THE EDUCATIONAL HERITAGE OF ANCIENT INDIA

HOW AN ECOSYSTEM OF LEARNING WAS LAID TO WASTE

SAHANA SINGH

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To Sri Garani Krishnacharya

and

Sri G.K. Timannacharya

“Sahana Singh has produced a definitive study of education in India from ancient times. The book unfolds the grandeur of India’s pursuit of knowledge on all levels of science, art and spirituality, yet also details how great efforts were made to destroy, suppress or ignore this important contribution to human civilisation. From the Islamic invasion to the British colonial rule and modern times, India’s profound tradition of learning and insight has been marginalized and is only slowly reviving itself today. Sahana’s study holds the promise that India’s extraordinary knowledge systems can again gain the respect that they deserve, so that their efficacy can be shared with all.”

—Dr. David Frawley (Pandit Vamadeva Shastri), Author, Yoga-Ayurveda-Jyotisha teacher, Padmabhushan awardee

“I compliment the author on this enlightening and highly readable book. The inclusion of images adds considerably to the narrative. I am particularly struck by Sahana’s observation that India’s self-gaze is still through alien eyes and hope this book can play a role in correcting it.”

—Dr. Navaratna Rajaram, Historian, Mathematician

“The history of education is a lens that provides unique insights into the history of Indian culture and civilization. Ancient India had organised learning with universities, which students from all parts of India as well as other lands of Asia attended. The ecological system that nursed these institutions was disrupted with the destruction of the universities in the north by the invading Muslims. But Indian scholarship remained vital in teacher-centred academies and the glorious Kerala School of mathematics and astronomy in southern India declined only in the middle of the sixteenth century at a time coeval with the fall of the Vijayanagara Empire. The British imposed a new English-language colonial educational system on India, which precipitated widespread illiteracy as chronicled by Dharampal’s important book “The Beautiful Tree.” Sahana Singh tells this story with great felicity.”

—Dr. Subhash Kak, Regents Professor at Oklahoma State University, Author, Vedic Scholar

“Sahana Singh has produced ample evidence drawn from authentic sources to substantiate in a brief compass, the high standards of education from the immemorial Vedic times till the recent past when ruinous hands took over the reins to erase the cultural memory of our vast heritage - a veritable act of cultural genocide.

Recover we must and reinstate our pristine glory without any further delay, and the first step towards the same is building an awareness, an onerous task towards which Sahana has been directing her precious energies.”

—Professor K.S. Kannan, Academic Director, Swadeshi Indology

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Last but not the least, my family. According to Hindu beliefs, our families become our families not by chance, but by karma. My karma must surely be unique.

Holistic Learning in the midst of Nature

BASED ON ORIGINAL SKETCH BY INDRAJIT BANERJI

When Tagore started an open-air school at Shantiniketan in 1901, which later went on to become a famous university, he was one in a long line of educators from India who believed that holistic learning could only be obtained in the midst of nature under the close supervision of a parent-like guru.

India's earliest teachers were the gurus who taught in gurukulas and ashrams located far away from the hustle and bustle of towns in what could be called forest universities. It is no surprise that the Vedas, which are the earliest known oral books containing the thoughts of a highly civilised society are replete with exquisite references to nature and the concept of inter-dependence of living organisms. To these gurus, it was important for humans to realise their humble status in the infinite universe before embarking on the long journey of learning.

Not all gurukulas were in forests though. Many were in villages and towns, since the gurus were usually householders with families. However, secluded locations were preferred.(1)

Over time, the systems of transmission of learning to newer generations got institutionalised and gave birth to famous universities such as Takshshila, Nalanda and the famous temple universities of which the remains are still found in southern India. A sizeable number of foreign students came to study in India from China, Korea, Japan, Indonesia and West Asia. While the most famous names are Fa-Hien and Xuanzang (Hieun Tsang), who left behind detailed accounts, there are scores of others who made difficult journeys by foot and on board ships just to imbibe knowledge from Indian professors. Many of the foreign students copied texts and commentaries to carry back to their countries. The rush for gaining an education from the Brahmins and Buddhist scholars of India was similar to today's rush to study in or be certified by American and European universities.

There is a curious hesitation among modern historians to refer to India's multi-disciplinary centres of traditional learning as universities. This comes from the excessive importance given to the written word, to solid buildings with established pedagogy and rigid systems of certification. Thus, the talented but bare-chested and dhoti-clad engineers and architects of ancient India who

built incredible irrigation canals, rainwater harvesting structures, palaces, forts, roads, dams and aqueducts are barely acknowledged as professionals. Similarly the medical practitioners of yore who knew which combination of herbs could help in healing diseases, where to procure them in forests, how to conduct complex surgeries and additionally possessed spiritual insights are often regarded as quacks or witch doctors.

LEARNING WAS A SACRED, IMPORTANT DUTY

Vidyarambha or Aksharabhyasa is an important Hindu ceremony marking the initiation of young boys and girls into the writing of alphabets.

Photo Credit: Shiju Sugunan

Ancient Indians were deeply invested in gaining perspectives about "the material and the moral, the physical and the spiritual, the perishable and the permanent."[(2)] During the process of gaining these perspectives, they made important discoveries in the sciences, mathematics and applied medicine. The sacredness of learning is evident from the large number of Sanskrit shlokas that deify the guru such as "*Acharya devobhava*" (Taittiriya Upanishad). Initiation of children (both male and female) into the alphabets for the first time was done ceremonially in most parts of India. Even today, the ceremony survives in the *Haathekhori* in Bengal (performed during Saraswati Puja) and the *Vidyarambha* in Southern India (when children are asked to trace alphabets on rice). The sacred thread ceremony or the Upanayanam ceremony performed for Dwija children between the ages of eight and 12 customarily marked the beginning of education. Traditionally, it was considered unethical to barter knowledge for money. Gurus usually took a token gift (Guru Dakshina) in return for the long years of knowledge they imparted.

Chinese student Xuanzang has left a touching account of the love of learning in India. It was not forced but came naturally from the seeds of curiosity planted in childhood. He found ascetics who devoted their entire lives to learning and teaching simply for the love of knowledge be it in sciences or philosophy and to the exclusion of every comfort. Such men, who also adhered to high moral standards, were held in high esteem by the State but did not care for any honour bestowed on them. The practise of bhiksha (requesting for food from households which is incorrectly called begging in modern times) was common among these ascetics and was regarded

as a perfectly respectable activity. Xuanzang mentions that dedicated scholars preferred poverty to affluence and did not even heed the ties of domestic love. They knew no fatigue and travelled across the country to lecture and share their knowledge. Thus, there was a system that ensured a steady supply of qualified persons who gave themselves up to a life of learning and service to the land while keeping their needs to a minimum.[2]

THE FOREST UNIVERSITIES OF ANCIENT INDIA

The Mahabharata gives examples of famous ashramas such as Naimisha, which was a forest university headed by Saunaka. Other hermitages mentioned in the epic are those of Vyasa, Vasishtha and Visvamitra. One hermitage near Kurukshetra even mentions two female rishis. Among Vyasa's famous disciples were Sumantra, Vaisampayana, Jamini, Paila and Suka.[2]

Rishi Kanva's hermitage is not mentioned as a solitary unit, but an assemblage of numerous hermitages around the central one presided by Rishi Kanva.[2] There were specialists in every branch of learning cultivated in that age; in each of the four Vedas; in Yagna-related literature and art; Kalpa-Sutras; in the Chhanda (Metrics), Sabda (or Vyakarana), and Nirukta. There were also Logicians, knowing the principles of Nyaya, and of Dialectics. Specialists in physical sciences and art also taught their skills. The art of constructing altars of various dimensions and shapes for conducting yagna was regarded as significant and this required the teaching of Solid Geometry. Other topics that were taught included properties of matter (dravyaguna) and physical processes. Zoology was also a subject.[2]

Physician Susruta, author of *Susruta-Samhita*, the most ancient treatise available on general medicine and surgery laid out that in order to be a successful physician, one must be well-versed in many sciences. His might well be the earliest call for an inter-disciplinary approach to a subject.

एकं शास्त्रमधीयानो न विध्याच्छास्त्र निश्चयम्

तस्माद्वहुश्रुत: शास्त्र विजानीयाच्चिकित्स:

A physician who has learnt one science only cannot be sure of his own science (Ayurveda) and for this reason the physician has to be versed in many sciences.[3]

Thus, the forest universities laid out an entire spread of subjects that imparted a holistic view of the world as it was then known. There were no artificial demarcations between religion and science and often, one led to the other.

ANCIENT CENTRES OF LEARNING IN THE INDIAN SUBCONTINENT

Universities, Universities Everywhere

There were a staggering number of universities spread across the length and breadth of India. The oldest excavated so far is Takshashila, which is dated to the 6th century BCE but could be much older. It is located in today's Pakistan in the Rawalpindi District of Punjab. Others were Nalanda (Bihar), Valabhi (Gujarat), Vikramshila (Bihar), Pushpagiri (Odisha), Jagaddala (Bangladesh), Odantapuri (Bihar), Somapura (Bangladesh), Bikrampur (Bangladesh), Varanasi (Uttar Pradesh), Sharada Peeth (Kashmir), Ratnagiri (Odisha), Mithila (Bihar), Ujjaini (Madhya Pradesh) and Kanchipuram (Tamil Nadu) though this is only a partial list. Even today, archaeologists are coming across the remains of ancient universities close to the already excavated ones.

It is likely that gurukulas, forest universities and the brick and mortar universities existed side by side. There is an instance of Swetaketu who is a graduate in the "arts" from Takshashila. He set out to gather practical arts by wandering all over the country, when he came across 500 rishis in a cluster of hermitages who taught him their arts, texts and practices.(2)

Traditionally, it is believed that the Mahabharata was first recited at Takshashila by Vaishampayana, student of Vyasa. Takshashila is described as a centre of great learning in the Buddhist Jātaka tales, written around the 5th century.(2) The Chinese traveller Fa-Hien mentioned it in his account of his visit to Takshshila in 405 CE. Xuanzang, another Chinese monk, visited Takshshila in 630 and 643CE. The city was overrun by the Huns in 455 CE so it was in ruins by the time Xuanzang visited.

Takshashila made great contributions to world culture and Sanskrit language. It is associated with Acharya Chanakya, also known as Kautilya. His famous Arthashastra is said to have been composed in Takshashila itself. The renowned physician Charaka to whom Ayurveda owes a huge debt, also studied there. He later became a professor in the same institute. Jivaka, another famous physician and surgeon studied here, according to Pali texts.(1) The ancient grammarian Pāṇini, who codified the rules that would define Classical Sanskrit, was also a part of the Takshashila alumni. Clearly, the institute produced some formidable scholars.

