

"India is the world's most ancient civilization. Nowhere on earth can you find such a rich and multi-layered tradition that has remained unbroken and largely unchanged for at least five thousand years. Bowing low before the onslaught of armies, and elements, India has survived every invasion, every natural disaster, every mortal disease and epidemic, the double helix of her genetic code transmitting its unmistakable imprint down five millennia to no less than a billion modern bearers. Indians have demonstrated greater cultural stamina than any other people on earth. The essential basis of Indian culture is Religion in the widest and most general sense of the world. An intuitive conviction that the Divine is immanent in everything permeated every phase of life" says Stanley Wolpert.

Indic civilization has enriched every art and science known to man. Thanks to India, we reckon from zero to ten with misnamed "Arabic" numerals (Hindsaa - in Arabic means from India), and use a decimal system without which our modern computer age would hardly have been possible.

Science and philosophy were both highly developed disciplines in ancient India. However, because Indian philosophic thought was considerably more mature and found particular favor amongst intellectuals, the traditions persists that any early scientific contribution came solely from the West, Greece in particular. Because of this erroneous belief, which is perpetuated by a wide variety of scholars, it is necessary to briefly examine the history of Indian scientific thought. From the very earliest times, India had made its contribution to the texture of Western thought and living. Michael Edwardes author of British India, writes that throughout the literatures of Europe, tales of Indian origin can be discovered. European mathematics - and, through them, the full range of European technical achievement - could hardly have existed without Indian numerals. But until the beginning of European colonization in Asia, India's contribution was usually filtered through other cultures.

"Many of the advances in the sciences that we consider today to have been made in Europe were in fact made in India centuries ago." - Grant Duff British Historian of India. Dr. Vincent Smith has remarked, "India suffers today, in the estimation of the world, more through the world's ignorance of the achievements of the heroes of Indian history than through the absence or insignificance of such achievement."



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## Medical Science

The science of medicine, like other sciences, was carried to a very high degree of perfection by the ancient Hindus. Their great power of observation, generalization and analysis, combined with patient labor in a country of boundless resources, whose fertility for herbs and plants is most remarkable, place them in an exceptionally favorable position to prosecute their study of this great science.

**Lord Ampthill**, British Governor, (February 1905) said at Madras: "Now we are beginning to find out that the Hindu Sashtras also contain a Sanitary Code no less correct in principle, and that the great law-giver, Manu, was one of the greatest sanitary reformers the world has ever seen!"

**Sir William Jones** (1746-1794) came to India as a judge of the Supreme Court at Calcutta. He said with prophetic warning " Infinite advantage may be derived by Europeans from the various medical books in Sanskrit, which contain the names and descriptions of Indian plants and minerals, with their uses, discovered by experience, in curing disorders."

(source: [Eminent Orientalists: Indian European American](#) - Asian Educational Services. p.21).

**Horace Hyman Wilson** (1786-1860) says: "The Ancients attained a thoroughly a proficiency in medicine and surgery as any people whose acquaintance are recorded. This might be expected, because their patient attention and natural shrewdness would render them excellent observers, whilst the extent and fertility of their native country would furnish them with many valuable drugs and medicaments. Their diagnosis is said, in consequence, to define and distinguish symptoms with accuracy, and their *Materia Medica* is most voluminous."

(source: [Wilson's Works](#), Volume III, p. 269.)

**Albrecht Weber** (1825-1901) writes: "The number of medicinal works and authors is extraordinarily large."

(source: [Indian Literature - Albrecht Weber](#) p. 269).

Medicine appears to have been the oldest Indian science, its roots going back to Yoga practices, which stress a holistic approach to health, based primarily on proper diet and exercise. Ancient Indian texts on physiology, identified three body "humours" wind, gall, and mucus - with which are associated the sattva, (true or good), rajas (strong), and tamas, (dark or evil) "strands" of behavior, as primary causal factors in determining good or ill health. Ayurveda focused on longevity, honey and garlic were often prescribed. A wide variety of herbs were listed in ancient India's pharmacopoeia. Some of these medicinal herbs or plant oil have been indeed proved to be cures for specific diseases. Oil from the bark of chaulmugra trees remains the most effective treatment for leprosy. India's oldest medical texts were far superior to most subsequent works in the field.



