The Brhadāranyaka Upaniṣad (2.4.10) asserts that all existing branches of knowledge are breaths of the god Brahma. This statement signifies the great sanctity and esteem attached to the field of learning in ancient India. Small wonder, different passages in the classical Ayurvedic texts pertaining to the duty and demeanour of both the teachers and the taught leave little room to doubt the high order of solemnity associated with pursuits in the medical arena.

Still, the medical branch of learning has certain singular characteristics. People have a general tendency to avoid the expert and guide themselves on the basis of their own experiences. To learn one or two medical clues through personal experience is not unusual. Some one rightly states, every man is either a physician or fool at forty. The great majority of all cases of illness is never attended to by physicians but by the patient or his relatives as also noted in the Arthaśāstra (2.25.35). A recent exploration suggests that as many as 93 per cent cases of deliveries are conducted by non-trained hands (Qadeer 1990:99). Therefore, it is not unsafe to conclude that in India's past more than ninety per cent of the ailments were treated by individuals either with a background in the popular traditional system, sometimes mixing a bit of Ayurveda, or in the simple ojhā-charms (sorcery or exorcism). This was particularly true of the cases related to gynaecology (Arthaśāstra 3.20.17), insanity and baby diseases.

Besides the physicians, the Ayurvedic texts also refer to the male and female nurses (Suṣruta Samhitā 1.34.24; 3.10.7), drug-compounders and masseurs (Charaka Samhitā 1.15.6). It may be assumed that after a little practical direction they might have been taken into the service. This inference is confirmed by the Arthaśāstra (2.27.5) which prescribes old prostitutes to be appointed as nurses.

Of the sorcerical system of initiation to the medical-practice one may draw an idea from the splendid ethnographic reports of Lucas Bridges (1949). He worked among Onas of the Tierra del Fuego, the southern tip of Argentina. It is believed that before being wiped out in the face of a measles epidemic in 1924, these tribals were leading life in a fashion comparable to the Early Holocene (Coon 1962: 131). Lucas spent most of his life in the Ona territory. At one time he let two shamans and the wife of one of them try to prepare him for initiation into their profession. Recalling his experiences Lucas writes:

"My inception took place by a small fire, with the usual shelter of guanaco skins spread on the windward side. After giving me a harangue on the serious nature of my undertaking, Tininisk (one
of the shamans) suggested that I should strip. I did as instructed, and remained half reclining on my clothing and some guanaco skins while he went over my chest with his hands and mouth as intently as any doctor with his stethoscope, moving in the prescribed manner from place to place, pausing to listen here and there. He also gazed intently at my body, as though he saw through it like an x-ray manipulator.

Then, the two men dropping their robes and Leluwhachin (the lady) her cape though retaining her female inner garment, they literally put their heads and hands together and produced something that I could see. It might have been the lightest grey down teased out into the shape of a woolly dog four inches long, with a stout body and prick ears. With the trembling of their hands and possibly their breathing, they gave its movements a semblance of life. I noticed a peculiar scent that seemed to accompany this object as, with three pairs of hands held together, they brought it to my chest with many gluttural sounds. I did not feel the pressure of the thing against my body, but without any sudden movement it was no longer in their hands.

This performance was repeated three times and, though each time, a new puppy was supposed to be put in my body, I felt only the touch of the magicians’ hands.

Now came a solemn pause, as if of expectation. Then Tininisk asked me if I felt anything moving in my heart; or if I could see something strange in my mind, something like a dream; or if I felt any inclination to chant. The truthful answer was an unequivocal ‘No’, but I put my denial as mildly as possible "... No, I would not become (a shaman), to be blamed, maybe, for fatal heart-attack a hundred miles away." (Bridges 1949:284-286)

The distinguishing mark of the sorcerer was power acquired supernaturally. Usually the shaman-to-be was as reflected through comparative ethnology, reportedly possessed by a tutelary spirit who cause a grave illness, from which the individual slowly recovered. The power inherent in the spirit, and transmitted through illness to the novice, might be augmented by formal guidance under older shamans, but it was supposedly the shaman’s ability that permitted him to aid the sick.

