism over Orientalism –

“If your Lordship be of opinion that the Government should not impart knowledge by means of allowing stipends to the students, your Lordship’s petitioners beg to remind your Excellency that in such a cause, the Government would be guilty of partiality for allowing the students of the medical college that stipend, upon which all your petitioners’ hopes of improvement depended. However, your petitioners, now thrown into greatest despair, pray that Your Excellency as a patron of learning; and protector of the helpless will adopt such means as would enable your petitioners to acquire that proficiency in the Sanskrit language which will not only enlighten them, but reform their degenerated manners and customs. And your petitioners as in duty bound shall ever pray. Signed by 70 students”

(Sharp, 1920, p. 146)

Arnold summarizes the question, “Well into the 19th century, the impact of western medical ideas and practices on India were relatively slight, mostly confined to the larger cities and to the enclaves of the white community and the army. Political and financial considerations weighed heavily against any sustained attempt to change this ... Western medicine was never so powerful in India as when it shed its colonial identity” (Arnold, 1996, p. 1078). CMC played its historical role in the entire process. Hospitals, through their epistemological mutation and transformations, ushered in the era of hospital medicine in India, and marginalization of traditional medicine as well.

Moreover, as an encouraging note, M L Sircar, an inquisitive researcher of the CMC, founded the Indian Association for the Cultivation

of Science (IACS) where C V Raman did his primary researches which earned him the Nobel Prize. Thus the accomplishment of India’s most famous scientist can be traced back through Sircar to the strong tradition of high-level fundamental science initiated and maintained at the CMC from its very founding.

But, despite all these achievements, as pointed out by Risse, whether the “intense scientific scrutiny of hospital patients – now reduced to the sum of their diseased organs – favored further depersonalization and even callousness toward *suffering remains unclear*” (Risse, 1999, p. 328). Against these perspectives and more, Porter tersely makes us aware “Medicine has become the prisoner of its success ... Medical consumerism – like all sorts of consumerism, but more menacingly – is designed to be unsatisfying” (Porter, 1999, pp. 717-718).

Modern hospitals are extensions of these characteristics.

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