Chapter 2

Precolonial Period of Knowledge: Āyurveda and Anatomy

I Introduction

II India through the Eyes of Travellers

III Specificity of Āyurvedic Knowledge on the Eve of Colonialism

Introduction

In his '*Indian Knowledge-Systems on the Eve of Colonialism*' project, Sheldon Pollock the structure and social context of Sanskrit science and knowledge from 1550 to 1750 has been investigated. The period witnessed a flowering of scholarship lasting until the coming of colonialism, when a decline set in that ended the age-old power of Sanskrit thought to shape Indian intellectual history. One of the aims of the project was to study the status of medical knowledge systems – principally as expressed in the Sanskrit language. Indigenous modes of medical thought and expression on the eve of colonialism set the Indian scholarly establishment of brāhminical learning – including medicine – at a peak of creativity and innovation, but was about to disappear forever. The intellectual life of indigenous India up to this time, however, was conducted principally in Sanskrit and Persian. But, particularly, there is almost total absence of secondary sources about early modern Indian intellectual life in this period. The project was cautious about the specific nature of non-Western society like India. It is understandable that when one comes to non-European history, great care has to be taken not to impose convenient and familiar categories on situations where the entire inner dynamic of historical and social changes is different. In a recent book there is a bold hypothesis related to this period "the sixteenth, seventeenth, and eighteenth centuries in South India saw the emergence of a new and specific historical awareness" (Pollock, 2007: 366). Possibly, this particular kind of historical awareness produced a crop of fresh works with a distinct quality of incisiveness and energy. Major disciplines of knowledge during that period were logic-epistemology (*nyāya*), moral-legal discourse (*dharma*), hermeneutics (*mīmāṃsa*), and linguistics (*vyākaraṇa*). Next important development occurred through vernacularization in specific literatures and genres. This appears to have been especially true of medical writing. As these changes continued, newly developed modes of

reasoning were for the first time contrasted in *favorable* terms with earlier and formerly sacrosanct classical traditions.

The late sixteenth century saw the composition of such critically influential medical works as Bhāvamiśra's encyclopedic *Bhāvaprakāśa*, Ṭoḍarmalla's *Ṭoḍorānanda*, the *Rājanighaṇṭu* (the largest extant lexicon of Indian *materia medica*), Lolimbarajā's *Vaidyajīvana*, and Harṣakriti's *Yogacintāmani*. A cursory examination of any manuscript library in India reveals scores of copies of these works, which were energetically copied, distributed, and studied throughout the subcontinent. Printed editions of the first two of these works are in wide circulation and use in India even today, in traditional medicine colleges and clinics.

The seventeenth century continued the rich production of medical texts, including those of Trimallabhatta (resident of Benares, who incidentally provided unique information on the discounted prices available physicians on raw and prepared medicines), as well as the several works commissioned by Mahrājā Anūpasiṃha of Bikaner (whose personal manuscript library remains one of the finest research resources in India today).(Pingree, 1970-1994)

The other authors of that period who are worthy of study include Bharatamallika (who wrote on genealogy of the medical families of Bengal), and Praharāja (who wrote a medical text in the completely novel form of a dramatized dialogue between husband and wife). Several medical works were created under the patronage of Maratha dynasty of Thanjavur in South India. These include, for example, the three medical compositions of Raghunātha Paṇḍita, a prolific author who also wrote in other genres and languages. Even Nāgeśabhatta, arguably the most famous Sanskrit intellectual of seventeenth/eighteenth century India, appears to have composed a medical treatise, the still unpublished *Mañjuṣaśekhara*. Wujastyk in his essay "Change and Creativity in Early Modern Indian Medical Thought" has drawn attention to *Rogārogavāda* by Vīreśvara (written A.D. 1668/1669) (Meulenbeld, HIML, IA: 328), who raised his dissenting voice against the established medical authorities. (Wujastyk, 2005) Wujastyk finds, "In short, Vīreśvara attempts to mount a serious challenge to the foundational doctrines of classical medicine...Though, it should be noted, Vīreśvara is not the first medical author to engage in theoretical polemics. Naraharibhaṭṭa's *Vāgbhaṭakhaṇḍana* (after the mid-thirteenth

century (Meulenbeld, HIML IA, 676 f.) is a work defending Vāgbhaṭa's *Aṣṭāṅgahṛdaya* against the attacks of critic called Sauravidyādhara. And an old tradition of medical debate is very evident in the earliest saṃhitās of Caraka and Suśruta." (Wujstyk, 2005: 107)

The eighteenth century witnessed, apparently for the first time, the emergence of a new linguistic situation in which medical authors began to develop literary discourses which spanned more than one language. In this, and so far as currently can be told of, medical writing seems to differ from several of the other disciplines of Sanskrit intellectual life. So, for example, Diler Jang composed in both Sanskrit and Persian, Mahādevadeva wrote two works introducing Islamic medicine to a Sanskrit-reading audience (including many items of Perso/Arabic vocabulary). Vyāsa Keśavarāma composed a bilingual Gujarati-Sanskrit medical glossary (and referred to Persian medicine), and Mahārāja Pratāpasiṃha of Jaipur wrote in Marwari, and then translated his own work into Sanskrit verse and Hindi prose (incidentally distinguishing five new types insanity). The production of medical literature in Thanjavur also continued energetically, with the Mahārājas themselves beginning to compose texts. This period is marked by growing awareness of foreign medical traditions in India: Raṅgajyotirvid mentions English operations for piles, as well as naming several contemporary physicians. Govindadāsa introduced a number of medical innovations, and also referred to contemporary physicians and their views.