In rather more advanced phase of curers, the knowledge of medicine was imparted under the guardianship of the elderly and experienced persons. As is the practice of modern days Oraon tribals of Orissa (Sahu 1991:47), traditional healing methods and the ability to identify medicinal plants were probably learnt by individuals in simpler society during certain rituals extending for a couple of weeks.

During the phase of doctors, the vaidyas implicated a thoroughly systematized education of medicine. The ancient Indians put a greater stress on learning medicine than on other sciences. The Greek traveller Strabo reported that Indians made no accurate study of the sciences except that of medicine (McCrindle 1901: 41). The term chikitsā for medical science in Sanskrit itself means the
'query'. The Charaka Text (6.1.51) asserts that one was to become a physician only through learning and not by birth. References to families of physicians are found in the Jātaka stories (69.1.3; 346.3.142) but such cases seem to be exceptionally rare. However, there was an obvious tendency to accord greater recognition to families having more than one physician. The Charaka Text (3.8.7) suggests that students belonging to such families were given priority in admission to medical schools.

As regards the position of medicine as a discipline of learning, it would be quite fitting to have an eye on the kind of subjects which the students of the yore studied. The studentship profile of ancient Indians appears impressive on grounds of qualitative criteria such as the existence of universities, libraries, village schools and public inscriptions. However, like in other civilizations of antiquity, the earliest Indian academic curriculum comprised of a mixture of subjects pertaining to religion, philosophy, ethics, geography, etc. Later, the proper performance of the sacrifices prescribed in the Vedic texts as well as their accurate pronunciation and comprehension required generated six subsidiary studies, namely phonetics, rituals, grammar, philology, metrics and astronomy, the group of Vedān̄ga. Thus, it appears that the necessity of learning the Vedas in their thoroughness gave rise to diverse branches of learning; hence perhaps the traditional notion that all knowledge descends from the Vedas. The diversity in the field of learning attained by the 6th century BC is very illustratively reported in the Chāndogya Upaniṣad (7.1.2). At one place, the sage Sanatkumāra asks Nārada, the celestial seer, as to how many subjects the latter studied. Narada replies: Four Vedas, Itihāsa-Purāṇas (history), Pitrya (manes-ritual), Rāśi (zodiacs), Daiva (fortune-telling), Nidhi (treasure-tapping), Vākavākya (logic), Kṣatra-vidyā (polity), Nakshatra-vidyā (astronomy), Sarpa-vidyā (snake lore) and also subjects like Ekayāna, Deva-vidyā, Bhuta-vidyā, and Devajana-vidyā.

With the rapid growth in the complexity of material life in the succeeding centuries, the diversity in the disciplines of learning also increased. In the field of grammar, Panini and his colleagues reshaped and refined the science of language. The development of numerous philosophical schools like those of the Jatilakas, Charvakas, Ajivakas and notably the Buddhists and Jainas also contributed to the increased recognition of the mundane branches of learning.

The classical texts authored after the 6th century BC refer to as many as fourteen branches of erudition. They include such subjects as the four Vedas, genealogy-history, Purāṇas, grammar, astrology, etymology, poetics, philosophy (more particularly the Mīmāṃsā and Nyāya) and religious studies (Śatapatha Brāhmaṇa 14.5.4.10; Mundaka Upaniṣad 1.1.5; Mahābhārata 2.5.5; Manu Smṛti 3.232; Yajñavalkya Smṛti 1.3; Majjhima Nikāya 2.41.1; Sutta Nipāta 3.7.1). Obviously, medicine fails to find a berth in this list. But the fact that Viśnū Purāṇa (3.6.29) stresses on including Ayurveda among the branches of learning may suggest that the above subjects formed the curricula of usual learning centers where one studied prior to joining specialized training of medicine or for that matter economics and polity i.e. the Arthaśāstra which also remains excluded from the above roll.
It is more than certain that medical science was a specialized subject and pupils started learning it after attaining maturity. That the medical students were mature in age is confirmed by the injunction that they must not get infatuated with women (Suśruta Samhitā 1.10.9). By that time the pupil was a master of the basic branches of learning. It is, indeed, interesting to explore the subjects which the general students of minor age studied before specializing in such branches as the Dhanurveda, the Arthaśāstra, and Ayurveda. The educational process started with three a-s; adhyayana i.e. reading, akṣar i.e. writing, and anka i.e. the numerals. This was completed by the age of six. The first subject to be taught was the Sanskrit language in which were preserved the sacred books and which was the language of culture. (In fact, even the heterodox families of Buddhists or Jainas, who preferred Prakrit or Pali, taught elementary Sanskrit to their children.) On the testimony of I-tsing, one learns that at the age of six children were taught primary grammar containing 300 stanzas. Then, at the age of seven, 1,000 stanzas from Panini’s grammar were introduced to the students. Basically a text on grammar, the Astādhyāyī or the ‘Eight-Chapter Book’ of Panini included a variety of terms related to geography, economics, polity, culture as well as medicine and many more topics. A student was supposed to memorize these 1,000 sutras by the age of ten. Then he had to study the dhatu, the verb-roots for two years. The student received his initiation ceremony, the yajnopavit at this stage and for the coming six or eight years he studied the subjects narrated above. And in all probability, around the age of 18, he opted for specialization in his field of choice. Thus, it may be assumed that a new student of classical Ayurvedic learning had a good grounding of the predominant Vedic tradition.