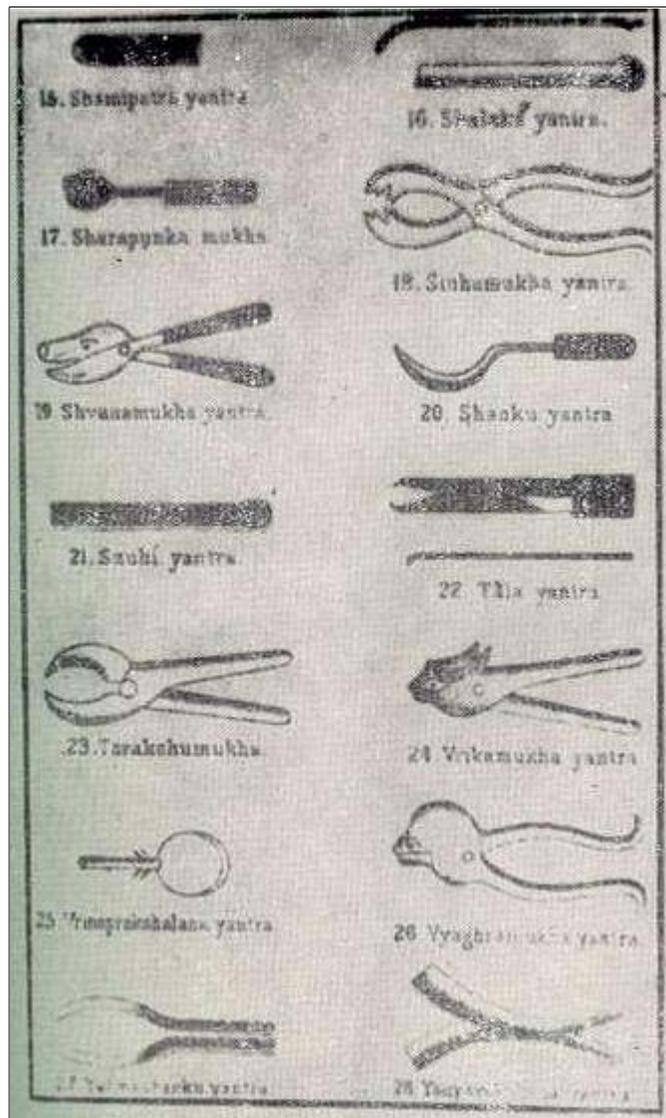
Anatomy and physiology, like some aspects of chemistry, were by-products of medicine. As far back as the sixth century B.C. Indian physicians described ligaments, sutures, lymphatics, nerve plexus, fascia, adipose and vascular tissues, mucous and synovial membranes, and many more muscles than any modern cadaver is able to show. They understood remarkably well the process of digestion - the different functions of the gastric juices, the conversion of chyme, into chyle, and of this into blood.

**Anticipating Weismann by 2400 years Atreya** (ca 500 B.C.)

**held that the parental seed is independent of the parent's body, and contains in itself, in miniature, the whole parental organism.** Examination for virility was recommended as a prerequisite for marriage in men; and the Code of Manu warned against marrying mates affected with tuberculosis, epilepsy, leprosy, chronic dyspepsia, piles, or loquacity. Birth control in the latest theological fashion was suggested by the Indian medical schools of 500 B.C. in the theory that during the twelve days of the menstrual cycle impregnation is impossible. Foetal development was described with considerable accuracy; it was noted that the sex of the foetus remains for a time undetermined, and it was claimed that in some cases the sex of the embryo could be influenced by food or drugs.

The records of Indian medicine begin with the **Arthava-veda**; here embedded in incantation, is a list of diseases with their symptoms. Appended to the Atharva-veda is the **Ayur-Veda** ("The Science of Longevity"). In this oldest system of Indian medicine illness is attributed to disorder in one of the four humors (air, water phlegm and blood), and treatment is recommended with herbs. Many of its diagnoses and cures are still used in India, with a success that is sometimes the envy of Western physicians. The Rig-Veda names over a thousand such herbs, and advocates water as the best cure for most diseases. Even in Vedic times, physicians and surgeons lived in houses surrounded by gardens in which they cultivated medicinal plants.

The great name in Indian medicine are those of **Sushruta** in the fifth century B.C. and **Charaka** in the second century A.D. Sushruta professor of medicine at the University of Benares, wrote down in Sanskrit a system of diagnosis and therapy whose elements had descended to him from his teacher **Dhanwantari**. His book dealt at length with surgery, obstetrics, diet, bathing, drugs, infant feeding and hygiene, and medical education. Charaka composed a **Samhita** (or encyclopedia) of medicine, which is still used in India, and gave to his followers an almost Hippocratic conception of their calling: "**Not for self, not for the fulfilment of any earthly desire of gain, but solely for the good of suffering humanity should you treat your patients, and so excel all.**" Only less illustrious than these are **Vaghata** (625 A.D.), who prepared a medical compendium in prose and verse, and **Bhava Misra** (1550 A.D), whose voluminous work on anatomy, physiology and medicine mentioned, a hundred years before Harvey, the circulation of blood, and prescribed mercury for that novel disease, syphilis, which had recently been brought in by the Portuguese as part of Europe's heritage to India."



*Medical Instruments of the Hindu Scriptures - Susruta (1000 B.C.E) enumerates 125 sharp and blunt instruments*

*Surgical instruments - Courtesy: Institute of History and Medicine - Hydrebad, India.*

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Sushruta described many surgical operations - cataract, hernia, lithotomy, Caesarian section, etc - and 121 surgical instruments, including lancets, sounds forceps, catheters, and rectal and vaginal speculums. Despite Brahmanical prohibitions he advocated the dissection of dead bodies as indispensable in the training of surgeons. He was the first to graft upon a torn ear portions of skin taken from another part of the body; and from him and his Indian successors rhinoplasty- the surgical reconstruction of the nose-descended into modern medicine. **"The ancient Hindus," says F. H. Garrison, "performed almost every major operation except ligation of the arteries." Limbs were amputated, abdominal sections were performed, fractures were set, hemorrhoids and fistulas were removed.**

(source: [History of Medicine - By F. H. Garrison](#) Philadelphia., 1929 and [The Story of civilizations: Our Oriental Heritage - By Will Durant](#) ISBN: 1567310125 1937 p.531).