These last authors illustrate the point that it is possible, in this period of Indian intellectual history, to attempt to integrate a history of ideas with a history of the history of the social processes which shaped the production and transmission of those ideas. The medical literature of earlier centuries is notable for the absence of the proletarian tracts, medical handbooks aimed by their learned authors at householders rather than fellow medical professionals. But on the eve of colonialism, processes of vernacularization begin to sweep through the production of medical literature. Now, the obvious question comes up: is vernacularization the same as proletarianisation? Is a new sociology of medical practice developing? Or is new class of consumers evolving who are reading in the vernacular, but are nevertheless privileged socially?

It is possible that in the complex of ideas concerning the use of Sanskrit versus the vernacular, and of public versus privileged knowledge, lie materials which may help us to begin answering the question of why the relentlessly negative criticism of Indian intellectual life by the Anglicists met with absolutely no response from within the traditional intellectual establishment. Another modality of intellectual activity that grows more noticeable during this period chosen for study is polymathy. A number of high-profile medical authors produce virtuoso works of scholarship in non-medical fields. Raghunātha Paṇḍita, for example, composed treatises on poetics and metrics. What does this say about medical thought and practice? Do leading scholars believe that they have a set of intellectual tools and discourses that can be applicable to all subjects? Is there evidence that the medical practice of the time is losing its roots in *empirical practice*, and becoming a *theory-laden recreation for intellectuals*?

It would be profitable to note that adhering to the practice of writing new texts based on classical ones is evident even in the late-eighteenth or early-nineteenth century text *Abhinavacintāmaṇi*. Jan E.M. Houben has critically read and explained the text. (Houben, 2007) Houben observes, "In fact, the AC seems remarkably "classical" in its approach, in spite of the exchanges with other systems and developments in medical knowledge contemporaneous with the author." (Houben, 2007: 85) It contrasts with the view taken by Sheldon Pollock. (Pollock, 2002) More evidence can be adduced here. Brian Hatcher and Michael Dodson refute the very concept of paradigmatic rupture of classical medical learning as put forward in the *Sanskrit Knowledge-Systems Project on the Eve of Colonialism* under the stewardship of Sheldon Pollock.(Hatcher, 2007) "On the Eve of Colonialism" was specifically remarkable for *vernacularization* of Indian classical texts and not, to emphasize, *experimentation.*

This last question is of great importance for the present dissertation. As has been seen before the sheer lack of anatomical knowledge and the binding of *śāstras* over finding out new vistas for innovative practices were impeding to the development of medicine in India in any new direction. Combined with the impact of *śāstras* this particular observation related to being bereft of empirical practice and being heavily theory-laden posits a serious question to take into consideration. Here a quote from

Mādhava Kar (assumed to be of 8th century A.D.) should be helpful. He is said to have lamented – *nānā tantrabihīnāṃ bhiṣajālpa medhasāṃ /*

sukhaṃ vijñātumatanca mayaneva bhabiṣyati // ["This very (book) will enable physicians, lacking various treatises and possessing little intelligence, to discern a disorder with ease."] (Meulenbeld, 2008a: 29)

It is self evident from the statement that during the period of Mādhava, general quality of āyurvedic practitioners had declined.

Now, coming to the previous questions, concurrently with the spread of European power in the mid-eighteenth century, the dynamism and creativity in medicine, as well as other fields, began to diminish. By the end of the century, the tradition of Sanskrit systematic thought, which for the two millennia or more had constituted one of the most remarkable intellectual formation in world history, vanished as creative force in Indian life, to be replaced by other kinds of knowledge based on different principles of knowing and acting in the world. "No idiom was developed in which to articulate a new relationship to the past, let alone a critique; no new forms of... could be conceptualized." (Pollock, 2001: 417) It is to remember that disintegration Mughal Empire and other social forces that had so long sustained Sanskrit practice produced a vacuum, which was later filled in, by the European powers and, finally, the British. The consensus today seems to be that European traders operated on a basis of equality with their Asian peers, and indeed often partners, until some time in the later eighteenth century. Then, the beginnings of the Industrial Revolution in Europe, really England, began to be felt, and this translated into the displacement of 'traditional' Asian trades by Europeans who until this time had been in no way remarkable or dominant. (Pearson, 1995: 142) Later European traders had acquired military edge over their Asian rivals. "A dramatic specific example is what the Dutch did to cinnamon prices once they had gained control of the coastal areas of Sri Lanka in I659. The price had been 15 stuivers a pond. They immediately raised it to 36, and in I660 to 50." (Pearson, 1995: 143) European superiority included not just technological advances, but also the intellectual and scientific developments which made possible the technology and so the Industrial Revolution. "Among these were changes in medical theory and practice, and in the medical profession." (Pearson, 1995: 144)