According to the Jatakas, the students went to Takshashila for higher education, and they were trained in the Vedas. Apart from this, there were 18 Sippas or Arts that were taught. The Sippas include scientific and technical education. Takshashila also had special schools teaching medicine, law and military sciences. There was a demand for its archery courses, and there is a mention of 104 princes studying there at the same time. Not everyone came from affluent families.(2)

It is said that Jivaka, a Takshashila alumnus cured Emperor Bimbisara of fistula and, as a result, was appointed a physician to the King and to the Buddhist sangha. He is also credited with curing King Pradyota of Ujjaini of jaundice. Jivaka was noted to be a skilled surgeon. A case has been described where a merchant suffering from a head disease, was treated by Jivaka by tying the patient to his bed, cutting through the skin of his head, drawing apart the flesh on each side of the incision, pulling two worms out of the wound, then closing up the sides of the wound, stitching up the skin on the head and anointing it with salve. He is also said to have successfully cured cases of twisted intestines.(2)

PRACTICAL TRAINING WAS AN IMPORTANT COMPONENT OF UNIVERSITY LEARNING

Great store was set by practical training. For example, in medicine, the practical course included a thorough knowledge of medicinal plants. Nature study was considered the best means of awakening a healthy curiosity. Students were required to give a practical demonstration of what they had learned in their colleges. So Jivika, for example, was cited as having demonstrated his ability to conduct successful surgeries on patients. There is also a mention of a student who gave a practical demonstration of the technical education he got, in front of his parents, after he returned from Takshashila. Extensive foreign travel was required at the end of the theoretical education in universities. This was specially insisted upon in the case of students from rich families, brought up in luxury, in order to make them experience the hardships of travelling, and to endure heat and cold.(2)

NALANDA – A BEACON OF LEARNING FOR STUDENTS FAR AND NEAR

Ruins of Nalanda University

Courtesy Sanjeev Nayyar www.esamskriti.com

By far the most detailed description we have is of the Nalanda University in the ancient kingdom of Magadha thanks to the writings (seventh century CE) of Chinese travellers Xuanzang and Yijing. Students flocked from near and far to learn from the acclaimed teachers at the university and some came all the way from Tibet, China, Korea and Central Asia. As many as 100 lectures were held in a day, and according to Yijing, students did not want to miss even a minute of these.

It was not easy to gain admission into Nalanda University (just as in an earlier era, it was not easy to be accepted as pupils of renowned gurus). According to the accounts of Xuanzang, Nalanda had a very tough entrance examination. Only about 20% of the students who applied got through it. Foreign students had the hardest time in passing the admission test unless they were “deeply versed in old and modern learning.” And yet, the university had as many as 8,500 students and 1,500 teachers. The age of students at the time of admission has been estimated to be about 20.(2) There was even a network of schools that helped students to prepare for getting into Nalanda, which sounds uncannily similar to today’s coaching centres for IIT-JEE and other competitive examinations.

The students of Nalanda were looked up to as models all over India and highly respected, according to Xuanzang. One had to merely mention one's Nalanda antecedents in order to be bestowed with admiration. Taking advantage of this, some people even faked their Nalanda degrees! By the seventh century, there were four other universities in Bihar, all largely inspired by Nalanda. They worked in collaboration, and by the tenth century one of them—Vikramshila—emerged as a serious competitor to Nalanda in higher education.

A wide range of subjects were taught in Nalanda; sacred and secular, philosophical and practical, sciences and arts; it was the most complete education available at that time, says Xuanzang who studied there for five years. He studied Yoga shastra under the highest authority of the time – Silabhadra. He also studied Nyaya, Hetuvidya, Shabdavidya and the Sanskrit grammar of Panini. There is an interesting side story to this. Xuanzang has written that when he visited Kanchi, he met a number of monks from Ceylon. When he told them about his impending visit to Ceylon, they said it was futile because he would not meet anyone superior to them in knowledge. Intrigued, Xuanzang began to discuss yoga texts with them. To his disappointment, he found their explanations not as good as the one he got from Professor Silabhadra in Nalanda University.(2)

Nalanda mainly flourished under the patronage of the Gupta Empire as well as emperors such as Harsha and later, the rulers of the Pala Empire. Various endowments were made by kings, which led to the construction of impressive buildings, majestic in their size with richly adorned towers and turrets that gave the look of hill-tops, and observatories that were covered by mist in the mornings. According to Xuanzang, there was a lofty wall all around the grounds and a big gate, which opened into the university with a big main hall from which separated eight other halls. He describes that the upper rooms towered above the clouds and from their windows, one could see the wind and clouds producing new forms, and from the soaring eaves (overhang from the roof), splendid sunsets and moonlit glories could be seen. He wrote in his memoirs:

"All the outside courts in which are the priests' chambers are of four stages. The stages have dragon projections, and coloured eaves, pearl-red pillars carved and ornamented, richly adorned balustrades, while the roofs are covered with tiles that reflect the light in a thousand shades."

A similar description is given in the Nalanda Stone Inscription of Yasovarman of the 8th century stating that the rows of monasteries had their series of summits (shikhara-shreni) licking the clouds (ambudhara). The grounds had deep, translucent ponds bearing blue lotuses interspersed with the deep red Kanaka flower, while Amra groves spread their shade all around. The massive external grandeur of the buildings is said to have contrasted with the delicate artistic beauty of the interior.(2)

DEBATING - AN INTRINSIC PART OF EDUCATION IN ANCIENT INDIA

Logic and debate were extremely significant for India's philosophical traditions. This love for debate and presentation of arguments from ancient times formed the root of democracy, which has endured even today right down to the village level. The debates we see on TV channels and legislative bodies are a part of a continuum, albeit in a degraded form going back to a hoary past. References to *Tarka-Vidya*, the science and art of logic and debate and *Vaada-Vidya*, the art of discussion can be found in innumerable ancient texts such as Ramayana, Manusamhita,

Mahabharata, Skandapurana, Yajnavalkya Samhita, and Chandogya Upanishad, to name just a few. There were countless scholars who wrote books on logic and reasoning, and only a few have survived – some in the form of translations in Chinese and Tibetian.

In the famous debate between Adi Sankaracharya and Mandana Misra, in which Sankaracharya emerged victorious, the judge was a lady, herself a renowned scholar and the wife of Misra.

Picture Courtesy: Ekta Singh Mehra

The terminology of debate was well developed. To give a flavour of the terms, consider saadhya (thesis which is to be established), siddhanta (proposition, tenet or conclusion), hetu (reason), udhaarana (example), saadharmya (affirmative example), vaidharmya (negative example), pratyaksha (perception), anumaana (inference) and pramaanaa (proof). In his book on Indian logic, Satis Chandra Vidyabhusana refers to Maitreya an eminent teacher, also called Mirok in Chinese who lived 900 years after the nirvana of Buddha. He wrote a treatise on debate outlining various best practices such as choosing the subject of debate which ought to be useful, not an irrelevant one. Further, he said debate should not be entered into in any place randomly but in the presence of scholars or in a parishad (council). Maitreya laid out the rules by which a candidate's victory or loss could be decided in a debate. He stressed that debaters should be well-versed in each other's scriptures, must never discard dignity nor use disrespectful language, must be fearless, must speak continuously and intelligibly, and with voice-variation, that is sometimes slowly and sometimes loudly. Is it not amazing that even today, these are the skills taught to public speakers and debaters?

How to decide the winner of a debate was a subject that occupied many of the ancient thinkers. Vasubandhu, a philosopher from Gandhara listed as many as 22 points that could be used by judges to decide the winner in his treatise *Tarkasastra* dated to the fifth century. Here are the points:

1. Hurting the proposition (pratijna-haani)
2. Shifting the proposition (pratijnantara)
3. Opposing the proposition (pratijna-virodha)
4. Renouncing the proposition (pratijna-samnyasa)
5. Shifting the reason (hetvantara)
6. Shifting the meaning of the topic (arthantara)
7. Resorting to the meaningless (nirarthaka)
8. Resorting to the unintelligible (avijnatartha)
9. Becoming incoherent (aparthaka)
10. Resorting to the inopportune (aprapta-kaalaa)
11. Saying too little (nyunata)
12. Saying too much (adhika)
13. Resorting to repetition (punarukta)
14. Resorting to silence (ananu-bhaasana)
15. Displaying ignorance (ajnana)
16. Displaying non-ingenuity (apratibha)
17. Resorting to evasion (viksepa)
18. Admission of an opinion (mataanujna)
19. Overlooking the censurable (paryanuyojyopekshana)
20. Censuring the non-censurable (niranuyojyanuyoga)
21. Deviating from a tenet (apasiddhanta)
22. Resorting to fallacy or semblance of reason (hetvabhaasa)[4]

According to Xuanzang the monks at Nalanda frequently assembled for discussions to test intellectual capacity. Those who were able to put forward finer points in philosophy, who could give subtle principles their proper place and who were ornate in diction, were rewarded. These universities played a big role in nourishing the spirit of open debate in ancient India. Yijing, the Chinese traveller to India who came after Xuanzang mentions that kings were fond of organising intellectual tournaments in which people with superior knowledge and debating skills were richly rewarded.[2]

Nalanda had a famous, well-equipped library with many rare manuscripts. According to Yijing, the library had three huge buildings called Ratnasagara, Ratnadadhi and Ratnaranjaka of which Ratnasagara was a nine-storeyed building that stored rare sacred works such as *Prajna Paramita Sutra*.[2] Today, we marvel at the imposing libraries housed in Ivy League universities. Throw back your imagination to a time when such libraries were a part of Indian tradition.

COMPETITION AND COLLABORATION BETWEEN UNIVERSITIES

Among the competitors of Nalanda was Valabhi University in Gujarat, which was famous for its teaching of secular subjects. Students went to study there from all over the country. Some of them got high government positions on graduating.

Vikramshila University was built by King Dharampala in the 8th century, again as a rival of Nalanda, but it also collaborated with it. The alumni of this university is said to have practically built the culture and civilisation of Tibet. The most important of them is Dipankara Sri Jnana. Then there was Mithila, which specialised in logic and scientific subjects. According to historian Keay, it was so strict in guarding its knowledge that students were not allowed to take any books outside or even copies of lectures. They could only leave with their diplomas or degrees.(2)

The monopoly of Mithila University was broken by the Nadia University, which also specialised in logic. The story goes that Vasudeva Sarvabhauma in the 15th century, studied in Mithila University but when he was prevented from copying the texts, he committed to memory, the whole of *Tattva Chintamani* and the metrical part of *Kusumanjali*. Then, in Nadia, he wrote down the texts he had memorised and founded a new academy of logic. Nadia soon outrivaled Mithila by producing better scholars.(2)

Sometimes, the best professors of Indian universities were called to settle philosophical disputes and one record of this is found in Tibet. The Tibetian king Thi-srong-den-stan had invited two well-known Indian scholars Padma Sambhava and Santa Rakshita to his kingdom. During their stay, they got embroiled in a debate with a Chinese scholar and unable to defeat him, requested the king to send for Professor Kamalasila from Nalanda in 750 CE. The professor arrived and in the presence of an august assembly. defeated his Chinese opponent who was then promptly asked to leave Tibet.(2)

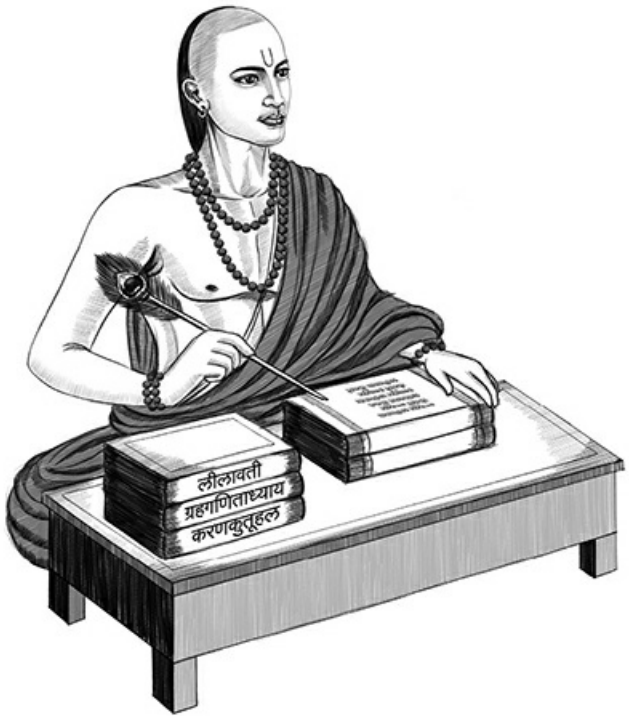
WHEN SCIENTISTS, ASTRONOMERS AND MATHEMATICIANS MADE A BEELINE FOR UJJAINI UNIVERSITY

One university that simply stands out for its academic output in astronomy and mathematics is Ujjaini (also called Ujjain), which was equipped with an elaborate observatory and stood on the zero meridian of longitude of those times.(5) Had imperialistic Europe not assumed control of the scientific discourse of the world, perhaps Ujjain, not Greenwich would have been today's prime meridian.