There are evidences to demonstrate that even the orthodox circle of ancient Indians did not hesitate to study medicine. The instances are not lacking at all to suggest that the Atharva Veda which mostly comprised medical themes used to be venerated at par with its Vedic counterparts. The Putreṣṭi yajña (sacrifice) of king Dasaratha, meant for being blessed with an offspring, involved different mantras of the Atharva Veda (Rāmāyaṇa 1.14.2). In Mahābhārata (1.70.39), seers in the asrama of a famous sage Kanva are reported to chant the spells of this Veda. Kautalya the brahman Prime Minister of Chandragupta Maurya prescribes utterance of Atharva spells before launching an attack on the enemy’s army (Arthaśāstra 10.3.35). In such later works as the Raghuvamṣa (17.13), this Veda has been mentioned with great esteem. At one place the code of Manu (11.33) prescribes that a brahman should study the mantras of the Atharva Veda. Thus, inclusion of medical topics, in the curriculum of an orthodox system of learning, denoted a practical reality.

However, it may be conceded that before the epic period medicine did not appear as an educational discipline in itself. The first specific reference to medicine as an independent branch of learning is available in the Mahābhārata (1.1.67; 11.28.45). The Mahābhāṣya (1.1.1-2) of Patanjali of 2nd century BC also refers to medicine as a separate discipline (Puri 1957: 146). The contemporary
ruler Menandar is reported to be in the know of medicine as a separate subject (Milinda pañho 1.9.1). Thus, it was only by the 2nd century BC that the process of the emergence of medicine as an independent field of learning was over.

There is no evidence of any taboo being imposed on the study of medicine as such. Nevertheless, the discipline of Ayurveda attracted less number of students. The brahmans were more interested in developing the knowledge of religious scriptures. On the other hand, the kshatriyas, the warrior class, remained more enthusiastic in fields like the Arthaśstra i.e. science of polity (Rāmāyaṇa 3.41.32; Pratijñānatākām 2.13) and the Dhanurveda i.e. practical instruction in the use of weapons and vehicles of war (vide inscriptions of kings Kharvela and Rudradaman of the early Christian centuries: Goyal 1982:366;329).

The medical pupils of antiquity also included students outside both the kshatriya or brahman communities (Charaka Samhitā 1.30.27). Usually they were the vaisyas, the communities of the merchants and husbandmen, but sometimes even shudras, the servile class (Suśruta Samhitā 1.2.5).

Centres of medical learning

As in the case of other branches of learning the usual training centres of medicine were those āśramas of old teachers who reportedly lived in the lonely jungles, away from the hustle and bustle of residential sectors. However, references to the practice of begging as a means to support the economy of such centres indicate that the āśramas were not essentially situated in the distant wilderness. The frequent stress on the practical in the Susruta Text (1.3.50; 3.5.63) may also suggest that some of these centres were situated in the close neighbourhood of settled populations. Regular begging being possible in the towns or cities only, teachers apparently preferred the vicinity of towns at least in the cases of centres specializing in surgery.