**Mrs. Charlotte Manning** says: **"The surgical instruments of the Hindus were sufficiently sharp, indeed, as to be capable of dividing a hair longitudinally."** "Greek physicians have done much to preserve and diffuse the medicinal science of India. We find, for instance, that the Greek physician, Actuarius, celebrates the Hindu medicine, called triphala. He mentions the peculiar products of India, of which it is composed, by their Sanskrit name, Myrobalans."

(source: [Ancient and Medieval India](#) Volume II. p. 346).

**Sushruta laid down elaborate rules for preparing an operation, and his suggestion that the wound be sterilized by fumigation is one of the earliest known efforts at antiseptic surgery.** Both Sushruta and Charaka mention the use of medicinal liquors to produce insensibility to pain. In 927 A.D. two surgeons trepanned the skull of a king, and made him insensitive to the operation by administering a drug called **Samohini**. For the detection of the 1120 diseases he enumerated, Sushruta recommended diagnosis by inspection, palpation, and auscultation. Taking of the pulse was described in a treatise dating 1300 A.D. Urinalysis was a favorite method of diagnosis.

In the time of **Yuan Chwang** Indian medical treatment began with a seven-day fast; in this interval the patient often recovered; if the illness continued drugs were at last employed. Even then drugs were used very sparingly; reliance was placed largely upon diet, baths, inhalations, urethral, and vaginal injections. Indian physicians were especially skilled in concocting antidotes for poison.

**William Ward** (1769-1823) notes:

**"Inoculation for the small pox seems to have been known among the Hindoos from time immemorial."** The method of introducing the virus is made by incision just above the wrist, in the right arm of the male, and the left of the female. At the time of inoculation, and during the progress of the disease, the parents daily employ a brahmin to worship Sheetula, the goddess who presides over the disease."

(source: [A View of the History, Literature, and Mythology of the Hindoos - By William Ward](#) volume I I p 339 London 1822).

**Vaccination**, unknown to Europe before the eighteenth century, was known in India as early as 550 A.D. if we may judge from a text attributed to **Dhanwantari**, one of the earliest Hindu physicians. **"Take the fluid of the pock on the udder of the cow...upon the point of a lancer, and lance with it the arms between the shoulders and elbows until the blood appears; then, mixing the fluid with the blood, the fever of the small-pox will be produced."**

Modern European physicians believe that caste separateness was prescribed because of the Brahmin belief in invisible agents transmitting disease; many of the laws of sanitation enjoined by Sushruta and "Manu" seem to take for granted what we moderns, who love new words for old things, call the germ theory of disease. Hypnotism as therapy seems to have originated among Indians, who often took their sick to the temples to be cured by hypnotic suggestion. **The Englishmen who introduced hypnotherapy into England-Braid Esdaile and Elliotson- "undoubtedly got their ideas, and some of their experience, from contact with India."**

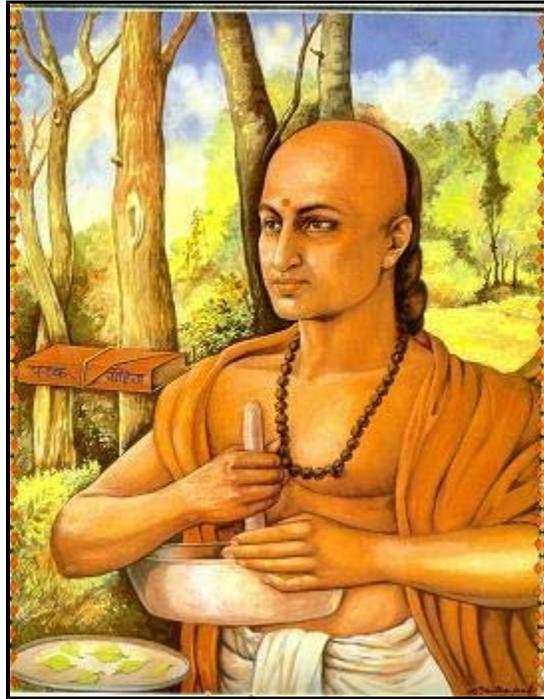
(source: [The Story of civilizations: Our Oriental Heritage - By Will Durant](#) 1937 p.531)

**Susruta calls surgery, "the first and best of medical sciences."** He insisted that those who intend to practice it must have actual experimental knowledge of the subject. He says: "No accurate account of any part of the body, including even its skin, can be rendered without a knowledge of anatomy, hence anyone who wishes to acquire a thorough knowledge of anatomy must prepare a dead body, and carefully examine all its parts." For preliminary training, students were taught how to handle their instruments by operating on pumpkins or cucumbers, and they were made to practice on pieces of cloth or skin in order to learn how to sew up wounds. Major operations, as described by Susruta, included amputations, grafting, setting of fractures, removal of a foetus and operation on the bladder for removal of gallstones. The operating room, he declares should be disinfected with cleansing vapors. He describes 127 different instruments used for such purposes as cutting, inoculations, puncturing, probing and sounding. **Cutting instruments, Susruta maintains, should be of "bright handsome polished metal, and sharp enough to divide a hair lengthwise."**

(source: [The Pageant of India's History - By Gertrude Emerson Sen](#) p. 66 - 68).

"The specific diseases whose names occur in Panini's grammar indicates that medical studies had made great progress before his time (350 B.C.). The chapter on the human body in the earliest Sanskrit dictionary, the Amara-kosha presupposes a systematic cultivation of the science. The works of the great

traditional Indian physicians, Charaka, and **Susruta**, were translated into Arabic not later than the 8th century. The chief seat of the science was at Benares. The name of **Charaka** repeatedly occurs in the Latin translations of Avicenna (Ibn Sina), Rhazes (Al Rasi), and Serapion (Ibn Serabi).