Brahmagupta was among the most celebrated astronomers of Ujjaini university who continued the tradition of Varahamihira and made significant contributions to mathematics. He worked on trigonometrical formulae, quadratic equations, area of cyclic quadrilateral, arithmetic progression and improved Aryabhata's sine tables. In his treatise Brahmasphutasiddhanta, he was the first to treat zero as a number in its own right, rather than as simply a placeholder digit. He established basic mathematical rules for dealing with zero such as $1 + 0 = 1$; $1 - 0 = 1$; and $1 \cdot 0 = 0$.(6) Brahmagupta's works reached the court of Khalifa al-Mansur in Baghdad and played a pathbreaking role in making the Arabs conversant with Indian astronomy and mathematics. Later, this knowledge was transmitted to Europe.

The tradition of Brahmagupta was continued by Bhaskara II, also called Bhaskaracharya who became the head of the astronomical observatory at Ujjaini. He wrote the famous *Siddhantasiromani* and *Lilavati*. In the New World Encyclopedia, J. J. O'Connor and E. F. Robertson are quoted to have said in their paper for the School of Mathematics and Statistics that Bhaskaracharya "reached an understanding of the number systems and solving equations, which was not to be achieved in Europe for several centuries." He was hailed as the first mathematician to write a work with full and systematic use of the decimal number system. Bhaskaracharya is

also considered as the founder of differential calculus, who applied it centuries before Newton and Leibniz. He too had a profound impact on Islamic mathematicians just like the earlier acharyas of Ujjaini.



Bhaskara II, head of the astronomical observatory at the famous Ujjaini University in central India was a native of Bijapur in southern India.

Specialisation and Graduation in Ancient India

Kanchipuram: land of temples and learning.
Photo courtesy Kanniks Kannikeswaran

A student who completed basic education in ancient India and wished to learn more, had a plethora of institutions to choose from, depending on whether he wanted to specialise in the Vedas, logic, medicine, sciences, classical music or any other subject. Thus, a student who wanted to learn classical music could, for instance, move to Varanasi and learn from the maestros in the city's ancient college of music. If he found a friend keen on studying in Varanasi's college of astronomy, then perhaps the two could travel together. Travelling was a risky proposition in those days when the land was covered with forests abounding in predators and parents would celebrate when their children returned home after four to 12 years of higher education.

Fa-Hien took six years to travel from China to Central India in a journey full of physical dangers and hardship. He wrote in his memoirs:

"When I look back on what I have gone through, my heart is involuntarily moved, and the perspiration flows forth. That I encountered danger and trod the most perilous places, without thinking of or sparing myself was because I had a definite aim, and thought of nothing but to do my best in my simplicity and straightforwardness. Thus it was that I exposed my life where death seemed inevitable if I might achieve a ten-thousandth part of what I had hoped."(2)

Fa-Hien's journey to learn from the masters inspired many other Chinese students such as Xuanzang to follow suit. India was called Yin-Tu by the Chinese, which means moon, because according to Xuanzang it was the only country, which illuminated the darkness into which the world had fallen after the passing of Buddha by providing a succession of learned sages.(2)

There seems to have been a remarkable mobility of students and teachers across the universities of ancient India. Thus, we find professors in Nalanda such as Sthiramati and Gunamati who had earlier established Valabhi University in the west. Dinnaga and Dharmapala, two famous scholars of Nalanda were both natives of Kanchipuram in the south. Ratnavajra, a noted professor at Vikramshila hailed from Kasmira (Kashmir). Xuanzang himself, after

finishing his studies in Nalanda went to teach in Orissa upon receiving a directive from King Harsha.[2] The famous Bhaskara II, hailed by some as the greatest mathematician ever, taught at Ujjaini but hailed from Bijapur in the south.[7] Clearly, many of the learned people of yore travelled to centres of excellence in their areas of interest.

In the *Kathasaritsagara*, there is a reference to a Brahmin who decided not to send his son for further studies to Nalanda or Varanasi, which were closer to his place of residence in the Ganga plains and instead took the risk of choosing a far-off Valabhi university located in today's Gujarat.[8] Valabhi's graduates were known to secure employment in government services. Its courses in political science (niti) and business (varta) were well known alongside religious studies of Hinayana Buddhism.[9]

FUNDING OF HIGHER EDUCATION

An interesting aspect about the education system was that it was subsidised for pupils and teachers by the ruling kings as well as communities that lived around universities. The Nalanda University was described by Xuanzang as having been endowed with buildings and lands by ruling kings of the time. He also mentions that the revenues of 100 villages were allocated for meeting the expenses of the university. The students and teachers received clothes, food, bedding and medicine free of cost.[1]

However, according to the Jatakas, students who wished to study at Takshshila were required to either pay their tuition fees at the beginning or if they lacked cash, to pay in the form of services to the teacher, such as bringing firewood. Most Brahmin students were too poor to pay upfront and would opt to carry out menial tasks. Some would get permission to pay at the end of their studies, and there were instances of Brahmin students soliciting financial assistance from households. We also hear of some winning state scholarships and not being required to pay any fees. Often, families living around the universities would generously host meals at their residences for the students.[2]

There was a well-established ecosystem to support learning. Since the ethos of the times demanded that Brahmin scholars lead a simple life engaged in the pursuit of knowledge without amassing riches, it fell upon the shoulders of wealthy non-Brahmin families as well as humble farmers to support those who were devoting their entire lives to learning and teaching.[10]

GRADUATING THE INDIAN WAY: SAMAVARTANA

Given that ancient Indians attached so much value to learning, it should not come as a surprise that they had a meaningful rite of passage to mark the graduation of students, called Samavartana or Snana. In the presence of students, teachers and invited guests, the graduating student would offer his guru-dakshina (gift to guru), after which the guru would recite the snataka-dharma from the Taittiriya Upanishad. This would be followed by a homa (fire ritual) and snana (ceremonial bath).[11]

CHAPTER XI.

वेदमनूच्याचार्योऽन्तेवासिनमनुशास्ति । सत्यं वद । धर्मं चर । स्वाध्यायान्मा प्रमदः । आचार्याय प्रियं धनमाहृत्य प्रजातन्तुं मा व्यवच्छेत्सीः । सत्यान्न प्रमदितव्यम् । धर्मान्न प्रमदितव्यम् । कुशलान्न प्रमदितव्यम् । भूत्यै न प्रमदितव्यम् । स्वाध्याय-प्रवचनाभ्यां न प्रमदितव्यम् ॥ १ ॥

The Snataka Dharma recitation from Shiksha Valli in the Taittiriya Upanishad was an important ritual in the graduation ceremony.

A partial translation of the Snataka Dharma recitation is as follows:

Never deviate from Truth,

Never deviate from Dharma,

Never neglect your well-being,

Never neglect your health,

Never neglect worldly activities (for gain and welfare),

Never neglect Svādhyāya (self study) and Pravachana (teaching of Vedas).

We all know the famous shloka

Maatru devo bhava,

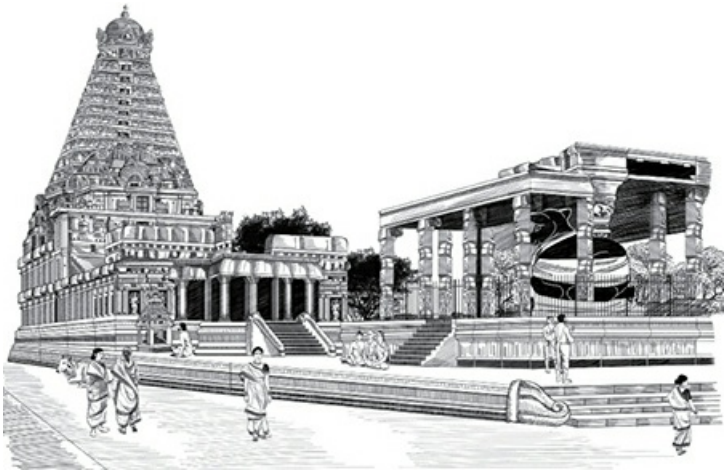
Pitru devo bhava

Acharya devo bhava

Atithi devo bhava

This verse stating that one's mother, father, teacher and a visiting guest are all equivalent to Devata comes from the *Taittiriya Upanishad*, which also was recited during the Samavartana. Equipped with holistic knowledge and blessings from the guru, a graduate or vidya-snataka (one who is bathed in learning) would be ready for the next stage of life – usually teaching and of course, marriage.

THE TEMPLE UNIVERSITIES OF INDIA



Brihadeeswarar Temple at Thanjavur.

An interesting aspect about ancient Indian temples is that often, they became centres of knowledge dissemination and debating. There was a continuity of learning with conferences and assemblies of learned scholars that have been mentioned in the *Rig Veda* itself, for disseminating the philosophies that form the core of Vedic literature. Well-endowed temples became magnets attracting students and teachers, which led to annexes being built for the temples and even entire colonies housing intellectuals from a variety of disciplines.

Multiple inscriptions on several temples of southern India reveal the extent to which higher education had got institutionalised. Ennayiram is one such location in Tamil Nadu, which abounds in inscriptions giving minute details related to the subjects taught, number of students, endowments and so on. For example, an inscription from the time of Rajendra Chola I (11th century) lays out the endowments given for the boarding and tuition of 340 students studying at a Vedic college. The college received 45 velis (300 acres) of land. Each student of Veda was noted to cost 6 Nalis of paddy per day and ½ Kalanju of gold per year. A student studying the more advanced Vedanta, Mimamsa or Vyakarana got 66% more. Meanwhile, a teacher was noted to receive a meal allowance equivalent to that of 16 students per day. The inscription notes that 75 students were studying the *Rig Veda*, 75 *Yajur Veda*, 10 *Atharva Veda*, 20 *Chandoga Saman*, 20 *Talavakara Saman*, 20 *Vajasaneya*, 25 *Vyakarana*, 35 *Prabhakara Mimamsa*, 10 *Baudhayaneya Grihya*, *Kalpa* and *Gana*, 40 *Rupavatara* and 10 *Vedanta*.(2) In 2003, archaeologists found more lines of inscriptions in the basement of a temple in Ennayiram http://www.thehindu.com/2003/11/07/stories/2003110701571300.htm.(12) Clearly, there is a lot more waiting to be unearthed.