For general physicians, the lonely places around the hills and mountains rich in herbal deposits were fit for the āśramas. Based partly on the material support which keen students brought with them and partly on the availability of edible fruits, many āśramas ran in the foothills of the Himalayas. There are numerous references to such āśramas in Himvata Pārshava (Charaka Samhitā 1.1.7) Kailas (ib. 6.21.2); Chaitra Ratha (ib. 1.26.5); Dhanesāyana and Kāmpilya (ib. 3.3.3). In majority of cases teachers stayed permanently at one place with ten or like students. Some teachers, especially those whose qualification was greater chose to wander around like what may be named as visiting professor. The sage Atreya is shown to have visited all the āśramas referred to above.

But, despite the fact that the āśramas had to play the predominant role in medical education, the better known urban seats of learning were important institutions imparting training in the discipline in question. From the point of view of medical training, Taxila appears as an outstanding
centre in ancient India. The privileged geographical location of this place made it a natural centre of conference for various wandering teachers of the Himalayan āśramas. As a matter of fact it is already a renowned seat of learning even as the curtain of history lifts up before our eyes. Though nowhere named in the texts of Charaka and Susruta, Taxila's popularity as a learning centre is crystal clear from the fact that no less than 108 Jataka stories refer to this town as such. The famous Buddhist physician Jivaka is described as a student of Taxila (Mahāvagga 8.1.5). Apart from medicine, it also offered specialized courses in military sciences and law (Mookerji 1960:489). The excavation at the site of Taxila, about 32 kilometers west of Rājālpindi did not uncover any monumental building like the one at Nalanda, another notable centre of learning in ancient India. This was probably owing to the foreign invasions to which it was ever exposed, Taxila university was destroyed at an early date. It may be recalled that the Nalanda university ceased to function as an academic centre after the invasion of Bakhtiyar Khilji in early medieval period. The standard of educational training at Taxila was quite spectacular and many celebrated intellectuals like Kautalya formed its alumni. But it is strange to note that certain teachers were engaged here to teach magic-charms and spells, too (Jātakas 185.2.100).

The teacher and the taught

Evidences from both brahmanical sources and Buddhist literature suggest that the senior pupils who wished to stay in the āśrama instead of going back to his native place were appointed as assistant teachers. In normal cases, the profession of teaching was reserved only for the brahmans (Manusmṛtyu 1.91). But this was not always true for the medical faculty. One hears of the teachers of medicine belonging to the warrior class, or the class of merchants and husbandmen (Suśruta Samhitā 1.2.5). The Manu Code (2.241) or the earlier Dharmasūtras of Gautama (1.1.20) and Apstamba (2.4.26) also permit non-brahmana teachers at the time of emergencies. But usually only non-brahmana pupils were taken up by such teachers (Suśruta Samhitā 1.2.5).

For excellence in the pursuit of learning, teachers of any class or caste were approached and paid veneration. In one of the Upaniṣads, we discover one leper being approached by some curious students (Chāndogya Upaniṣad 4.1.8). Even the code of Manu (2.240) and the Mahābhārata (11.165.31) praise one's effort to learn from the lowly. It was probably in this background that the Suśruta Samhitā (1.37.11) advises the medical trainees to gain knowledge of unusual herbal remedies from hillmen, herdsmen and forest-dwelling hermits.

Theoretically, the teachers of medicine were supposed to keep up excellent standards. The qualification of a teacher as prescribed in the Charaka Samhitā (3.8.3) provides us with an idea of the medical education system in the India of the antiquity:
'A teacher should be one whose doubts have all been cleared in respect of medical scriptures. He should be possessed of experience; he should be clever; he should be compassionate towards those who approach him; he should be pure of conduct; he should have a practised hand; he should have all the implements of his profession; he should have all the organs of sense; he should be conversant with the nature, tendencies of the healthy and diseased; he should be one whose knowledge of the medical science has been supplemented by knowledge of the other branches of study. He should be without malice; he should be without a wrathful disposition; he should be capable of beating privations and pain; he should be one well affected towards disciples and disposed to teach them; he should be capable of communicating his ideas to pupil that seeks his instructions.'