*Charaka*

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Indian medicine dealt with the whole area of the science. It described the structure of the body, its organs, ligaments, muscles, vessels, and tissues. The materia medica of the Hindus embraces a vast collection of drugs belonging to the mineral, vegetable, and animal kingdom, many of which have been adopted by the European physicians. Their pharmacy contained ingenious processes of preparation, with elaborate directions for the administration and classification of medicines. Much attention was devoted to hygiene, to the regimen of the body, and to diet.

The surgery of the ancient Indian physicians appears to have been bold and skilful. They conducted amputations, arresting the bleeding by pressure, a cup-shaped bandage, and boiling oil. They practiced lithotomy; performed operations in the abdomen and uterus; cured hernia, fistula, piles; set broken bones and dislocations; and were dexterous in the extraction of foreign substances from the body. A special branch of surgery was devoted to rhinoplasty, or operations for improving deformed ears and noses, and forming new ones. They devoted great care to the making of surgical instruments, and to the training of students by means of operations performed on wax spread out on a board, or on the tissues and cells of the vegetable kingdom, and upon dead animals. Considerable advances were also made in veterinary science, and monographs exist on the diseases of horses and elephants. "

(source: [The Indian Empire - By Sir William Wilson Hunter](#) p.148-150).

Ancient India possessed advanced medical knowledge. Her doctors knew about metabolism, the circulatory system, genetics, and the nervous system as well as the transmission of specific characteristics by heredity. Vedic physicians understood medical ways to counteract the effects of poison gas, performed Caesarean sections and brain operations, and used anesthetics.

**Sushruta (5<sup>th</sup> century BC) listed the diagnosis of 1,120 diseases. He described 121 surgical instruments and was the first to experiment in plastic surgery.**

(source: [We Are Not The First – By Andrew Tomas](#) - A Bantam Book 1971 New York p. 15 - 49).

The most remarkable part of **Charaka's** work is his classification of remedies drawn from vegetable, mineral and animal sources. Over two thousand vegetable preparations, derived from the roots, bark, flowers, fruits, seeds or sap of plants and trees, are described by Charaka, who also gives the correct time of year for gathering these materials and the method of preparing and administering them. **Charaka sounds surprisingly modern. He devotes a good deal of attention to children's diseases, and discusses proper feeding and hours of sleep. He stresses the care of the teeth and the necessity of cleaning them.** The universal custom among Hindus of using a medicinal stick to clean the teeth and of rinsing the mouth thoroughly after every meal is so firmly established that it must go back to very ancient times. Diagnosis in Charaka's time was primarily based on careful study of the pulse, and that Charaka had a good idea of blood circulation is apparent from this passage in his treatise: "From that great center (the heart) emanate the vessels carrying blood into all part of the body - the element which nourishes the life of all animals and without which it would be extinct."

Charaka's treatise was based on the teaching of **Atreya**, whose date has been assigned to the sixth century B.C. Previous to Atreya, Ayurveda, "the science of life" was one of the recognized Vedic studies. High ethical standards which should be maintained by medical profession were also stressed by Charaka. He says: "Not for money nor for any earthly objects should one treat his patients. In this the physician's work excels all vocations. Those who sell treatment as a merchandise neglect the true measure of gold in search of mere dust."

(source: [The Pageant of India's History - By Gertrude Emerson Sen](#) p. 66 - 67).

**Horace Hayman Wilson** (1786-1860) Eminent Orientalist, observed:

"That in medicine, or the astronomy and metaphysics, the Hindus have kept pace with the most enlightened nations of the world: and that they attained as thorough a proficiency in medicine and surgery as any people whose acquisitions are recorded." He says further: "It would easily be supposed that their patient attention and national shrewdness would render the Hindus excellent observers."

(source: [Eminent Orientalists: Indian European American](#) - Asian Educational Services. p. 77).



The great picture of Indian medicine is one of rapid development in the Vedic and Buddhist period, followed by centuries of slow and cautious improvement. In the time of Alexander, says **Garrison**, "Hindu physicians and surgeons enjoyed a well-deserved reputation for superior knowledge and skill," and even Aristotle is believed by some students to have been indebted to them. So too with the Persians and Arabs.

**We find Persians and Arabs translating into their languages, in the eighth century A.D., the thousand-year-old compendia of Sushruta and Charaka. The great Caliph Haroun-al-Rashid accepted the preeminence of Indian medicine and scholarship, and imported Indian physicians to organize hospitals and medical schools in Baghdad.**

**Lord Amphill** concludes that medieval and modern Europe owes its system of medicine directly to the Arabs, and through them to India.

(source: [The Story of civilizations: Our Oriental Heritage - By Will Durant](#) ISBN: 1567310125 1937 p.531).

**Dorothea Chaplin** mentions in her book, [Matter, myth and Spirit or Keltic and Hindu Links](#) (pp 168-9), "Long before the year 460 B.C., in which Hippocrates, the father of European medicine was born, the Hindus had built an extensive pharmacopoeia and had elaborate treatises on a variety of medical and surgical subjects....The Hindus' wonderful knowledge on a variety of medicine has for some considerable time led them away from surgical methods as working destruction on the nervous system, which their scientific medical system is able to obliterate, producing a cure even without preliminary crisis."