A temple inscription in Ennayiram, Tamil Nadu describing a college attached to a temple along with a hostel and hospital.
Photo courtesy: Tamil Nadu Tourism (http://tamilnadu-favtourism.blogspot.sg)

Even the medical care of students was accounted for. Some inscriptions describe colleges with attached hospitals and hostels. One hospital is described to have 15 beds, a physician, a surgeon, two errand boys and two nurses. It was even equipped with a pharmacy with medicines such as Haritaki, Bilvadighrita, Vajra-kalpa and Kalyanalavana.(2)

A sprawling temple university called Kanthalloor Shala existed in the region of present-day Thiruvananthapuram, which was supported by the Chola rulers. This university has been called

the Nalanda of the South by some. A Prakrit work titled *Kuvalayamala* written by a travelling Jain monk from Rajasthan in the eighth century mentions that a wide range of subjects were taught – Vedas, grammar and philosophy (Buddhist, Jain, Hindu philosophies and even the materialistic Charvaka or Lokayata philosophies), martial arts, music and painting. In its spread of subjects, it certainly seems to rival Nalanda. Students were noted to come from the regions of Lata, Karnata, Malavya, Kanyakubja, Gollaya, Maharastra, Saurastra, Thakka, Andhra and Saidhava. Going by the punishments that have been mentioned in an inscription for wearing arms in classrooms or wounding a classmate, or for using filthy language, it would appear as if disciplining students has always been a challenge for educational institutions across millenia.(13) (14)

Today, it might be hard to imagine a renowned temple university in Pakistan-occupied Kashmir but in the pre-Islamic period, the region was synonymous with Sharada university named after Saraswati, the goddess of learning, also called Sharada. Thousands of devotees visited the temple dedicated to Sharada, while scholars were additionally interested in accessing ancient texts on grammar and philosophy that were preserved here. Ramanuja, the revered proponent of Vishishtadvaita school of philosophy travelled all the way from Tamil Nadu to Kashmir in order to refer to the only available manuscript of the *Bodhayana Vrtti* - the earliest commentary on the Brahmasutras, before he wrote the acclaimed *Sri Bhashya*. Adi Shankaracharya is noted to have acquired the title 'Jagadguru' only after he had answered all the questions posed to him by the scholars of the Sharada temple university. Bilhana, a 11th century Sanskrit poet from Kashmir wrote that goddess Sharada had turned his valley into a centre of learning.(15)

Another important reference to Kashmir comes from *Prabhavakacharita* which mentions the Jain scholar Hemachandra being commissioned to write a new grammar book by Jayasimha, the king of Gujarat. Hemachandra is noted to have requested for a copy of all the earlier grammar works that had been written until then, and which were only available in their complete form in the library of Sharada university.(15)

ANCIENT ACADEMIES OF EXCELLENCE

Apart from temples, there was the *ghatika*, the *agrahara* and the *mathha*. *Ghatikas* were groups of learned acharyas, which carried out deep discussions on Vedic matters. *Ghatikas* are said to have played a key part in making Kanchipuram (also called Kanchi) a hub of Vedic studies. They even played a pivotal role in selection of kings. Numerous poet-scholars and saint-philosophers who produced the finest of Tamil literary works are associated with Kanchi.(16) As we have seen earlier, some of the brightest went on to teach in famed universities in other parts of India.

Agraharas were campuses of learned Brahmins with their own rules of governance and were funded by generous donors (usually non-Brahmins). *Mathhas* were also educational institutions and along with Agraharas served like modern academies of excellence.(2)

Agraharas were campuses of learned Brahmins.

Inscription after inscription in southern India talks of the revenues of villages being entirely allocated for supporting *agraharas* with Brahmin scholars sometimes numbering 108, sometimes 308. The revenues were to be used in supporting the sacred task of learning and teaching, which included building libraries called "Sarasvati Bhandara."[(2)] The learned Brahmins, who often held titles such as Chaturvedin, Trivedin, Somayajin, Shadangavid, Bhatta, Kramavid, Sarvakratuyajin and Vajapeyin which denoted their specialisation in particular texts. Mookerjee puts it eloquently when he says:

"These learned settlements were centres of light and life, showing how theory and practice should go together, how precept should be supported by example, ethics by conduct, learning was to be lived and truth or religion was to be realised in the activities of daily life."

Ancient Mysore (present day Karnataka) had scores of agraharas and mathhas. In the third century, a king of the Kadamba dynasty invited 32 Brahmin families from northern India (Ahichchhatra) to settle in an agrahara near Talagunda (in present day Shimoga district). Talagunda was a famous centre of learning for eight centuries.[(17)]

THE KERALA SCHOOL OF MATHEMATICS

It is important to highlight the contribution of the Kerala school of mathematics and astronomy (14^{th} to 15^{th} century) in the context of Indian systems of advanced learning. Concentrated in a geographical area around Thrissur in Kerala, a rich tradition of mathematics developed and flourished amongst the Namboodri Brahmins. They discovered the infinite series, which laid the foundation for calculus centuries before Newton. There is strong circumstantial evidence that Jesuit missionaries who visited India in the 15^{th} century carried back mathematical concepts from Kerala to Europe.[(18)]

The brilliant scholars of Kerala were believed to be mainly motivated by the mysteries of astronomy. However, George Gheverghese Joseph, in his famous book *The Crest of the Peacock – The non-European Roots of Mathematics* argues that these mathematicians seem to have

revelled in their love for pure mathematics. Why else would Madhava (the founder of the Kerala School) indulge in long and tedious calculations of sine tables to 12 decimal places?

Famous names associated with the Kerala school are Parameshvara, Neelakanta Somayaji, Jyeshtadeva, Achyuta Pisharati, Melpathur Narayana Bhattathiri and Achyuta Panikkar. GG Joseph points out that some non-Brahmins such as Sankara Variyar and Acyuta Pisarati were also part of the Kerala school and many from "lower" castes such as carpenters, construction workers and artisans were conversant with precise calculations, indicating that the symbiotic society did not fit into the neat framework of the caste system envisaged by modern researchers.

INDUSTRIAL AND VOCATIONAL TRAINING

By piecing together evidence from Sanskrit, Pali and Prakrit literature it is possible to get some idea of industrial and vocational training in ancient India. Practical education in arts, crafts, industries and other vocations followed a separate stream but were highly influenced by the rituals and practices in general education. These vocations were open to all varnas.

The medical treatise *Sushruta Samhita* describes a separate upanayana (initiation) ceremony for medical students. Military science was called Dhanurveda and during upanayana, a student would ceremoniously receive a weapon to the accompaniment of mantras. In the case of a Brahmin, it was a bow. A Kshatriya would receive a sword, a Vaishya a lance and a Sudra a mace.[2]

Ayurvedic students were expected to have knowledge of other arts such as cookery, since diet was an important aspect of treatment. They were also required to travel extensively and to know where to collect herbs. While all students were taught general medicine, they were also required to specialise in any of the eight "limbs" of Ayurveda namely: internal medicine; surgery; eye, ear and nose; gynaecology, obstetrics and paediatrics; psychology; toxicology; rejuvenation; and virilisation.[19]

The Ayurvedic physician's oath at the end of training is a long list of rules of conduct that a physician must follow, including not demanding money from a poor patient. The oath was administered in a formal ceremony where the king gave permission to a doctor to practice his profession, after which the doctor could call himself a Vaidya (one who knows).[19] Going by the antiquity of Ayurveda, it is possible that the Hippocratic Oath was borrowed from the *Charaka Samhita*. The exact duration of medical courses is not known but it might have been as long as eight years. When Jivaka went home after seven years of study in Takshshila, his professor was not too pleased about it.[1]

The learning of a trade or craft meant that a student had to live with his teacher for a pre-decided period of training after taking permission from his parents. A master was required to treat his apprentice like his own son. At the end of the stipulated period, after the apprentice mastered the craft, he would take leave of his teacher after giving him a gift (kritva pradakshinam) according to his means. By staying with his teacher a student imbibed not just the trade but values, protocols and minute aspects of workmanship.[2]

The Jatakas speak of 18 arts or Sippas. But in most ancient works such as Ramayana, Bhagwata-Purana, Mahabhashya, Dasakumaracharita, Kadambari, Kamasutra and others, there is a reference to 64 kalas (arts and crafts) being taught to students. Apart from various forms of music, dance and sculpture, the trades included agricultural sciences, metallurgy, armour-

making, architecture, charioteering, stoneworking, leatherworking, carpentry, shipbuilding and rope-making. The range of subjects that were taught in meticulous detail is simply mindboggling. Even linguistics (desa-bhasha-vijnanam), pedagogics (science of teaching) and humour (haasya) formed art departments by themselves![2]

Unlike the Brahmins, who were not expected to accummulate wealth, but to be custodians of knowledge, especially of the philosophical and scientific disciplines, there were no such restrictions on artisans and skilled persons following different vocations. The community and family networks related to each vocation helped in giving job security and informal credit as a result of which entrepreneurs were able to generate considerable wealth for their communities. Until the 18th century, India along with China was the world's most dominant economic entity.

Many thought leaders have regarded the jaati system of India as a form of social capital which helped to enrich India. The development of socio-economic-religious clusters all over India contributed to employment and exports. The clusters were often self-funded and consisted of relationship-based businesses with unwritten rules. Risk-sharing was the norm and failures were not looked down upon. Over the centuries, as clusters developed, entrepreneurs established schools, colleges and common facilities such as marriage halls.[20]

Education for Women

Saraswati, the goddess of learning as depicted in Hoysala architecture.
Courtesy Swaminathan Natarajan Photography.

Education was as important for women as it was for men in ancient India. Saraswati has been depicted as the goddess of learning, speech, music and eloquence not just in India but wherever Indian culture left its imprint such as in Japan, Thailand, Cambodia, Myanmar and Indonesia.