The norms presented for the relationship between the teachers and the taught were also quite high. An idea in this regard may be incurred from the following lecture given by a teacher to his pupil on the commencement of the course of study:

"In sleep, in rest, or while moving about; while at meals or in all acts thou shalt be guided by my direction. Thou shalt do what is pleasant and beneficial to me... If I on the other hand, treat thy unjustly even with the perfect obedience and in full conformity to the terms agreed, may I incur equal sin with thee, and may all my knowledge prove futile, and never have any scope of work or display" (Suśruta Samhitā 1.2.7).

Among the alumni of medical discipline in ancient India the absence of female students is the most striking feature. The reference to medically trained women practically does not occur. In fact, during the Sūtra period i.e. roughly the 6th to 5th century BC, girls were apparently at par with the boys in pursuit of learning (Mookerji; 1960: 208). The ancient text Aṣṭādhyāyī (6.2.86) takes notice of girl students. The early Greek traveller Strabo noted women studying philosophy in India (McCrimindle 1901:67). It seems probable that the female participation in the field of learning was not a strange case. But with the increase in the diversity of the branches of learning as noted above, the duration of a course gradually became too extensive. This was particularly true of specialized courses like medicine which started only after the pupil attained maturity. Progressively it became difficult for female students to complete their studies because they were disposed of in marriage by their guardians in the middle of the course. With the gradual lowering of the marriage-age, this meant complete want of girl trainees in discipline like medicine. As per provision of the Manu Śmṛti (2.67) women need no education and for them their marriage itself is initiation or upanayanam.

As regards the caste status of the medical students, one has examples of non-brahman youths studying medicine as noted above. The Charaka Text (1.30.27) describes that while the brahmana studied medicine out of the compassion to the people, the kshatriyas did so to keep people protected, and the vaisyas for the sake of commercial returns. The avenue of medical training was open also to
a shudra on the condition of a decent family background (Sūrta Samhita 1.2.5). This reference is indeed significant and it may lead to the inference that some of the shudras, otherwise the labour class, indeed belonged to high families i.e. kula-guna-sampanna.

The essential qualities required in a medical student as prescribed in Ayurvedic texts (e.g. in Charaka Samhita 3.8.7) parallel to those meant for students of sacred scriptures (Gautama Dharma Sūtra 1.2). These attributes included absence of such features as infatuation for women, and shunning from such bad habits like gambling, hunting, and sleeping during the day-time. Stress was also given on the student's academic calibre and excellence in memorizing passages.

The Ayurvedic texts do not mention the economic organization of their training centres. But an idea of the economy of training centers may be gained through different passages pertaining to the general education in ancient India.

Āśramas as described in ancient books present the picture of a spot situated amidst murmuring pines and hemlocks. The trees surrounding them bore variety of fruits and were not an unimportant support to dinner for the teachers and pupils there. Another major help came from the rich houses nearby who cherished donating essentials to the respected teachers. Begging was another means as noted elsewhere. It also appears that the pupil joining the āśramas brought with him essential material so as to support himself during his stay. Along with materials needed by him he also brought the āchārya-bhāga i.e. the teacher's share (Jātakas 252.2.278; 489.4.316). In addition, the different āśramas received assistance directly from the king and his family. Prince Rama is described as offering donations to them before leaving for the forest exile (Rūmīyana 2.32.13). State's support to the āśrama-dwellers was extended in the shape of provisions to exempt them from taxes (Āpastamba Dharma Sūtra 2.26.16).

The Jātaka stories describe that students offered fee for instruction before entering schools at Taxila (537.5.457). They also tell that those pupils who could not bring the āchārya-bhāga served their masters and attended night-classes arranged specially for them (252.2.278). The system of repaying fee after the completion of study was also not uncommon (478.4.224). It seems that no student was to be refused education on ground of non-payment of fee. The Mālavikāgnimitram (1.17), a play by Kalidasa, demonstrates that a teacher found guilty of this misdemeanour was ridiculed as trafficker in the field of learning and teaching.

References in the Sutra texts communicate that the annual sessions started in July as is the practice in our own days. However, the students were not allowed to visit their home or leave the āśrama before the conclusion of study (Vāsavadattam 1.12-13). But certain days were left out for holidays. Their list as described in the medical treatises (Sūrta Samhita 1.2.10) is corroborated by the Dharma Sūtras. The prohibited occasions of study included the eighth day of the dark half of
months along with the last two days of each fortnight. In case of emergencies also study was postponed. The regular holidays were perhaps utilized for the mundane activities of the asramas.