(source: [Proof of Vedic Culture's Global Existence - By Stephen Knapp](#). World Relief Network ISBN: 0961741066 p 31).

The practice of medicine, like all other sciences, was regulated by a code of social ethics. A physician (vaidya) was to be devoted to the service of the sick. Charaka's advice to his students contained the gist of the professional ethics:

"If you want success in your practice, wealth and fame, and heaven after your death, you must pray every day on rising and going to bed for the welfare of all beings and you must strive with all your soul for the health of the sick. You must not betray your patients, even at the cost of your own life. You must not get drunk, or commit evil, or have evil companions. You must be pleasant, of speech and thoughtful, always striving to improve your knowledge."

Free hospitals were maintained by the kings and merchants. Nursing and attending the sick was considered to be one of the highest service to dharma.

(source: [Ancient Indian History and Culture - By Chidambara Kulkarni](#) p. 273).

### Ancient Hospitals

The Hindus were the first nation to establish hospitals, and for centuries they were the only people in the world who maintained them. The Chinese traveler, **Fa-hien**, speaking of a hospital he visited in Pataliputra says: "Hither come all poor and helpless patients suffering from all kinds of infirmities. They are well taken care of, and a doctor attends them; food and medicine being supplied according to their wants. Thus they are made quite comfortable, and when they are well, they may go away."

"The earliest hospital in Europe," says historian Vincent A. Smith, "is said to have been opened in the tenth century."

(source: [Early History of India - By Vincent Smith](#) p. 259).

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### Smallpox inoculation started in India before the West

Smallpox inoculation is an ancient Indian tradition and was practiced in India before the West.

In ancient times in India smallpox was prevented through the **tikah** (inoculation). **Kurt Pollak** (1968) writes, "preventive inoculation against the smallpox, which was practiced in China from the 11th century, apparently came from India". This inoculation process was generally practiced in large part of Northern and Southern India, but around 1803-04 the British government banned this process. Its banning, undoubtedly, was done in the name of 'humanity', and justified by the Superintendent General of Vaccine (manufactured by Dr. E. Jenner from the cow for use in the inoculation against smallpox).

**Dharmapal** has quoted British sources to prove that inoculation in India was practiced before the British did. In the seventeenth century, smallpox inoculation (*tikah*) was practiced in India. A particular sect of Brahmins employed a sharp iron needle to carry out these practices. In 1731, Coult was in Bengal and he observed it and wrote (*Operation of inoculation of the smallpox as performed in Bengall* from Re. Coult to **Dr. Oliver Coult** in 'An account of the diseases of Bengall' Calcutta, dated February 10, 1731):

"The operation of inoculation called by the natives **tikah** has been known in the kingdom of Bengall as near as I can learn, about 150 years and according to the Bhamanian records was first performed by one Dununtary, a physician of Champanagar, a small town by the side of the Ganges about half way to Cossimbazar whose memory in now holden in great esteem as being through the another of this operation, which secret, say they, he had immediately of God in a dream."

English physician Jenner is credited with discovering vaccination on a scientific basis with his studies on small pox in 1796. **A group of Fellows of the Royal Society had earlier studied the method of inoculating people in India and submitted its report in the 1760s.** Dr J. Z. Holwell, one of the members who was in the Bengal Province for more than ten years to study the Indian vaccination method, lectured at the London Royal College of Physicians in 1767 "that nearly the same salutary method, now so happily pursued in England,... **has the sanction of remotest antiquity (in India),** illustrating the propriety of present practice".



**Dr. J. Z. Holwell** writes the most detailed account for the college of Physicians in London in 1767 ([An account of the manner of inoculating for the smallpox in the East Indies, by J. Z. Holwell, F.R.S.](#) addressed to the President and Members of the College of Physicians in London). He wrote:

"Inoculation is performed in Indostan by a particular tribe of Bramins, who are delegated annually for this service from the different Colleges of Bindoobund, Eleabas, Benares, & c. over all the distant provinces: dividing themselves into small parties, of three or four each, they plan their traveling circuits in such wise as to arrive at the places of the operation consists only in abstaining for a month from fish, milk, and ghee (a kind of butter made generally of buffalo's milk). When the Bramins begin to inoculate, they pass from house to house and operate at the door, refusing to inoculate any who have not, on a strict scrutiny, duly observed the preparatory course enjoined them. It is no uncommon thing for them to ask the parents how many pocks they choose their children should have."

(source: [An account of the manner of inoculating for the smallpox in the East Indies - by J. Z. Holwell M.D., F.R.S.](#)).

On the efficacy of this practice Holwell has the following to say:

"When the before recited treatment of the inoculated is strictly followed, it is next to a miracle to hear, that one in a million fails of receiving the infection, or of one that miscarries under it.. Since, therefore, this practice of the East has been followed without variation, and with uniform success from the remotest unknown times, it is but justice to conclude, it must have been originally founded on the basis of rational principle and experiment."

Holwell's detailed account, not only describes inoculation, but also shows that the Indians knew that microbes caused such diseases.

(source: [Indian Science And Technology in the Eighteenth Century; some contemporary European accounts - By Dharampal](#) 1971. An Account of the manner of inoculating for the Smallpox in the East Indies. Mapusa, Goa: Other India Press. Chapter VIII p. 142 -164. [The Healers, the Doctor, then and now](#) - By [Pollack, Kurt](#) 1968.English Edition. p. 37-8.).