European experience of the same period may be compared here. When Thomas Willis began his Sedleian lectures, he ignored the required exposition of Aristotelian science, instead emphasizing the medicine he studied and practiced. Study of the circulation of experimental animals was difficult in the beginning because vascular access was limited by blood clotting and primitive equipment. Willis wrote in his classic monograph, "*Cerebri anatome* (1664), But for the more accurate accomplishment of [dissection] I had not sufficient leisure, and perhaps, not sufficient ability...I employed...Richard Lower, a doctor of outstanding learning and an anatomist of supreme skill... enabled me to investigate better both the structure and functions of bodies, whose secrets were previously concealed." (Felts, 2000: 420) Anatomy was, of course, the first 'science' that needed human body parts for study, although much of the early work that the Greeks, and then Greco-Romans, did on the structures of bodies was done on animals considered analogous to humans. The study of human gross anatomy changed in the fourteenth century, with the occasional demonstration of the interior parts of the body on the corpses of criminals. It is important to stress here that until the 'solids' (organs, etc.) were seen as significant locations of normal and pathological processes for which some therapy could be devised most practitioners considered that intensive attention to the details of human structure was nearly irrelevant to clinical practice and "the academic study of anatomy for elite practitioners expanded in sixteenth-century Italy..." (Lawrence, 1998: 124) Even as late as 1811, while doing 'experiment' with diabetic urine Dr. William Henry remarked, "The nature and amount of the *primary animal fluids* (as they have been termed by Dr. Bostock) which are contained in diabetic urine, can scarcely, I apprehend, be determined..." (Henry, 1811: 135) It is understood that the legacy of humoral theory looms large in 1811 when scientific experiments were being carried out in rigorous manner.

In fact the term for muscles, *mys*, is used very rarely, and significantly, only by medical writers who themselves regard it simply as a particular type of flesh. The Hippocratic authors of these treatises, it is fairly certain, did not perform dissections. Their descriptions of internal anatomy are, for the most part, speculative. "The author of *The Sacred Disease*, for instance, wrote that there were four main sources for the humours in the body: the heart, the head, the liver and the spleen." (Shanks, 2002: 63)

These are all connected, he contended, to the stomach through channels. This account reflects a concern, not for *accurate anatomical description*, but for *theoretical unity*. "With the emergence of dissection in the fourth century, references to muscles in the sources increase dramatically. While the term *mys* appears only 14 times throughout the whole of the Hippocratic Corpus; Galen used it over 460 times in his writings." (Shanks, 63) It should be noted that cultures with a long tradition of animal sacrifices and of embalming their dead have notoriously inaccurate systems of anatomy. Ancient Egypt, for instances, where embalming was first extensively performed, had an anatomical tradition which consisted of the heart and forty-four hypothetical vessels located throughout the body, which obviously bears little resemblance to the actual interior of the human body.

Quaisar has aptly noted this characteristic in Indian context. He observes, "the scientific delineation of muscular projections of human or animal figures was beyond the grasp of Indian artists since they did not possess the experience of observing *dissected bodies* with trained eyes." (Qaisar, 1998: 136)

With this background we may now proceed to know how the foreign travelers to India perceived of India and its culture, medical practice and so on.

II India through the Eyes of Travelers

When two culture groups come to meet each other differences in language, custom and culture tend to present an understandable barrier to a deep and meaningful process of mutual appreciation or cultural exchange. Each culture appears to borrow selectively. To Narasimha "it is fascinating to consider the inverse question of what the different cultures did not borrow (perhaps even refused to borrow) from each other, in spite of close contacts over centuries." (Narasimha, 2007: 522) This particular question of selective borrowing had cast a deep impact on Indo-European exchange of knowledge, almost all the time in an asymmetrical way. The leverage was tilted towards the European end. It has been nicely summarized by Meulenbeld, "The renaissance of āyurveda since about the middle of the nineteenth century ... in the competitive struggle with Western medicine ... led to the construction of a unitary and coherent model of Indian medicine, weaned from inconsistencies and untenable concepts, and, particularly, as free from

magical and religious elements as possible...The ancient terms for physiological and pathophysiological processes, nosological entities, etc., were diligently re-interpreted to bring them into line with terms derived from Western medicine." (Meulenbeld, IA: 2)

Very often foreign observations become superficial or biased, even to the point of being harsh without comprehending the ingrained strength of another culture. Despite this a number of foreign travelers – a good number being medical professionals by training – came to visit India during the period concerned. Kapil Raj has convincingly argued that the sought-after natural-historical objects and knowledge were directly accessible to the travelers. The whole process of collecting nature "was akin to present-day space engineers programming planetary probes in order to retrieve relevant information from hostile environments." (Raj, 2006: 28) These travelers may be regarded as the harbingers of full-scale process of colonization. Many European men of science were well aware of this aspect. "They also included specific 'Enquiries about Traditions, concerning all particular things relating to [each] Country, as either peculiar to it, or at least uncommon elsewhere.'" (Raj, 2006: 29) It was directed to 'enquire' into 'Physick, Surgery, or Dying, etc. (Ibid, 29) What, for a start, then were 'European' and 'non-European' precepts of Knowledge in the early-modern world? Kapil Raj cites an example of a French traveler Nicolas L'Empereur. L'Empereur came to Surat in Gujarat. A couple of years later he elaborated his scheme, "This work will be of considerable size and, once printed, nothing [of Indian medicine] will be left unknown to the European surgeon." (Raj, 2006: 36)

In Hiuen Tsang's account of A.D. 629 there is no mention of anatomical or surgical practices. In his description, at the age seven years an upwards, "the young are instructed in the five *Vidyās*, *Śāstras* of great importance." (Beal, 1884, Vol. I: 78) The third is called the medicinal treatise (*Cikitsāvidyā*). It embraced "formulae for protection, secret charms (*the use of*) medicinal stones, acupuncture, and mugwort." (Beal, 1884, Vol. I: 78) According to him, Indian medical treatment is primarily based on balancing the body by abstinence from food and other herbal remedies. "Every one who fails sick fasts for seven days. During the interval may recover, but if the sickness lasts they take medicine...The doctors differ in their modes of examination and treatment. (Ibid, 86) Another Chinese scholar and traveller I-Tsing (A.D. 671-695) provides quite good account of contemporary Indian medical practice. He too describes medical practice as

being centered on fasting and setting the balance of the diseased body through various dietetic and herbal remedies. Only once he mentions of some rudimentary surgical practice, "Cauterized with fire or with a puncture applied, *one's body* is treated just as wood or stone; except by the shaking of the legs and moving of the head, the sick differs not from a corpse." (Takakusu, 1896: 129) There is also elaboration on the Buddhist doctrine of health and disease.