Knowledge begot respect; men and women of learning were respected wherever they went. The upanayana ceremony was performed for women too. The Rigveda contains many verses composed by women such as Visvavara, Sikata Nivavari, Ghosha, Romasa, Lopamudra, Apala and Urvashi. Husband and wife were required to jointly perform yajnas, and many shlokas were required to be recited by the wife. Some yagnas were performed by the women even without the presence of men. In the Ramayana, Queen Kausalya performs a yajna by herself on the eve of Rama's anointment as heir-apparent. She is referred to as mantravid or one who is well-versed with Vedic mantras, and going by the rigour attached to the learning and chanting of the Vedas, it is clear that women were very much a part of the learning culture. Women teachers were called Upadhyayas.(1)

An interesting shloka in the *Atharva Veda* indicates that a woman has little chance to find a good husband if she is not well-educated as a brahmacharini. In fact, one of the marriage hymns hopes that the wife would shine as a good speaker in assemblies.(21) A likely age for marriage was 16 to 17 years, since child-marriage was not at all the norm during the Vedic period. While most women would settle down to a life of domestic duties after marriage, some women called Brahmavadinis would marry late after devoting more years to study or not marry at all. There is an example cited of Vedavati daughter of sage Kusadhvaja, who did not marry at all. And in the

Kaushitaki Brahmana, a lady scholar named Pathyavasti proceeds to the north in order to study and obtain the title of Vaak.[1][2]

An intriguing reference to co-education is found in the Sanskrit play *Malatimadhava* written by Bhavabhuti (in the eighth century) where a female student Kamandaki is indicated to be a classmate and close friend of male students Bhurivasu and Devarata at a famous university in Padmavati. All three characters hail from different regions.[22]

As mentioned earlier, ancient Indians loved debate tournaments. In the *Brihadaranyanka Upanishad*, there is reference to a philosophical debate held in the court of King Janaka in which there is an exchange between the lady philosopher Gargi Vachaknavi and Yajnavalkya, the rishi who is credited with several important texts. Gargi pounds Yajnavalkya with such persistent questions involving a subtle understanding of scriptures that after answering a few, the rishi declines to take any more interrogation. In the same Upanishad, one of Yajnavalkya's wives Maitreyi has been described as being more interested in studying deeper problems of philosophy than in wearing costly jewels and dresses. During Adi Shankaracharya's famous debate with Mandana Mishra, the umpire was a lady Ubhaya Bharati, a renowned scholar and the wife of Mishra. All this goes to show that there was no question of denying education to women in ancient India.[1]

In the Mauryan period, there existed a special category of super-talented (well-versed in 64 arts), highly-educated and extraordinarly beautiful women called ganikas who enjoyed social respect and were esteemed by kings and nobles. They were not required to marry and had the freedom to choose their lovers. Poets sang songs on their charms and talents. Labelled as "nitya sumangali" these ladies were considered auspicious and were even required to bless the mangalasutra before it was tied around a bride's neck. Ganikas were government servants and received salaries; they were used by kings in matters related to diplomacy, espionage and other important state functions.[23]

After Buddha began to allow women to become bhikshunis and serve in his monasteries, it led to many women from aristocratic and commercial communities to take up a life of celibacy and become preachers. Among the nuns from rich families were Sumedha, Anupama and Subha. Many of the nuns distinguished themselves by spreading the message of Buddha to far-off lands.

Despite the accounts of historians of women's position being degraded in later years, we continue to hear about female education in aristocratic and cultured families. The Satavahana king Hala of the first century CE compiled a book of poems called Gatha Saptasati in Maharashtri Prakrit, which includes poems written by poetesses such as Reva, Roha, Madhavi, Anulakshmi, Pahal, Vaddhavahi and Sasiprabha. A poetess from Karnataka called Vijayanka (possibly a queen) has been compared to Saraswati by another poet Rajasekhara. Devi was a well-known poetess of Gujarat. Later anthologies quote other female authors such as Subhadra, Sita, Manila, Indulekha, Bhavadevi and Vikatanitamba. Among the Hindu works of medicine translated to Arabic in the eighth century, there is a treatise on gynaecology written by a lady whose name appears as Rusa.[1] The famous scientist-mathematician Bhaskaracharya of the 12th century is said to have written *Lilavati*, a treatise on arithmetic, progressions, geometry, permutations and indeterminate equations for his daughter named Lilavati.[24] The mathematical problems were set for her to solve. She must certainly have been a bright woman.

In the end, it would appear that a woman's desires and resolve determined how far she would go in life just like today. It would be unwise to project the modern version of gender-parity on ancient times and find flaws in the gender-balance. Unlike today, when women from middle income families have access to contraceptives, sanitary napkins, household gadgets and communication devices to enable them to participate in various spheres of economic and political activity, women of yester-years had many limitations, which confined them to homes.

Ancient India witnessed many princesses and queens taking a keen interest in administration of their kingdoms and their education fully equipped them to even fight in the battlefield if necessary. Several queens from Kashmir fought in battlefields as described in *Rajatarangini*. Nayanika of the Andhra dynasty, Prabhavatigupta of the Vakataka dynasty, Chalukya queens and ladies such as Mailadevi, Akkadevi, Kunkumadevi and Lakshmidevi took active part in governance.(1)

During the Muslim rule, the seclusion of women, which was hitherto unknown, began to increase and the social standing of ladies deteriorated. Female education declined drastically and the age of marriage reduced.(1) Even the styles of dressing of Hindu women became more conservative and limiting in order to protect them from oppressors. By the time the British began to rule over India, it would appear that except for Kerala, where there are many instances of girls going to school, women in the rest of India were mostly home-bound and received limited or no education.

Fuelling a Knowledge Revolution outside India

Most people are aware of Chinese scholars coming to study in India in ancient times but not many know about the movement of scholars in the opposite direction.

In the first century CE, Chinese emperor Ming-Ti sent 18 persons to study Buddhist doctrines in India. When they returned, they took back many books and also two Buddhist scholars Kasyapa Matanga and Dharmaratna. Kasyapa was in Gandhara when he was invited by the Chinese envoy. His journey from Gandhara to China was fraught with hardship as he passed through the steep mountains of Chinese Turkestan and the harsh Gobi desert. There was also a language problem. However, the two pioneering scholars persevered and opened up opportunities for hundreds of professors from Indian universities to work in China. A large number of Sanskrit manuscripts were carried to China. Among the well-known Indians who migrated in the first three centuries were Samghavarma, Dharmasatya, Dharmakala, Mahabala, Vighna, Dharmaphala, Kalasivi, Kalaruchi and Lokaraksha.(2)

Kashmir, which was a prominent centre of Buddhist learning supplied a steady stream of erudite scholars to China. One such scholar Gunavarman from Kashmir's royal family first went to Ceylon and Java where he made a name for himself. The Chinese emperor invited him to China, personally received him in Nanking, became his disciple and built a temple for him. A few scholars from southern India also got pulled to China, such as Dharmaruchi who lived in China for 20 years between 693 to 713 CE and translated 53 works into Chinese.(2)

Hundreds of Sanskrit works were painstakingly translated into Chinese by the Indian scholars with the help of Chinese intellectuals. It was a mammoth task considering the totally different syntax and structure of the two languages and many scholars even recorded their struggle and discomfort.

The first printed book in China was the Indian treatise *Vajjra-Chhedika-Prajna-Paramita Sutra* (or the famous Diamond Sutra), which was translated into Chinese by Kumarajiva in 402CE. Kumarajiva was prodigiously talented. He studied in Kashmir, Kashgar and Koutcha, and it is said there was a battle for his services between the King of Koutcha and the Chinese Emperor, whose general imprisoned him. For 12 years, Kumarajiva translated more than 100 Sanskrit works, which are considered masterpieces of Chinese literature! He is also known as the teacher of the famous Chinese traveller Fa-Hien.(2)

Statue of Kumarajiva in front of Kizil Caves, Kuqa, Xinjiang, China.
Photo Courtesy Yoshi Canopus

Unlike Kumarajiva, another scholar, Dharmakshema's life was cut short by an assassin when two Chinese rulers competed for his services. Reference is also found to a well-travelled and much-in-demand scholar Amoghavajra who earned titles such as *Prajna-moksha* and *Tripitika Bhadanta* from a Chinese emperor. The poor man was made to return from the shores of India the very moment he landed back in year 749 CE because the Chinese emperor decided there was little time to be lost. It is not just in modern timelines that employees get called back from vacations by hard-hearted bosses. Amoghavajra collected more than 500 texts from different parts of India to take back to China and translated at least 77 works, including Dharanis and Tantras. In China, he is known as the founder of Tantrik Buddhism.(2)

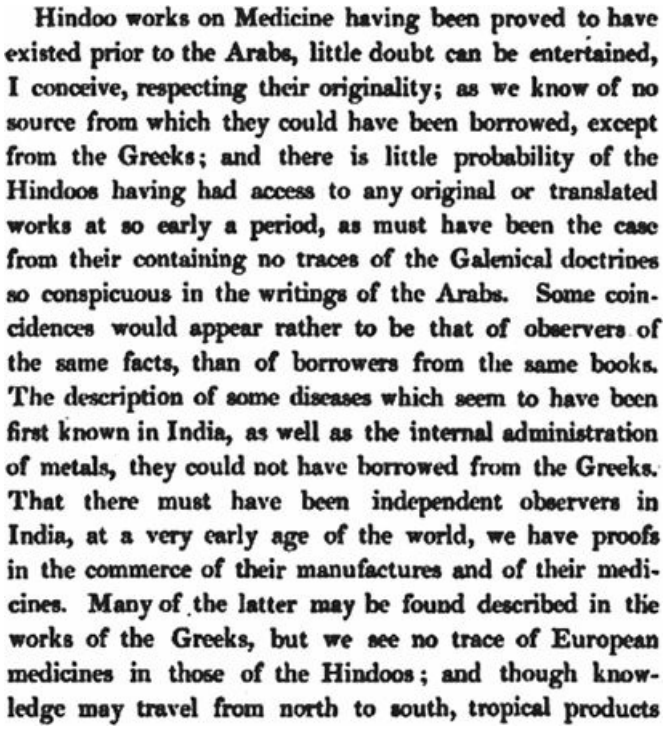
Collecting texts from India and carrying to China for translation was regarded as a holy duty by many scholars. Yijing, for instance speaks of having collected 400 different texts and 500,000 shlokas. But this is lesser than the 657 texts carried by Xuanzang his predecessor, as estimated by Thomas Watters.(25)

Several Indian mathematicians and astronomers from the best universities held high positions in China's scientific establishments. One Indian scientist called Gautama Siddha (Qutan Xida in Chinese) became the president of China's official board of astronomy in the 8th century. He translated the Indian navagraha calendar into Chinese. He also introduced Indian numerals into China. The invention of printing is also attributed to Buddhist scholars who went from India to China and printing was used as a means to spread Buddhist thought.(26)

KNOWLEDGE TRANSFERS FROM INDIA TO GREECE, ISLAMIC WORLD AND EUROPE

The antiquity of civilisation and the ecosystems set up for the propagation of knowledge turned India into a veritable garden with exquisite flowers that attracted honeybees. Royle, in an essay on the antiquity of "Hindoo medicine" mentions Barzouyeh, a royal physician in the court of Persian King Khosrau (531-579 CE) who returned from India with medical texts as well as a variety of herbs and who was proficient in Sanskrit.(27) There was a thriving trade between India and western Asia in ancient times, which involved not just spices and textiles but medicines.

In his talks on the antiquity of Indian medical systems (https://www.youtube.com/watch?v=TtoXaR7wgiI) Raj Vedam, co-founder of *Indian History Awareness and Research* has laid out the trajectory by which the knowledge of Ayurveda was transmitted from India to Greeks/Romans, the Islamic world and then Europe. He points out the scientific concepts articulated by Indian Rishi Kanada (6th Century BCE), which were taken up by Greek philosopher Democritus (4th Century BCE). According to Bertrand Russell, Democritus travelled widely and had visited Egypt and Persia "in search of knowledge." Hippocrates, considered the father of western medicine was a student of Democritus.