Also refer to [Indian Institute of Science - Prevention of Small Pox in ancient India](#)).

The [Sactya Grantham](#) - ancient Brahman medical text ~ 3,500 years old describing brain surgery and anaesthetics, contains the following passages giving instructions on **small pox vaccination**:

"Take on the tip of a knife the contents of the inflammation, inject it into the arm of the man, mixing it with his blood. A fever will follow but the malady will pass very easily and will create no complications." Edward Jenner (1749-1823) is credited with the discovery of vaccination but it appears that ancient India has prior claim!"

(source: [We Are Not The First – By Andrew Tomas](#) - A Bantam Book 1971 New York p. 15 - 49). and <http://www.habtheory.com/1/habrefs.php>).

**The Brahmins had a theory of their operations. They believed the atmosphere abounded with imperceptible animalculae (refined to bacteria within a larger context today). They distinguished tow types of these: those that are harmful and those not so.** The Brahmins therefore believed that their treatment in inoculating the person expelled the immediate cause of the disease. How effective was the inoculation? According to **Dr. J. Z. Holwell, FRS**, who had addressed the College of Physicians in London:

"When the before recited treatment of the inoculation is strictly followed, it is next to a miracle to hear, that one in a million fails to receiving the infection, or of one that miscarries under it."

A later estimate by the Superintendent General of Vaccine in 1804 noted that fatalities among the inoculated counted one in 200 among the Indian population and one in 60 to 70 among the Europeans. There is an explanation for this divergence. **Most of the Europeans objected to the inoculation on theological grounds.**



Small pox has a long history in India; it is discussed in the Hindu scriptures and even has a **goddess (Sitala, literally "the cool one")** devoted exclusively to its cause. It seems therefore almost natural to expect an Indian medical response to the disease. The inoculation treatment against it was carried out by a particular caste of Brahmins from the different medical colleges in the area. These Brahmins circulated in the villages in groups of three or four to perform their task.

The person to be inoculated was obliged to follow a certain dietary regime; he had particularly to abstain from fish, milk, and ghee, which, it was held, aggravated the fever that resulted after the treatment. The method the Brahmins followed is similar to the one followed in our own time in certain aspects. They punctured the space between the elbow and the wrist with a sharp instrument and then proceeded to introduce into the abrasion "various matter" prepared from inoculated pustules from the preceding year. The purpose was to induce the disease itself, albeit in a mild form; after it left the body, the person was rendered immune to small-pox for life.

The Brahmins had a theory of their operations. They believed the atmosphere abounded with imperceptible animalculae. They distinguished two types of these: those harmful and those not so. The universality of this practices ceased to obtain with the arrival of the British. Like many specialists in India, including teachers, the Brahmin doctors had been maintained through public revenues. With British rule, this fiscal system was disrupted and the inoculators left to fend for themselves.

Two of the more important medical arts of India – plastic surgery and inoculations against small pox. Both were **indigenously evolved** and the accounts we have, come from Westerners sent out to study them. One of these curious facts was the inoculation against small pox disease, practiced in both north and south India till **it was banned or disrupted by the English authorities in 1802-3**. The ban was pronounced on "humanitarian" grounds by the Superintendent General of Vaccine.

(source: [Homo Faber: Technology and Culture in India, China and the West 1500-1972 - By Claude Alvares](#) p. 65-67 and [Decolonizing History: Technology and Culture in India, China and the West 1492 to the Present Day - By Claude Alvares](#) p.66-67).

European colonists from the sixteenth century onwards, gained knowledge of plants, diseases and surgical techniques that were unknown in the West. One such example is rauwolfia serpentina, a plant used in traditional Indian medicine. The active ingredient is today used to treat hypertension and anxiety in the West.

**Sir Mountstuart Elphinstone** has written: "Their use of these medicines seems to have been very bold. They were the first nation who employed minerals internally, and they not only gave mercury in that manner but arsenic and arsenious acid, which were remedies in intermittents. They have long used cinnabar for fumigations, by which they produced a speedy and safe salivation. **They have long practiced inoculation.**"

"They cut for the stone, couched for the cataract, and extracted the fetus from the womb, and in their early works enumerate not less than 127 sorts of surgical instruments!" "Their acquaintance with medicines seems to have been very extensive. We are not surprised at their knowledge of simples, in which they gave early lessons to Europe, and more recently taught us the benefit of smoking dhatura in asthma and the use of cowitch against worms."

(source: [History of India - Mountstuart Elphinstone](#) London: John Murray Date of Publication: 1849 p. 145).

**The Englishman** (a Calcutta Daily), in a lead story in 1880, said: "No one can read the rules contained in great Sanskrit medical works without coming the conclusion that in point of knowledge, the ancient Hindus were in this respect very far in advance not only to the Greek and Romans but also to Medieval Europe."

(source: [Sanskrit Civilization - By G. R. Josyer](#) p. 28).

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## Ayurveda or the Veda of Longevity

Ayurveda is a 3,000- to 5,000-year-old holistic healthcare system, which looks at the individual, addresses diet, lifestyle and spirit, and strives for balance in each person. **It focuses on prevention**, and sees, many illnesses not as a collection of symptoms but as imbalances within the body, mind or spirit that, once balance is restored, eats disease at its root.