During the seventeenth and eighteenth centuries "Physicians were scholars and so to be found only in centres of learning. Surgeons were low-status craftsmen, and more widely available." (Pearson 1995: 148) Though sometimes it is said that the Europeans, the Hindu and the Muslim differed among themselves too much in their habits and outlook to have any great attraction for one another, but at first there was no trace of race feeling or any talk of superiority and inferiority. "Foreign travelers like Pelsaert, Bernier and Manucci noticed and commented on the many shortcomings in Indian society and government but none of them had any objection to mixing freely with Indians, living in their midst, or even accepting service under them." (Sastri, 1964: 137)

A great number of medical men and travelers coming to India were quite vociferous while talking about absence of anatomical knowledge among Indian people. To keep in mind, some superficial adulatory remarks were also found sometimes – "Many surgical operations which we consider triumphs of our modern practice were invented by the ancient Hindus...had specialists in *rhinoplasty* or operations for restoring lost ears and noses." (Bedroe, 1893: 117) Though, in reality, the period was marked by a proliferation of compendia, perhaps, mistaken for new scientific achievements. (Bala, 1991: 33)

François Bernier (1625-1688) was for 12 years the personal physician of the Mughal emperor Aurangzeb in India. He wrote *Travels in the Mughal Empire*, which is mainly about the reigns of Dara Shikoh and Aurangzeb. He stayed in India for 15 years and in 1669 he left India for Paris. Regarding the difference in nature of disease in India and Europe he wrote, "Even the venereal disease, common as it is in *Hindoustan*, is not of so virulent a character, or attended with such injurious consequences, as in other parts of the world." (Bernier, 1916: 254) He was eager to transmit recent innovations and knowledge in Europe to his companions. "When weary of explaining to my *Agah* the

recent discoveries of *Harveus* and *Pecquet* in anatomy, and of discoursing on the philosophy of *Gassendi* and *Descartes*, which I translated to him in Persian (for this was my principal employment for five or six years) we had generally recourse to our *Pendet...*" (Bernier, 1916: 323-324) While he was energetic to pursue this sort of work he was also scrutinizing Indian knowledge world in his own way. "On physic they have a great number of small books, which are rather collections of recipes than regular treatises. The most ancient and the most esteemed are written in verse. I shall observe, by the way, that their practice differs essentially from ours, and that it is grounded on the following acknowledged principles: a patient with a fever requires no great nourishment; the sovereign remedy for sickness is abstinence..." (Ibid, 338) He comments here, as expected, as an expert physician. Further, "a patient should be bled only on extraordinary occasions, and where the necessity is most obvious as when there is reason to apprehend a brain fever, or when an inflammation of the chest, liver, or kidneys, has taken place." (Ibid, 338) He notices, "The *Mogols*, it is true, are rather more given to the practice of bleeding than the *Gentiles*; for where they apprehend the inflammations just mentioned, they generally bleed once or twice, not in the trifling manner of the modern practitioners of *Goa* and *Paris*, but copiously, like the ancients, taking eighteen or twenty ounces of blood, sometimes even to fainting; thus frequently subduing the disease at the commencement, according to the advice of *Galen*, and as I have witnessed in several cases." (Ibid, 338-339) Why do such differences occur in treatment? Bernier it lies in the *Gentiles*' (or Hindus) education. "After the *Purane*, some of the students apply their minds to philosophy, wherein they certainly make very little progress." (Ibid, 336) Not only that both Hindus and Muslims are lacking in the knowledge of anatomy and experimenting bent of mind. It is the very fact due to which they are deficient in therapeutic superiority. "It is not surprising that the Gentiles understand nothing of anatomy. They never open the body either of man or beast, and those in our household always ran away, with amazement and horror, whenever I opened a living goat or sheep for the purpose of explaining to my *Agah* the circulation of the blood, and showing him the vessels, discovered by *Pecquet*, through which the chyle is conveyed to the right ventricle of the heart." (Ibid, 339) Not only that Bernier finds, "Yet notwithstanding their profound ignorance of the subject, they affirm that the *number of veins in the human body*

is five thousand, neither more nor less; just as if they had carefully reckoned them." (Ibid, 339)

It must be noted that while Bernier is interested in transmitting anatomical knowledge through practical dissection of animals Indian people are frightened by the sight of it. Again, when he talks about anatomical structures and achievements of Harvey or Pecquet or Descarte Indians tell stories of Puranas. So, it is understandable that there lies an undertone of European superiority in these accounts and those too based on modern scientific knowledge of the body. Moreover, he observes that the profession of medicine is a family art and business. It is not profession per se, as in Europe. "The embroiderer brings up his son as an embroiderer, the son of a goldsmith becomes a goldsmith, and a physician of the city educates his son for a physician. No one marries but in his own trade or profession; and this custom is observed almost as rigidly by *Mahometans* as by the *Gentiles*, to whom it is expressly enjoined by *their law*." (Bernier, 1916: 259)