Hindoo works on Medicine having been proved to have existed prior to the Arabs, little doubt can be entertained, I conceive, respecting their originality; as we know of no source from which they could have been borrowed, except from the Greeks; and there is little probability of the Hindoos having had access to any original or translated works at so early a period, as must have been the case from their containing no traces of the Galenical doctrines so conspicuous in the writings of the Arabs. Some coincidences would appear rather to be that of observers of the same facts, than of borrowers from the same books. The description of some diseases which seem to have been first known in India, as well as the internal administration of metals, they could not have borrowed from the Greeks. That there must have been independent observers in India, at a very early age of the world, we have proofs in the commerce of their manufactures and of their medicines. Many of the latter may be found described in the works of the Greeks, but we see no trace of European medicines in those of the Hindoos; and though knowledge may travel from north to south, tropical products

Excerpt from page 62 of JF Royle's "An Essay on the Antiquity of Hindoo Medicine Including an Introductory lecture to the Course of Materia Medica and Therapeutics delivered at the King's College"

Dr Vedam also states that the library of Alexandria played a major role in transmitting texts from the East to the West. It has been well chronicled that the library administrators went to any extent ("buy, borrow or steal") to get the "most original, most authoritative copies."[28] The *Materia Medica* compiled by Greek physician Dioscorides during 50 to 70CE, which was used for 16 centuries in Europe, contains a large number of Indian herbs.[29] Another data point offered by Dr Vedam is the fleeing of Nestorians to Persia to escape the persecution of the Christian Church and from there to Kerala in the fifth century, that served to transmit Indian medical knowledge back to Syria.

The fifth Abbasid Caliph Haroun Al Rashid had an Indian physician Manka in his court, who translated ancient India's indispensable medical text – the *Sushruta Samhita* into Persian. The imprint of Indian scholars on Islamic sciences, not just medicine has been well-acknowledged by the Islamic scholars such as Alberuni themselves. Indian scholars were often invited to Baghdad. The works of Muslim intellectuals such as Al Kindi, Al Farabi, Al Farghani, Al Tabari and Al Khwarizmi played a paramount role in transferring Indic knowledge of mathematics, medicine,

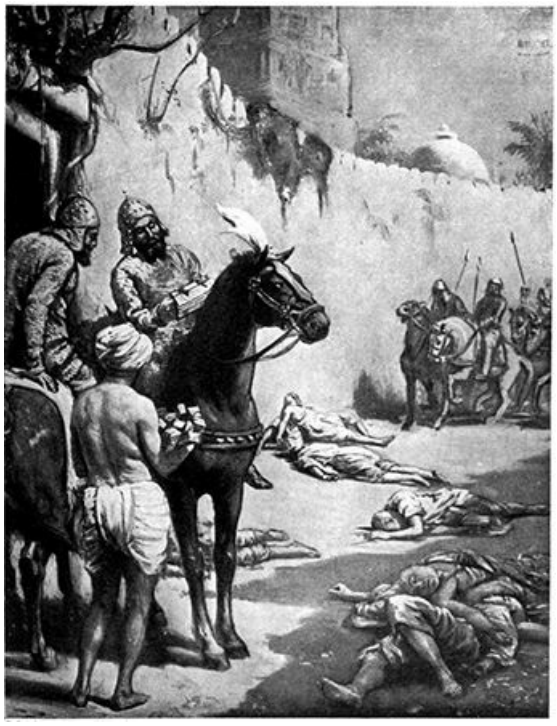
astronomy, philosophy, chemistry and even music to the Islamic world.[30] While the Islamic scholars often credited their knowledge to Indic sources, the European scholars often plagiarised from Arabic texts without references. The Renaissance was propelled by the works of Arabic scholars, which were passed off as original works by Europeans.[31]

In the 12th and 13th centuries, the Toledo School of Translators in Spain employed many scholars to translate major Arabic works into Latin.[32] These translators produced a prolific output and helped to transfer a substantial amount of ancient Indian knowledge to Europe. The transfers continued with even greater intensity during the colonial period from the 14th century onwards when the contents of hundreds and hundreds of Indian books made their way into monographs and books in Europe. A catalogue of the Indian books and manuscripts that were translated into European languages during this period would itself form a bulky book! A case in point is the *Bibliotheca Malabarica*, a catalogue of over 100 Tamil manuscripts collected by the missionary Bartholomäus Ziegenbalg during his first two years in India (1706–1708).

Garcia D'Orta, Portuguese traveller to India wrote a detailed treatise "Colóquios dos simples e drogas da India" on the medicinal plants of India in 1563.

Photo courtesy Martins Correia.

Deathly Blow to Learning



Picture captioned “The end of Buddhist Monks, A.D. 1193” in Hutchinson’s Story of the Nations (Pg 169) shows Bakhtyar Khilji trying to make sense of the manuscripts that fell into his hands, Wikimedia Commons.

Imagine a group of horsemen riding into the campus of a world-famous university, mowing down students and professors until their bodies lie scattered everywhere. Imagine the same scene repeated at other universities, one after the other. And imagine all this in a time when there were no computers, no digital storage devices, no clouds to save the knowledge accumulated over generations. Mindless violence unleashed on the foremost universities of the time - Nalanda, Vikramshila and Odantapuri by Mohammad Bakhtyar Khilji and his men sent shock waves through Indic lands in the 13th century. The sacredness associated with institutions and persons of learning was violated in a manner never seen in India before.

The attack was chronicled by Minhaj-i-Siraj, principal historian of the Delhi Sultans in *Tabaqat-i-Nasiri*, who described the slaughter of thousands of “Brahmins” with shaven heads.

“There were a great number of books there; and, when all these books came under the observation of the Musalmans, they summoned a number of Hindus that they might give them information respecting the import of those books; but the whole of the Hindus had been killed.”(1)

It is ironic that Bakhtyar Khilji hailed from a tribe in what is known as Afghanistan today, which practised Buddhism for centuries before being overrun by Ghaznavids and converting to Islam. In subsequent years, as Muslim rule spread and consolidated in different parts of India, many more universities were destroyed, such as Jagaddala, Somapura, Valabhi, Kashmir and others. As the news spread, scholars abandoned their colleges even before the Muslim invaders appeared. In Banaras, one of India’s ancient centres of education, when several hundreds of

temples were destroyed by Qutubuddin Aibak in the 12th century, many learned Brahmins who taught there fled to southern India along with their families.(1) Some of the scholars who escaped from Vikramshila and other universities, such as Sakya Sribhadra and Vibhutichandra made their way to Tibet, another hub of higher learning.(2) Records maintained by Buddhist monks at Tibet give accounts of the destruction of Indian universities. Translations of Sanskrit texts preserved in Tibet help to give some idea of the books that were found in the libraries of the great Indian universities.(33)

Quwwat-ul-Islam Masjid in Delhi built from pieces of 27 Hindu and Jain temples destroyed during the reign of Qutubuddin Aibak in the 13th century.

Photo courtesy: Erik Törner

Had the rulers of India learned lessons from the earlier destruction of libraries in Alexandria, Cordoba, Persia and Ghazni (many of which contained texts that originated in India itself), and put their differences aside, perhaps India would boast of the world's longest running universities today. More importantly, India would have retained its link with ancient works in Sanskrit, especially the ones on science and medicine. The destruction of key centres of higher education in India including temples and the persecution of Hindus, Buddhists and other followers of Dharmic faiths during the centuries of Muslim domination affected the progress of Sanskrit scholarship considerably. The writing of new smritis and their revisions suffered a setback.

Ruins of Martand Sun Temple located in Jammu and Kashmir. The temple was destroyed on the orders of Muslim ruler Sikandar Butshikan during his brutal jehad against Hindus, which resulted in the Islamization of the valley.

Courtesy Sanjeev Nayyar www.esamskriti.com

Historian A.L Srivastava has described the "325 years of Turko-Afghan rule" as a period of great suffering for Hindus, which were clearly not conducive to education, especially female education.

Not only were they deprived of their position as rulers, ministers, governors and commanders of troops, but were also treated contemptuously. The Turkish Sultans and their principal followers sought their brides from well-to-do Hindu families and compelled the proud chiefs to part with their daughters. In accordance with the Muslim law, the Hindu girls were first deprived of their religion, converted to Islam, and then married.(34)

The accounts of Brahmins fleeing to different parts of India to escape Muslim persecution are too many to be missed. Despite attempts by scholars to regroup in distant locations, and even to rebuild some of the destroyed universities, the old glory of Indic educational institutions could not be restored. The absence of science education that was noted by British chroniclers in a later era can be linked to the Muslim invasions of India. Sanskrit works of scientists and mathematicians of earlier periods began to be forgotten in their land of origin, even as their Arabic and Latin translations as well as plagiarised versions became the basis of science, mathematics and technology in Europe (See Part 2 of this article series).

EMPHASIS ON ISLAMIC EDUCATION

Madrasa built by Mahmud Gawan in Bidar, Karnataka.

Photo: Syed Suhaib Mustafa, Wikimedia Commons

As the various Muslim dynasties got entrenched within India, education with the aim of imparting Islamic teachings became the norm. Maktabs and madrasas attached to mosques began to impart training in Islamic traditions. Says M.A. Khan in "Islamic Jihad: A Legacy of Forced Conversion, Imperialism and Slavery":

Muslim rulers in India built only Islamic schools, namely muktabs and madrasas, often linked to mosques, solely for training Muslim students in their religion and other crafts for administrative and military duty, useful for the Muslim state. Learning Arabic and Persian language and memorizing the Quran, prophetic tradition and Islamic laws were the major subjects of study. Limited training was also given in agriculture, accountancy, astrology, astronomy, history, geography and mathematics, needed for running the state.

Muslim education was patronised by rulers from the Mamluk, Tughlaq and Lodhi dynasty as well as the Mughals and Bahmani Sultans. Delhi became one of the most important centres of Islamic learning.(34) Other towns such as Jalandhar, Agra, Firozabad and provincial capitals also began to teach literature, philosophy and various humanities. The Islamic schools that used Persian as a medium of instruction were out of bounds for Hindu students. The lack of state support for education for Hindus led to a drastic decline in their higher education even though primary schools in villages continued to function wherever unjust taxation had not crippled finances completely. Many Hindus converted to Islam and learned Persian as a way of gaining respectable positions and to avoid the Jaziya tax imposed on non-Muslims. This was also a time when caste stratification became more rigid amongst Hindus in order to retain identities and preserve traditions.

KEEPING SANSKRIT AND REGIONAL LANGUAGES ALIVE

Rich businessmen, Hindu Rajas and local communities kept the flame of learning alight for Hindus.(35) During the reign of Mughal emperor Akbar (16th century), Sanskrit received some amount of royal patronage since the ruler was interested in harmonising relationships between his Muslim and Hindu subjects. The first Sanskrit-Persian dictionary was compiled during Akbar's reign.(36) Many works were produced in Sanskrit, Hindi-Urdu and regional languages such as Bengali and Marathi. It was the age of Tulsidas and Rahim. Akbar was keen for students to not solely restrict themselves to theology and classical literature. In *Ain-i-Akbari*, which chronicles the reign of Akbar, it is stated:

Everybody ought to read books on morals, arithmetic, the notation peculiar to arithmetic, agriculture, mensuration, geometry, astronomy, physiognomy (the art of discerning character from the features of the face), household matters, the rules of government, medicine, logic, Tabiyi (natural science), Riyazi (higher mathematics) and Ilahi (metaphysics and theology), and history; all of which may be gradually acquired.