The daily session of study started well before the dawn (*Charaka Samhitā* 3.8.6) and continued until dusk with normal intervals for lunch, etc. Study at night was usually suspended as it was fixed for non-serious discourses. But the industrious students were found studying after the sunset as well (*Mahābhāṣya* 11.4.32). The grammar of Patanjali mentions a student studying in a quiet place at night after protecting the lamp from wind (ib. 3.1.26).

The most important method of the process of studying was learning by rote (*Suśruta Samhitā* 1.3.54). A student was supposed to get by heart the numerous passages of the treatises. About the medical textbooks one knows nothing concrete save the Charaka Text on general medicine and the *Susruta Text on surgery*. Another text compiled by a certain Bhela also seems to be pretty old. However, references to various treatises in *Charaka* (3.8.2) and *Suśruta* (1.4.7) and *Milinda Pañhas* (4.7.20) warrant the conclusion that the different medical centres had collections of texts. The books were written by hands on the *bich* leaves. Tied together, the bunch of such leaves was called *pustaka* i.e. pack, or *grantha* i.e. a tied bundle. The *Bower manuscripts* unearthed near Kashgar, central Asia, is a specimen of the ancient Indian books.

The inclusion of such topics as the *Kaumarabhrtya* and *Bhūta Vidya* in the classical medical treatises suggests that lessons on popular beliefs and folk-lore treatment as remnants of the phases of sorcerers and curers were considered important enough to be included in the medical curriculum of an Ayurveda student.

The study of classical texts was supplemented by individual experiences and practicals. The great stress on the practical in the Ayurvedic studies is underlined by the appraisal of *Susruta* that one possessing theoretical knowledge without practical experience is like an ass laden with logs of sandal wood, that labours under the weight which it carries without being able to appreciate its virtue (*Suśruta Samhitā* 1.4.4). His text (1.10.3) prescribes that a student should enter into medical practice only after having acquired practical skill and having performed operations on dummies.

Instances from the Brahmanical text *Arthaśāstra* (4.7.1) indicate that in some circles at least the idea of dissection for medical purposes was not unknown. But usually even the touch of a corpse was severally tabooed (*Manu Smṛti* 5.62; *Gautama Dharma Sūtra* 2.5.21). Therefore, they had the system according to which a new corpse was placed in a basket in a running river for a week. Thus, the flesh disintegrated and became easily removable through scrubbing with a long, stiff brush to expose the intestines which might be thus studied without physical contact (*Suśruta Samhitā* 3.5.61). Besides, there were also provisions to perform practicals through operation upon fruits and vegetables (ib. 1.9.4).
The practicals required in the specialization of Charaka Text were related to the identification of different herbs. Though this text saw medicinal merit in every herb (Charaka Samhita 1.26.31) the task of searching for the medicinal herbs was practically difficult. In the Rāmāyaṇa (6.89.17) one discovers that in an emergent situation Hanumana, an important comrade in Rama's train failed to identify the herb for which he was sent to a certain hill. At another place, Rama the exile wandering restlessly in the dense forest to look out for his kidnapped wife Sita was compared to a physician searching medicinal plants (ib. 3.63.14). Jivaka, the famous physician, when a student at Taxila, was charged to bring to his teacher any non-medicinal plant from within an area extending to a yojana (4 miles). After some days, Jivaka returned back to his master's place with nothing in hand. He was then allowed to embark on medical practice (Mahāvagga 8.1.7).

Seven years might have been the normal length of the course in Ayurvedic studies as was the case with Jivaka in the above story. But since he was allowed by his mentor to leave studentship only reluctantly, the length of the course was probably longer. The later commentary on the code of Yajñavalkya, the Mitākṣhara (12.184) prescribes the length of an Ayurvedic study to be of only four years. But this seems to only signify the declining state of the Ayurveda around 12th century AD.

As the Charaka Text describes it in its poetic style, weapons, water and learning are dependent for their merits or demerits on their holder (1.9.19). Therefore, acquiring medical knowledge was not enough and great emphasis was laid upon its proper use by the physician commencing his vocational career.