The role of *śāstra*, as has been previously noted, is testified in this account of Bernier. And as a result of all these things taken together European Physicians like Bernier was esteemed high even by the kings. "DĀRĀ SHĀH, having learnt that an accomplished European physician was at hand, sent immediately for him, and Monsieur BERNIER went to his tent, where he saw this lady and examined into her ailment, for which he gave a remedy and quick relief. This poor Prince, being much pleased with Monsieur BERNIER, strongly pressed him to remain in his service..." (Ibid, 90)

Manucci's accounts also substantiate this fact, "I knew from experience that Frank physicians are held in esteem by the Mahomedans." (Manucci, 1907, Vol. II: 90) The attitude of Indians to European skill in medical science is interesting. While physicians did not believe or admit that European doctors were properly acquainted with medicine, the masses held a different opinion "as soon as any Farangui arrives at a place and it becomes known, they (Indian people) at once bring up sick, all kinds of diseased persons coming to consult..." (Qaisar, 1998: 16)

In Fryer's account, "They are unskill'd in Anatomy, even those of *Moors* who follow the *Arabians*, thinking it unlawful to dissect human bodies...Pharmacy is in no better condition..." (Fryer, 1912, Vol. I: 287) He also notes, "Custom and Tradition are

only Venerable here; and it is Heresy to be wiser than their Forefathers..." (Fryer, Vol. I: 180) He goes on, "Chirurgy is in a bad plight, Amputation being an horrid thing... They pretend to understand the Pulse, but the Urine they will not look on." (Fryer, Vol. I: 287) Finally, he makes an important comment, "But I believe rather we are here as Exotick Plants brought home to us, not agreeable to the Soil." (Fryer, Vol. I: 180)

Bernier, Manucci or Fryer was not the only one to show that in the area of surgery a perception of a pronounced gap had appeared between India and Europe. Garcia d'Orta in Goa in the mid-sixteenth century was the first, but by no means the last, European doctor to be critical of Indians' anatomical knowledge: "As for anatomy, they do not know where the liver is, nor the spleen, nor anything else." (Markham, 1913; quoted in Pearson 1995)

John Fryer gives another important account. He was a medical graduate from England. He served as a surgeon in the East India Company for nine years from 1672 to 1681 and traveled extensively on the Coromandel and Malabar coasts. He describes the life and trade of Bombay, Surat, and Madras. His account is valuable for its commentary on natural history and medicine. He found '*Bengal* Juglers' and others to show magic. One magician "by Suction or drawing of his Breath, so contracted his lower Belly... as by the most accurate Dissection could be made apparent... The Aetiology whereof I think to be this; that while all the contents of the Belly are moved upwards, all Respiration is expelled, only the voluntary Motion of the Animal Spirits act upon the Nerves (the Mind or Soul commanding them) while the Vital or Natural are compelled to the contrary." (Fryer, Vol. II: 103) Terms like "suction", "accurate dissection" or "voluntary motion" are more specific technical-scientific terms to describe a magic show which the Indian people observe with awe. Fryer finds, "In esteem among them are principally Magick and judicial Astrology... Elocution, Physick, Metaphysicks, are not out their element: Their Philosophers maintain an *Aristotelian* Vacuity; nor are they quite ignorant of Medicks, though *Anatomy is not approved*, wherein they lean too much on Tradition, being able to give a very slender account of the Rational Part thereof." (Fryer, Vol. II: 103) In this observation "Anatomy" has been juxtaposed to "Tradition" and near-absence of "Rational Part" thereof. Anatomical perception of the human body was the basic issue of Fryer's account, while it was the extra-scientific puzzle that pervaded Indian observation.

Fryer also noted, "Custom and Tradition are only venerable here; and it is Heresy to be wiser than their Forefathers..." (Fryer, Vol. I: 180) In his opinion "Physick here is now as in former days, open to all Pretenders; here being no Bars of Authority, or formal Graduation, Examination or Proof of their Proficiency; but everyone ventures and everyone suffers... They are unskilled in *Anatomy*, even those of the *Moors* who followed the *Arabians*, thinking it unlawful to *dissect Human Bodies*... They pretend to understand the *Pulse*, but the *Urine* they will not look on." (Fryer, Vol. I: 286-287) He adds, "Phlebotomy is not understood, they being ignorant how the Veins lye; but they will worry themselves Martyrs to death by Leeches, clapping on an hundred at once, which they know not how to pull off..." (Ibid, 287)

Though too rigid and harsh this account may sound to us it is undeniable that Fryer's observation tallies Bernier in some points – (1) professional education is family based, it does not have any standard, formal and uniform educational structure, (2) anatomy is the most neglected subject, and (3) both are talking from superior position, at least from the position of a medical professional. Fryer comments, "But I believe rather we are here, as *Exotick Plants* brought home to us, not agreeable to the Soil..." (Ibid, 180)

To remember, there is also mention of Indian surgical knowledge in other accounts. Manucci was possibly the first person to give a somewhat detailed account of Indian rhinopalsty. "The surgeons belonging to the country cut the skin of the forehead above the eyebrows, and made it fall down over the wounds on the nose...In a short time the wounds heal up...I saw many persons with such noses, and they were not so disfigured as they would have been without any nose at all..." (Manucci, 1907, Vol. II: 301) Rhinoplasty may be regarded as a regular practice as Manucci saw many people undergoing this operation. Lambert observed, "An obstruction of the spleen...They make a small incision over the spleen, and then insert a long needle between the flesh and skin. From this incision, by sucking thro' a horn pipe, they obtain a certain pinguous matter which resembles pus." (Lambert, 1750, Vol. I: 99-100)

Against this background the state of medical knowledge on the eve of colonialism can now be addressed.