**"The science of Medicine was cultivated early in India and modern researches have disclosed the fact that the Materia Medica of the Greeks, even of Hippocrates the "Father of Medicine," is based on the older Materia Medica of the Hindus....** Charaka's work is divided into eight books, describing various diseases and their treatment; and Susruta's work has six parts, and specially treats of surgery and operations which are considered difficult even in modern times. Various chemical processes were known to the Hindus. Oxides, sulphates, and sulphurets of various metals were prepared, and metallic substances were administered internally in India long before the Arabs borrowed the practice from them, and introduced it in Europe in the Middle Ages."

(source: [The Civilization of India - By Romesh C. Dutt](#) p. 64).

A tree resin used in **Indian medicine for 2,000 years** as a folk remedy for a variety of ailments works to lower cholesterol in lab animals, and in a new way that might lead to the development of improved drugs for people, U.S. researchers report. The tree is known in India as **guggul**, or the myrrh shrub. It's been used there since at least 600 BC to battle obesity and arthritis, among other ailments.

(source: [Ancient remedy could lead to alternative to today's drugs](#) - msnbc.com).

"Indian medicine's influence on Portugal was fairly wide. You had echoes of Indian or ayurvedic practices that come into Portuguese usage. Tamarind, for example, is a plant widely used in ayurveda. It is applied in Portuguese hospitals. It is used as a cooling agent, in combination with other medicinal plants to help the absorption of those plants and it is used in a poultice, placed on the skin.

(source: [West has always benefited from Indian medicine](#)).

"Hindu literature on anatomy and physiology as well as eugenics and embryology has been voluminous. The Hindus knew the exact osteology of the human body 2,000 years before Vesalius (c. 1545) and had some rough ideas of the circulation of blood long before Harvey (1628). the internal administration of mercury, iron and other powerful metallic drugs were practiced by the Hindu physicians at least 1,000 years before Paracelsus (1540). And they have written extensive treatises on these subjects."

(source: [Creative India - By Benoy Kumar Sarkar](#) published Motilal Banarsi Dass, Lahore 1937. p. 5).

Ayurveda is a traditional healing system of India, with origins firmly rooted in the culture of the Indian subcontinent. **Some 5000 years ago, the great rishis, or seers of ancient India, observed the fundamentals of life and organized them into a system. Ayurveda was their gift to us**, an oral tradition passed down from generation to generation. Ayurvedic teachings were recorded as sutras, succinct poetical verses in Sanskrit, containing the essence of a topic and acting as aides-memoire for the students. Sanskrit, the ancient language of India, reflects the philosophy behind Ayurveda and the depth within it. Sanskrit has a wealth of words for aspects within and beyond consciousness.

A few treatises on Ayurveda date from around 1000 B.C. The best known is Charaka Samhita, which concentrates on internal medicine. Many of today's Ayurvedic physicians use Astanga Hrdayam, a more concise compilation written over 1000 years ago from the earlier texts.

(source: [The Book of Ayurveda: A Holistic Approach to Health and Longevity - By Judith H. Morrison](#) p. 15 -20)

## Veterinary science in Ancient India



Since animals were regarded as a part of the same cosmos as humans, it is not surprising that animal life was keenly protected and veterinary medicine was a distinct branch of science with its own hospitals and scholars. Numerous texts, especially of the postclassical period, **Visnudharmottara**



**Mahapurana** for example, mention veterinary medicine. Megasthenes refers to the kind of treatment which was later to be incorporated in Palakapyamuni's **Hastya yur Veda** and similar treatises. **Salihotra** was the most eminent authority on horse breeding and hippiatry. **Juadudatta** gives a detailed account of the medical treatment of cows in his **Asva-Vaidyaka**.

(source: [India and World Civilization - By D. P. Singhal](#) Pan Macmillan Limited. 1993. p.187-188).

According to **Stanley Wolpert**, " Veterinary science had developed into an Indian medical specialty by that early era, and India's monarchs seem to have supported special hospitals for their horses as well as their elephants. Hindu faith in the sacrosanctity of animals as well as human souls, and belief in the partial divinity of cows and elephants helps explain perhaps what seems to be far better care lavished on such animals... A uniquely specialized branch of Indian medicine was called **Hastyaurveda** ("The Science of Prolonging Elephant Life").

(source: [An Introduction to India - By Stanley Wolpert](#) p. 193-194).

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### **Astronomy**

The science of astronomy flourishes only amongst a civilized people. Hence, considerable advancement in it is itself proof of the high civilization of a nation. Hindu astronomy has received the homage of numerous European scholars.

**Sir William Hunter** (1840-1900) says "**The Astronomy of the Hindus has formed the subject of excessive admiration.**"

"Proof of very extraordinary proficiency," says **Lord Elphinstone**, "in their astronomical writings are found."

(source: [Hindu Superiority - By Har Bilas Sarada](#) p. 332 - 348).

**William Robertson** wrote: "**It is highly probable that the knowledge of the twelve signs of zodiacs was derived from India.**"

(source: [An Historical Disquisition Concerning the Knowledge which the Ancients had of India - By William Robertson](#) p. 280).

India has left a universal legacy determining for instance the dates of solstices, as noted by 18th century French astronomer **Jean-Claude Bailly** (1736–93) 18th century French astronomer and politician. His works on astronomy and on the history of science (notably the **Essai sur la théorie des satellites de Jupiter** and **History of Astronomy**) were distinguished both for scientific interest and literary elegance and earned him membership in the French Academy, the Academy of Sciences, and the Academy of Inscriptions. Bailly, who was guillotined during the French Revolution, maintained that the Brahmins of India had been tutors of the Greeks and, through them, of Europe.