In studying Sanskrit, students ought to learn the Vyakarana, Nyaya, Vedanta and Patanjali. No one should be allowed to neglect these things which the present time requires."(35)

Akbar also encouraged the opening up of Madrasas for Hindu children so that Hindus and Muslims could study side by side. He introduced the study of Sanskrit in many madrasas. His imperial library in Agra housed as many as 24,000 manuscripts. The books had attractive bindings and were beautifully illustrated. The king loved to listen to readings of books on a variety of subjects. Jain monks produced a number of Sanskrit works during Akbar's reign.(36)

To some extent, the encouragement of literature in Sanskrit and regional languages continued under the reign of Jahangir and Shah Jahan. Sanskrit poets such as Panditaraja Jagannatha and Kavindra Acharya Saraswati were patronized by Shah Jahan.(37) A new language emerged from the amalgamation of Persian, Arabic and Hindustani, which was similar to today's Urdu and Hindi.

Dara Shikoh in the company of holy men. This painting is ascribed to Dal Chand.
Courtesy Wikimedia Commons.

A CLIMATE OF OPPRESSION

However, Aurangzeb reversed the inclusiveness that Akbar had ushered in during his reign. An Islamic fanatic, he persecuted Hindus and built new maktabs and madrasas on the ruins of demolished temples.(38) On hearing that Brahmins at Thatta, Multan, Sindh and specially Varanasi were attracting Muslims to their discourses, he ordered all their temples and schools to be demolished.(39) He killed his elder brother Dara Shikoh, the rightful heir to the throne, who was a Sanskrit scholar himself. With the help of pandits, Dara had translated *Ramayana*, *Gita*, *Upanishads* and *Yogavasisthas* to Persian; all of which constituted blasphemous acts in the eyes of his brother.

Dara's Persian translation of *Upanishads* was translated to Latin in the beginning of the 19th century and created a renewed interest in it among learned Europeans.(40) Had Dara become the emperor instead of Aurangzeb, India's destiny could have been vastly different.

Historian Koenraad Elst has pointed out that what some call the Muslim period in Indian history, was in reality a continuous war of occupiers against resisters. He explains that in order to stop the continuous hostilities, the Muslim rulers resorted to the compromise, which the Hanifite School of Islamic law made possible. Alone among the four Islamic law schools, the school of

Hanifa gave Muslim rulers the right not to offer the “Kafirs” the sole choice between death and conversion, but to tolerate them as dhimmis or zimmis (protected ones) living under 20 humiliating conditions, and to collect the jizya (toleration tax) from them. Typically, the dhimmi status was only open to Jews and Christians (a concession that was condemned by jurists of the Hanbalite school such as lbn Taymiyyah), which explains why these communities have survived in Muslim countries while most other religions (Zoroastrianism in Iran, Buddhism in Central Asia and Christianity in Egypt and Turkey) have not.(41)

On dhimmi conditions, some of the Hindus could be found willing to collaborate, so that a more or less stable polity could be set up. Even then, the collaboration of the Rajputs with the Moghul rulers, or of the Kayasthas with the Nawab dynasty became a smooth arrangement when enlightened rulers such as Akbar (whom orthodox Muslims consider an apostate) cancelled these humiliating conditions and the jizya tax.(41)

Dr Elst has highlighted that it is because of Hanifite law that many Muslim kings considered themselves exempted from the duty to continue their genocide on Hindus (for which they were persistently reprimanded by their mullahs). Moreover, the Turkish and Afghan invaders also fought each other, so they often had to ally themselves with unbelievers against fellow Muslims. Slowly, Islamic occupation gradually lost its character of a total campaign to destroy the Pagans. Many Muslim rulers preferred to enjoy the revenue from stable and prosperous kingdoms, and were content to extract the jizya tax, and to limit their conversion effort to material incentives and support to the missionary campaigns of sufis and mullahs (in fact, for less zealous rulers, the jizya was an incentive to discourage conversions, as these would mean a loss of revenue).(41)

Also, Hindus were needed as administrators, diplomats and military commanders for Muslim Turks and Afghans. Even the fanatic Aurangzeb was forced to appoint Hindus to high positions just as Tipu Sultan was. This is also the reason behind their occasional generous acts towards Hindu institutions such as temples.(41)

NEGLECT OF SCIENCES IN THE MUGHAL REIGN

The Mughals did not build on the leading-edge concepts presented by Hindu scholars of an earlier era to become the world leader in science and mathematics. While madrasas proliferated and students became adept in the finer details of the Quran and Hadiths in Muslim India, the western world was making advances in science and technology. Of course, these advances were considerably assisted by the Toledo school translations of Arabic works that were derived from India. The Mughal kings missed the opportunity to ride the wave of technological discoveries in the west despite ruling over the richest land in the world. When Portuguese missionaries presented printed papers to Akbar, he was least interested in the potential of the printing press to transform education. His son Jahangir was similarly indifferent to a mechanical clock presented to him by the royal French delegation.(38)

“*The Mughal empire has not produced a single worthwhile text on crafts or agriculture, how many volumes of poetry or histories it might have to its credit,” writes Irfan Habib.*(42) *Apart from printing press and clocks, Mughal rulers were aware of nautical instruments, telescopes, pumps, various mechanical gadgets and wheelbarrows. Yet, these did not excite any desire for indigenous adaptation.*(43) *The marvels of Mughal architecture were achieved without the aid of wheelbarrows.*(44)

A Beautiful Tree is Damaged

Meanwhile, the Europeans who had been coming to India via the sea route from the 15th century onwards were battling amongst themselves for cornering the trade with India. The British East India Company emerged victorious after pushing the Portuguese, French and Dutch to the periphery and began spreading its tentacles within India. At first, the British did not bother themselves with education of the "natives" and focused on playing politics with different rulers and enriching themselves. Over time, they realised that "their dominion in India could not last long unless education – especially western – was diffused among the inhabitants of the land".(45)

A Mohammedan and a Sanskrit college were set up in Kolkata and Banaras respectively in the late 18th century "to provide a regular supply of qualified Hindu and Mohammedan law officers for the judicial administration."(46) The British did not have any noble motives of education of the masses when they set up institutes of learning. These were the same people who imposed serious punishment on black slaves in America and passed laws to the effect that "assemblage of negroes for the purpose of instruction in reading or writing shall be an unlawful assembly."(45)

ANGLICISTS VERSUS ORIENTALISTS AND THEIR DISDAIN FOR INDIAN KNOWLEDGE

Many of us are familiar with Macaulay's memorandum or "minute" on Indian Education, which was circulated by him prior to the passing of the English Education Act of 1835. That act gave effect to Governor-General William Bentinck's decision of reallocating of funds towards a western curriculum with English as the language of instruction.

Thomas Babington Macaulay's minute is a classic that needs to be read by every "educated" Indian.
(http://www.columbia.edu/itc/mealac/pritchett/00generallinks/macaulay/txt_minute_education_18

"We must at present do our best to form a class who may be interpreters between us and the millions whom we govern - a class of persons Indian in blood and colour, but English in tastes, in opinions, in morals and in intellect. To that class we may leave it to refine the vernacular dialects of the country, to enrich those dialects with terms of science borrowed from the Western nomenclature, and to render them by degrees fit vehicles for conveying knowledge to the great mass of the population."

Macaulay's minute and the English Education Act came after a 15-year debate between the older faction of Orientalists and the later Anglicists. The Orientalists argued that government funds should be used to support colleges for the teaching of Arabic and Sanskrit, to pay stipends to the students at these colleges, and to translate works into Arabic and Sanskrit. The Anglicists on the other hand, advocated that these government funds should be spent on teaching English, with no stipends or translations at all.(47)

Most Orientalists and Anglicists had one thing in common – their belief in the "*innate inferiority of the Indian culture*" and the need to educate the elites.(47) They only differed on how best to "*improve*" the minds of Indians, how to "correct" their beliefs and make them more useful as subjects of the British Empire.

Orientalists such as John Tytler believed in gradual reform via teaching in Arabic and Sanskrit so that the British could understand Indian culture and then prove it wrong. This method would lead to Indians themselves "correcting their countrymen."[47]

Charles Trevelyan, brother-in-law of Macaulay and an avowed Anglicist, said before the Select Committee of the House of Lords on the Government of Indian Territories that both "Hindoos and Mahomedans" regarded the British as "usurping foreigners" who had "taken the country from them" and excluded them from "the avenues to wealth and distinction." He argued that European learning "would give an entirely new turn to the native mind." The natives would cease to "strive after independence in the native model" and would not regard the British as "enemies and usurpers" but as "friends and patrons, and powerful beneficent persons."[45]

Trevelyan's arguments against Sanskrit and Arabic as a means of instruction sound Kautilyan in strategy. Arabic literature would keep reminding Muslims that the British were "*infidel usurpers*" while Sanskrit texts would inform Hindus that their foreign rulers were "*unclean beasts*." He pointed out that already in the army, there was a clear distinction between the English officers and the native sepoys. Not "*one native out of 500*" educated in Arabic in a seminary would be interested in enlisting in the army. Therefore, it was important to educate "*sepoys*" in English at the elementary level.[46] For the elites, English literature would do the trick. Familiarly acquainted with literature, the Indian youth would speak of great Englishmen with the "*same enthusiasm*" as the British themselves. They would reject the teachings of Brahmin priests. "*The natives will not rise against us because we shall stoop to raise them*," he explained. Also, he noted that those educated in English would "*cling*" to British rule because they would have everything to fear from a native government, which could mark them out for persecution. This last surmise of Trevelyan's was clearly wrong, as the subsequent freedom movement of India proved.

Many Anglicists emphasised on the convenience attached to having English-speaking natives. Given that a large number of British officers were constantly being deputed in India, it was troublesome for them to understand the various languages and dialects of the natives. Also, it was a costly and time-consuming affair to translate various English books into native languages. In other words, the interests of the people of the land became subservient to convenience.

In addition to the Anglicists, there were the Vernacularists who rejected Sanskrit and Persian in favour of regional languages. They championed the teaching of European knowledge in "vernacular" languages. The term "vernacular" itself has a derogatory meaning in the sense of being a language that is less cultured or refined.

CHRISTIAN EVANGELISM AS A DRIVER OF EDUCATION

It must be noted that spreading Christianity was a desirable goal for most Anglicists, Orientalists as well as Vernacularists. Dr Alexander Duff, an Anglicist who opened a popular school in Calcutta was against "heathen" institutions. Macaulay himself wrote in a letter to his father, *"No Hindoo who has received an English education ever remains sincerely attached to his religion."* He expressed his "firm belief" that if his plans of education were followed up, "*there will not be a single idolator amongst the respectable classes in Bengal thirty years hence."*[45]

J.C.Marshman who made a sincere plea for retaining "Bengalee" as a medium of instruction gave the example of Serampore missionaries whose "labours" in "civilisation and evangelisation

of the province of Bengal" had led to the establishing of 40 printing presses in a few decades and selling of 30,000 books in just one year.[45]

Many Christian missionaries learned regional languages such as Tamil and Kannada, published dictionaries in them and translated the Bible for evangelization activities. They appropriated several aspects of Hinduism into Christianity in order to make it more palatable to the locals and wean them away from traditional Sanatana Dharma.