III Specificity of Āyurvedic Knowledge on the Eve of Colonialism

"Contacts between Āyurveda and Western medicine began in the sixteenth century." (Meulenbeld, 1995: 8) Meulenbeld informs, "The Westerners, from their side, introduced new plants into India, of European and South American origin, several of which were of medicinal value. As a result new drugs were incorporated into Indian pharmacopoeia." (Ibid, 9) It yielded some unwanted effects on the study of Indian medicinal herbs. As new medicinal plants were introduced under old names "the originally employed botanical species passed into oblivion." (Ibid, 9) There were perceptible changes in Indian nosology. But all these had little or no impact on anatomical knowledge in Āyurveda. "By the seventeenth century, Indian students who chose to specialize in medical studies were being exposed to a tradition of sophisticated medical reasoning and theory almost two thousand years old...and these works brought together not only treatises on anatomy, including embryology, diagnosis, surgery, epidemics, pharmacology, and so forth, but also a philosophy of the origin of the human being, the rules of medical debate, rules on technical terminology and interpretation, and other "meta-medical" materials." (Wujstyk, 2005: 101) The later history of Sanskrit medical literature is a mixture of further works of grand synthesis and the proliferation of works on specialized topics and manuals for the working physician. A notable absence in the literature seems to be manuals for use in the home or by untrained practitioners, a genre that was important, for example, in China. Here we may again be seeing the power of social exclusion implied in the use of the Sanskrit language. However, by the seventeenth century, thousands of Sanskrit medical treatises were available for study by Sanskrit-knowing physicians. (Ibid. 101)

All these were synthesized in the early seventh century A.D. into the great work *Aṣṭāṅgahṛdaya* by the Sindhi author Vāgbhaṭa. This work became the textbook *par excellence* for classical Indian medicine. Though Hoernle comments on this work regarding its detailing of human skeleton and number of bones, "The fact is interesting, because it shows that the text of the Compendium of Suśruta, on which Vāghbhaṭa I based his anatomical theories, was already in his time in a corrupt state...Vāghbhaṭa I possessed no experimental knowledge of the skeleton...from want of anatomical knowledge he was unfitted to use critically." (Hoernle, 1994: 96) Wujastyk adds further,

"Three very different Indian medical works, composed in the sixteenth and seventeenth centuries, may serve as examples of the kinds of literature that were being created at that period, and of the types of ideas that were circulating amongst medical intellectuals with whom Fryer so singularly failed to make contact. One of these works was extremely popular, the other two relatively rare, and it is interesting to speculate on the reasons for the different receptions of these works." (Wujstyk, 2005: 102) As has been discussed earlier, Vireśvara's work is supposedly an anti-authoritarian work. In complete contrast to Lolimbarāja's *A Doctor's Livelihood* it stands as a short polemical tract that seeks to engage intellectually with the principal doctrines of classical Indian medicine, and to completely overthrow them: the *Rogārogavāda* or "Debate on Illness and Health". "The author, Vīreśvara, tells us that he composed the work in 1669 (shortly after Fryer left India), and that he was a resident of the ancient provincial town of Kāyatha, near modern Udaipur in Rajasthān." (Wujstyk, 2005: 107) For all his bluster and arrogance; Vireśvara has indeed produced an unusual and interesting work. He systematically takes the principal theories of pathology in classical medicine, and refutes them one by one. Thus, he deals with humoral imbalance, diseases caused by bad *karma*, accidents, secondary diseases, hereditary diseases, birth defects, contagion, and corruptions of the humours and the body tissues. "For example, Vireśvara points out a fatal contradiction in the classical theory of humoral disease as follows. The greatest authorities define disease as identical to an inequality in the humours. And yet, in other places they say that the humours may naturally exist in different quantities, without causing illness, such as when phlegm naturally predominates at the start of the day, or after a meal. This is not to say that one is always ill after a meal. And so the central doctrine that humoral inequality is identical with disease must be wrong." (Ibid, 108) Finally, Wujastyk concludes, "In short, Vireśvara attempts to mount a serious challenge to the foundational doctrines of classical medicine. His challenge may appear quixotic, but it is nevertheless offered in a spirit of intellectual rigour and debate which speaks of an original if impulsive mind." (Ibid, 108)

Despite Vireśvara's attempt to dislocate the authority of ancient texts by questioning the centrality of classical theory of humoral diseases he could not attain much attention from the contemporary world of Sanskrit scholars in general and medical professional in particular. He was also not much accepted by the general population at

large. It is supported by the fact that only 4 manuscripts of him are surviving till date. There may remain a number of reasons behind this. It may be due to specific conceptual framework of Indian mind – to rely on *āptopadeśa*, not to question the authority. It may also be due to the fact that he actually did not give any alternative paradigm to think of. If this paradigm, it may be conjectured, had been built on concrete reality of anatomical studies it might have been able to ground his reasoning and observation on some definite and alternative explanatory model.

Cakrapāni-Dāsa's *Abhinavacintāmaṇi* is another work of precolonial world, as discussed earlier. (Houben, 2007) Houben clarifies his position as to why he takes up this text for study – "in the first place because the classical canon is transmitted and even fashioned by processes taking place in later periods, and, second, because these relatively little studied later phases of the knowledge systems prepare the stage for the momentous transitions in cultural and intellectual life that set in when India is overtaken by colonial powers, from end 18th till early 19th century onwards." (Houben, 2007: 64) In view of the date of the AC (*Abhinavacintāmaṇi*) and the historical phase that can be assumed for Āyurveda and medical knowledge and practice at that time, two questions appear: (1) whether, and, if yes, to what extent, this text participates in the new developments in India, and (2) to what extent it participates in the "post-classical" (post-Aṣṭāṅgahṛdaya) tradition of Āyurveda of more than a millennium.

A little more acquaintance with the text of AC will help us to get at the point. "Perhaps the diseased person is the twelfth principle, as the chapter contains a longish section entitled *rogī*[sic]-*parīkṣā* after previous passages devoted, one by one, to *kāla*, *deśa*, ... up to *vyādhi*." (Houben, 2007: 74) Then AC in the fourth chapter "deals with *nāḍyādi-trayodaśa-tat*[*t*]*va*, "the thirteen principles 'pulse' etc." which concern first of all the examination of the patient or *rogī-parīkṣā*." (Ibid, 74) Houben finds that the AC may be an example "where we find an approach that is in rationality and pragmatism hardly different from that found in classical texts such as the Caraka-saṃhitā." (Ibid, 75) Only exceptions occur in the use of consecrating plants or mentioning treatment of relatively new diseases like *māsurikā-roga*. [To note, since the fifth century in any case Caraka's work had already acquired a solid, authoritative status, as is clear from a reference to and quotation from Caraka's work in Bhartrhari's Mahābhāṣya-dīpikā.]

Houben comments, "Although with hindsight we know that in 1799 Orissa and India were very close to complete dominance by the British and for instance the Ganjam district was already British there is no reflection of the presence of Europeans in the AC; they seem to have remained outside the perspective of our author." (Houben, 2007: 82) On the basis of the overview some results can be spelled with regard to the problematics referred to at the beginning. Unprecedented and apparently irreversible developments had already started to influence the political, social and cultural conditions in the subcontinent and in the area of the author. It is not known how large an area the author considered his own, or which area was referred to as *sva-jananī* (used in a verse of AC), it may have been equivalent to Orissa or to one of its districts, or to the entire Indian subcontinent. Houben asks, "Does the AC show any signs of the "early modern" times that should have started more than a century before our author?" (Ibid, 84) In his answer Houben, perhaps, clinches one of the most vexing questions of precolonial knowledge world, "In fact, the AC seems remarkably "classical" in its approach, in spite of the exchanges with other systems and developments in medical knowledge contemporaneous with the author. In some respects the AC is perhaps more "classical" than some of its predecessors. For instance, a description of *phiraṅga-roga* (syphilis) which was a new element in the sixteenth century Bhāva-prakāśa is not found in the AC." (Ibid, 84) To speak of a lively tradition seems appropriate with regard to the AC, but this text does not suggest a "dynamic era of intellectual inquiry" within Āyurveda in this corner of the Indian subcontinent. Such is the observation of Houben. Contesting Pollock's finding he comments, "nor is there a trace of a "creative reinvention of the world of South Asian thought in the late precolonial period" which has been felt to have taken place in other sanskritic disciplines and knowledge systems (Pollock 2004: 21)." (Ibid, 85) Here Houben refers to Sheldon Pollock (2004: 21)

The creativity within Āyurveda to which Wujastyk (2005) refers (from the sixteenth century onwards) has not been shown to set this period off very clearly from earlier periods, but it demarcates it from the colonial period that was to follow. Whereas momentous changes had taken place in political, social and cultural circumstances from the sixteenth to the eighteenth century, it seems that in Āyurveda the tradition remained, relatively, internally dynamic and self-sufficient. The AC fits into this picture.

IV Conclusion

Some issues should be taken for quick appraisal. "From 1500 to 1700 the clear dominance of Nyāya, with 97 exponents, followed by Advaita Vedānta thinkers, forming a close second...The period from 1700 to 1900 is marked by a continued dominance of Nyāya and Advaita Vedānta on the Indian philosophical scene." (Krishna, 2006: 40) It can be deduced that in such an environment of theoretical debates and interpretations and re-interpretations of ancient philosophies without having any recourse to practical experimentation lead to some additive theoretical understanding, not the actual knowledge of material world nor that of the body. From Wujastyk an example can be cited. (Wujastyk, 2009)

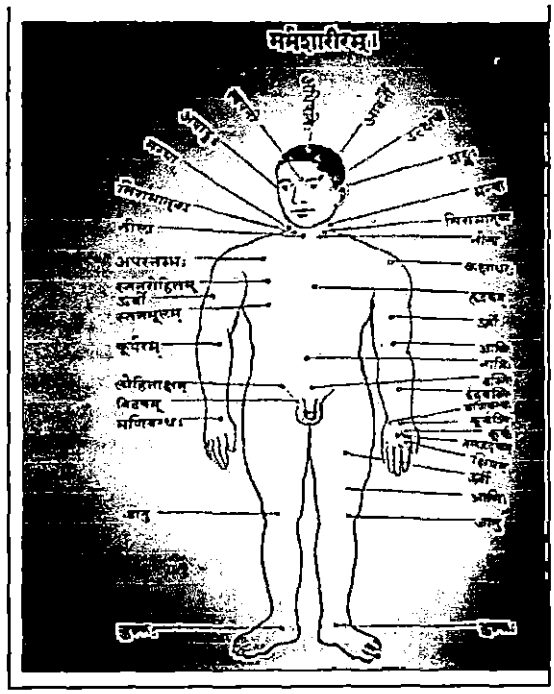

Fig. 12

[The *marmans* on the front of the body, from Kiñjavaḍekara 1938.40: facing śā.53. Wellcome Or. P.B.Sansk.702. Reproduced courtesy of the Wellcome Trust.]