English language struck roots in the land as the English Education Act began to take effect and the missionary schools that mushroomed across the country made English the "first language."

MANY INDIANS WERE ANGLICISTS

An important argument made by Anglicists in favour of standardising English-medium education was that the Indian natives themselves were eager to learn English. "*A taste for English has been widely disseminated*," said Trevelyan. He happily noted that a "loud call" arose from the natives themselves to be instructed in English. Schools teaching in English were extremely popular and English books were selling far more rapidly than books in Sanskrit and Arabic.[46] This is not surprising, since a good knowledge of English opened opportunities for government jobs all over the country. Besides, the vacuum in science and disconnect with Sanskrit works on science and mathematics caused by the Muslim rule made many Indians feel backward in comparison with the Europeans.

Raja Rammohan Roy is one of the most notable Indian Anglicists who petitioned for the teaching of the "arts and sciences of modern Europe" and argued against establishing a new Sanskrit college in Calcutta in his letter to Lord Amherst. "*The Sanskrit language, so difficult that almost a lifetime is necessary for its acquisition, is well known to have been for ages a lamentable check on the diffusion of knowledge; and the learning concealed under this almost impervious veil is far from sufficient to reward the labour of acquiring it*," he wrote. A new Sanskrit college which taught the same things that were taught "*two thousand years ago*" would not help since "*no improvement can be expected from inducing young men to consume a dozen of years of the most valuable period of their lives in acquiring the niceties of Byakaran or Sanskrit grammar*," he felt. Roy believed that giving allowances to the teachers engaged in teaching Sanskrit in different parts of India would be enough to keep the language alive and no new Sanskrit colleges were necessary. He was instrumental in the establishment of the Hindoo College in 1817 for imparting secular and scientific education, which later came to be known as the famous Presidency College of Kolkata. The alumni of the institute include outstanding personalities such as Bankim Chandra Chatterjee, Satyendranath Bose and Meghnad Saha.

DHARAMPAL'S REVELATIONS OF ASTOUNDING DATA ON INDIA'S POPULAR SCHOOLING SYSTEM

When India was embroiled in the education debate, England was itself languishing in illiteracy. A minuscule fraction of the children in England went to school, and the only book most literate people had read was the Bible. In the 1960s, Dharampal, a Gandhian thinker came across archival material of extreme significance in London. He discovered documents related to a series of surveys commissioned by the British government in the 19th century to assess the level of indigenous education in India. This set him on the path of pioneering research, which brought up

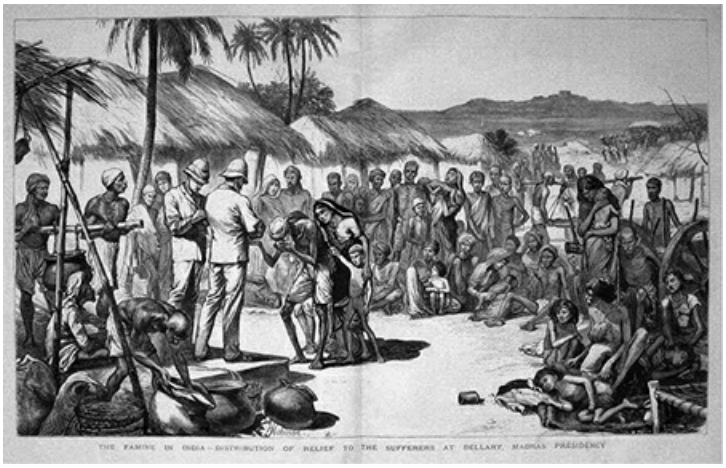
startling data. He discovered Thomas Munro's statement that almost every village in India had a pathshala (school). There were 100,000 village schools reported in Bengal and Bihar alone in the 1830s. Reading, writing, arithmetic, epics and more were being taught. William Adams, one of the surveyors has written that he could not recollect studying in his village school in Scotland anything that had more "direct bearing" upon daily life than what was taught in the "humbler village schools of Bengal."

From different parts of India came reports of dedicated teachers, superior methods of teaching and high school attendance. But what simply challenged every stereotype was that in a large number of schools, "Soodras" were in majority while the Brahmins and "Vysees" were in minority. In Tamil-speaking areas, the Shudras ranged from 70% in Salem and Tinnevelly to over 84% in South Arcot. In Malayalam-speaking Malabar, Brahmin students constituted only 20% of schools while Shudras were 54% and Muslims were 27%. The same trend was reported in Kannada-speaking Bellary and Oriya-speaking Ganjam. Only in the Telegu-speaking districts, the dwija castes formed the majority of students. Some collectors who furnished data spoke about poor Brahmins who taught children with no expectation of compensation. Girls were mostly home-schooled. However, in the Malabar district as well as "Jeypoor Zamindari of Vizagapatam district," the percentage of girls was close to 30%, a very high number.

It must be remembered that schooling was not the only way of transmitting basic education. Artisans, craftsmen and agriculturalists taught their skills to apprentices via a separate system of education.

A.D. Campbell, the collector for Bellary applauded the "economical" teaching methods in Indian schools and the system of "more advanced scholars" teaching the "less advanced" thereby confirming their own knowledge. He mentioned that this method "well deserved the imitation it had received in England." He was referring to the "Madras Method" of teaching, which was introduced by Reverend Andrew Bell in England. Dr Bell had been impressed by little children in Madras writing with their fingers on sand, which "*after the fashion of such schools had been strewn before them for that purpose*." He saw a system of children learning from peers. After Dr Bell published his paper on Madras Method, he was in great demand to introduce this in British schools. By 1821, 300,000 children were reportedly being educated under Dr Bell's principles and his ideas were adopted in Europe, West Indies and even Bogota, Colombia.[48]

THE BEAUTIFUL ECOSYSTEM IS UPROOTED



Distribution of famine relief in Madras Presidency.
Illustrated London News (May 26, 1877), Public Domain.

As the British rule progressed in India, villages got increasingly impoverished. For example, when the British with the Nawab of Arcot attacked Thanjavur in 1771 and imposed taxes as high as 59% of gross produce, they created mass poverty overnight! The entire British administrative apparatus was geared towards fleecing the citizens and even the designations of officers such as "District Collectors" indicated that the only aim of the government was to collect taxes. One collector of Bellary was so moved by the plight of the people that he wrote a letter to the authorities that the degeneration of education was attributable to the "*transfer of capital of the country from the native government…to the Europeans, restricting it by law from employing it even temporarily in India and daily draining it from the land*." Further he wrote, "*The means of the manufacturing classes have been greatly diminished by the introduction of our own European manufactures*." Even temples were not spared and were forced to part with most of the donations they received, thereby falling into disrepair, a practice, which state governments in India are still continuing.

The British educational policies also sounded the death knell for regional languages as the rush for English-medium education intensified. With every subject being taught in English and mother-tongues being relegated to "second language" the quality of literature in regional languages began sinking. Illiteracy and low self-confidence began to be associated with absence of English proficiency. M.K.Gandhi said in 1931 that the British had left India more illiterate than it was a hundred years ago. Today, India has the largest number of illiterate in the world.

Disturbingly, India's self-gaze is still through alien eyes. The past heritage lies buried in regional and Sanskrit literature, awaiting illumination. When India became independent from the British in 1947, there was a fresh opportunity to write a new chapter of decolonisation.

India is still waiting.

A few institutions such as Maharshi Ramana Ashrama in Tamil Nadu are attempting to revive classical forms of learning.
Courtesy Sanjeev Nayyar www.esamskriti.com

Epilogue

India has had a long, indigenous historical tradition right from Valmiki to Ved Vyasa to Kalhana and further onwards. Unfortunately, India's *itihaasa* has been cast aside and treated as mythology by modern historians, which does great injustice to those wise and insightful chroniclers of time.

It is said that those who forget history are doomed to repeat it. But, what about those who did not forget but are forced to internalise a false narrative of history because the authorities believe the truth is too difficult to digest?

Dr S.L Bhyrappa, one of India's fearless novelists has recounted his discomfort with the cover-up of many of India's historical events such as the demolition of Hindu temples by Muslim rulers. As the member of a committee established under the Indira Gandhi government to revise school textbooks during 1969-1970, he was told by the Chairman that it was important to weed out all historical references which could go against the spirit of national integration.

Dr Bhyrappa pointed out in an article that lakhs of pilgrims from all corners of the country visit Kashi and Mathura every year. "They can see for themselves the huge mosques built using the walls, pillars and columns that once belonged to demolished temples," he argued.

"They can also see a recently built cowshed like shack in a corner, behind the mosque, that serves as their temple. All these pilgrims are distressed to witness such awful structures. They describe the plight of their temples to their relatives after they return home. Can this create national integration? You can hide such history in the school texts. But can we hide such facts when these children go on excursions and see the truth for themselves? Researchers have listed more than thirty thousand such ruined temples in India. Can we hide them all?"[49]

When the chairman of the committee said the truth could hurt the feelings of the minority and divide society, Dr Bhyrappa said it was wrong to categorise society into majority and minority, which was divisive in itself. Also why should the minority think of Ghazni Mohammed and Aurangzeb as their own people and heroes?

"Whether they are minority or majority, if the education does not impart the character to face the truth with emotional maturity, such education is meaningless and also dangerous," said Dr Bhyrappa.[49]

Predictably, he was removed from the committee and thus began the saga of school textbooks perpetuating historical distortions and whitewashing of tyrants such as Aurangzeb and Tipu Sultan, which is continuing to this day.

Contrast this with the Holocaust that is taught in schools in Germany. The children not only learn about the Holocaust, they also visit synagogues and concentration camps where the chilling details are preserved carefully. The children are encouraged to be adults who accept their Nazi history, to know the undesirable results of dictatorship and persecution, and to forge a harmonious future.

In fact, the Germans even have a term *Vergangenheitsbewältigung* to mean public debate within a country on a problematic period of its recent history— which refers to traumatic events that raise sensitive questions of collective culpability.

Admittedly, it is hard to find a single country where children grow up with a good knowledge of their history. In America, the children are taught that Native Americans mostly died of disease, in Germany, the children do not know about their "caste system" of the 17th century and in China, the excesses of Mao are glossed over. In Islamic countries, there is no informed discussion of their pagan past.

But India is the only country in the world whose national motto is *Satyameva Jayate* or "Truth Alone Triumphs." While other countries have held liberty, equality, trust in God and love for Allah as their motto, only India has held truth as its highest ideal.

A closer look at the *Mundaka Upanishad* mantra from where the motto has been picked should inspire a future generation of leaders to stop the wilful distortion of history.

सत्यमेव जयते नानृतं सत्येन पन्था विततो देवयानः।
येनाक्रमन्त्यृषयो ह्याप्तकामा यत्र तत् सत्यस्य परमं निधानम्॥

Satyameva jayate nānṛtaṁ
satyena panthā vitato devayānaḥ
yenākramantyṛṣayo hyāptakāmā
yatra tat satyasya paramaṁ nidhānam

Truth alone triumphs; not falsehood.
The divine path is laid out with truth
by which sages whose desires have been completely fulfilled,
reach where that supreme treasure of Truth resides.(50)

It is time to face the truth about our past so that we can move on.

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