Another picture of about two centuries ago can be reproduced here.

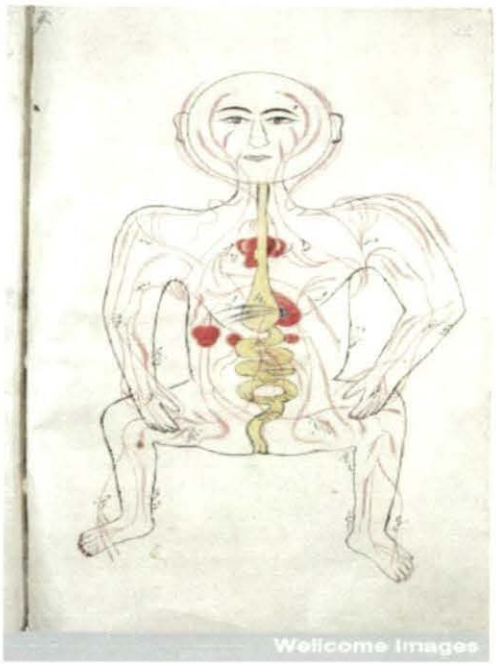

Fig. 13

[Anatomical illustration of the human body showing arteries and viscera. From a manuscript attributed to Shikastah-Nastaliq (calligraphic hand). Drawing, 18th century **From:** Oriental Manuscript WMS.Per.449 Collection: Asian Collection Library reference no.: Or WMS.Per.449

To note, anatomical organs are not illustrated here according to their localization inside the body.]

However, that is not all. A very influential medical book in sixteenth-century Europe was Jean Gavinet's 'The Directory of Astrology made Medical,' written in I43I and passing through five editions between 1496 and I614. Pearson comments, "This reliance on astrology points to a more general matter. It can be heuristically useful to distinguish three foci in medical practice, namely care, cure and causation. In this early modern period one could argue that the emphasis was on care; studies of cure, let alone cause, at this time were still primitive, having as much to do with astrology and malignant forces as with science." (Pearson 1995: 148)

Moreover, "The Salerno Regimen of Health," published in I480 but first written in the late eleventh century in Salerno, which went through no less than 300 editions. Also contributing to the long survival of these pre-modern notions was the fact that very

few people had access to medical care. Physicians were scholars and so to be found only in centers of learning. Surgeons were low-status artisans, and more widely available. (Pearson, 1995: 148) As late as the 1830s, there was a bleeding craze in France and some 20 million leeches a year were required to keep up with the demand. A connection between bodily cleanliness and good health began to be accepted only in the nineteenth century. (Ibid, 164) But, in European context, advances in knowledge were accompanied by improvements in professionalism. As we have seen before in a number of instances European surgery was esteemed in India even during the period under consideration of this chapter. This new prestige for European surgery seems to have spilt over into the beginnings of an influx of western medical ideas into India. This could, however, be a double-edged sword, for one instance from the 1720s shows Indian doctors adopting bleeding with great enthusiasm. Bleeding has not been used so frequently in āyurvedic medicine as in European medicine, but in 1726, we are told that it was now very widely used by pundits. One used to bleed his patients up to twenty times. Such ferocious treatment was now less common in Europe, and indeed it appears that European patients were no longer prepared to tolerate this sort of treatment, for the French doctor added regretfully that this pundit could do this 'sans que les malades en murmurent, etant bien plus obeissans aux ordres de leur Medecin qu'on ne l'est en France.' (Ibid, 170)

Zaheer Baber cites evidence to show the presence of a distinct occupational category or 'profession' as early as the sixteenth century. "By the sixteenth century, the practice of medicine had also become established as a semi-independent occupation, and the practitioners were paid for their work." (Baber, 1998: 81) Following British colonialism and consolidation of its power everything went upside down. Pearson notes, "The accepted sequence, very crudely, is that for at least 250 years the Europeans did not represent an economically and technologically more advanced civilization than the ones they saw in Asia. Only with the Industrial Revolution late in the eighteenth century did a disparity in terms of power appear between Asia and western Europe." (Pearson, 1995: 170) As we have seen in this chapter huge number of manuscripts was being produced during this period on the eve of colonialism. But manuscript culture soon had to face the aggression of print culture. The missionary newspaper, *The Friend of India*, wrote, "Printed books will gradually constitute a powerful source of influence... Works... within

the last ten years are indications of improvement...if we consider the darkness and ignorance of the community among they have found patrons." (Butalia, 1993: 220)

In the next chapter, we shall try to explain how this change took place in all spheres of medical practice and how anatomical knowledge played the key role in this transformation. It may be useful to remember, "Unknowingly and unwittingly they (the British) had not only invaded and conquered a territory but, through their scholarship, had invaded an epistemological space as well." (Cohn, 2004: 53) Military metaphor like 'invaded' is the right term to employ here. (Otis, 1999) There was fierce epistemological struggle between conquering and subjugating Indian knowledge on the one hand, and putting resistance against it on the other.