**Jean-Claude Bailly** said:

" The motion of the stars calculated by the Hindus before some 4500 years vary not even a single minute from the tables of Cassine and Meyer (used in the 19-th century). The Indian tables give the same annual variation of the moon as the discovered by Tycho Brahe - a variation unknown to the school of Alexandria and also to the Arabs who followed the calculations of the school... "The Hindu systems of astronomy are by far the oldest and that from which the Egyptians, Greek, Romans and - even the Jews derived from the Hindus their knowledge."

(source: [The Politics of History - By N. S. Rajaram](#) Voice of India ISBN

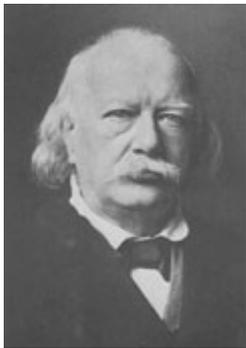
The paper of **John Playfair** (1748-1819) (FRS and Professor of Mathematics at the University of Edinburgh) is a detailed review (published in 1790) of the book 'Traite de l'astronomie Indienne et Orientale,' by J. S. Bailly (Paris 1787), the famous French historian of astronomy. Taken as if by surprise by Bailly's rather positive evaluation of the origin, antiquity and achievements of Indian astronomy, Playfair states that: "I entered on the study of that work, not without a portion of skepticism....The result was, an entire conviction of the accuracy of the one, and of the solidity of the other.' Both Bailly's book and Playfair's article examine in detail some of the astronomical tables (based on Indian astronomy) that the French had procured from Siam (Thailand), Playfair's main conclusions are the following:

1. The observations on which the astronomy of India is founded, were made more than three thousand years before the Christian era; and in particular, the places of the sun and the moon, at the beginning of the Kali-yoga/Calyougham (i.e., 17/18 February 3102 B.C.), were determined by actual observation.
2. Though the astronomy which is now in the hands of the Brahmins, is so ancient in its origin, yet it contains many rules and tables that are of later construction.
3. The basis of the four systems of astronomical tables which we have examined, is evidently the same.
4. The construction of these tables implies a great knowledge of geometry, arithmetic, and even of the theoretical part of astronomy.

Playfair argues that 'communication is more likely to have gone from India to Greece, than in the opposite direction."

(source: [India Through The Ages: History, Art Culture and Religion - By G. Kuppuram](#) p.671-672).

Hindu astronomy received considerable homage from European scholars. **Sir William Hunter** (1840-1900) says: "The astronomy of the Hindus has formed the subject of excessive admiration." "In some points the Brahmins made advances beyond Greek astronomy. Their fame spread throughout the West, and found entrance into the Chronicon Paschale (commenced about 330 A.D. and revised under Heraclius 610-641). "The Sanskrit term for the apex of a planet's orbit seems to have passed into the Latin translations of the Arabic astronomers. The Sanskrit **uccha** became the aux (genaugis) of the later translators." "The Arabs became their (Hindus) discipline in the 8th century, and translated Sanskrit treatises, Siddhanats, under the name Sindhends."



**Albrecht Weber** (1825-1901) says:

"The fame of Hindu astronomers spread to the West, and the Andubarius (or probably, Ardubarius), whom the Chronicon Paschale places in primeval times as the earliest Indian astronomer, is doubtless none other than Aryabhata, the rival of Pulisa, and who is likewise extolled by the Arabs under the name of Arjabahar."

(source: [Indian Literature - By Albrecht Weber](#) ISBN: 1410203344 p. 255).

Research scholars like **Sylvain Bailley** (1736-1793) and **Charles Francois Dupuis** (1742-1809) aver that the **Hindu Zodiac is the earliest known to man and that the first calendar was made in India in about B.C. 12,000.**

(Refer to Bailley's [Histoire de Astonomie Ancienne](#) p. 483 as well as the Proceedings of the Society of Biblical Archaeology - December 1901 part I).

The **Hon. Emmeline M. Plunket** (1835- ) in the great work [Ancient Calendars and Constellations](#) p. 192 - says that there were very advanced Hindu Astronomers in B.C. 6,000.

(source: [Hinduism: That Is Sanatana Dharma - By R. S. Nathan](#) p. 38 published by Central Chinmaya Mission Trust. Bombay).

**Horace Hyman Wilson** (1786-1860) wrote: "The science of astronomy at present exhibits many proofs of accurate observation and deduction, highly creditable to the science of the Hindu astronomers. The

division of the ecliptic into lunar mansions, the solar zodiac, the mean motions of the planets, the procession of the equinox, the earth's self-support in space, the diurnal revolution of the earth on its axis, the revolution of the moon on her axis, her distance from the earth, the dimensions of the orbits of the planet, the calculations of eclipses are parts of a system which could not have been found amongst an unenlightened people."

But the originality of the Hindus is not less striking than their proficiency. Wilson says: "The originality of Hindu astronomy is at once established, but it is also proved by intrinsic evidence, and although there are some remarkable coincidences between the Hindu and other systems, their methods are their own."

(source: [History of British India - by James Mill](#) Volume II p, 106-107).

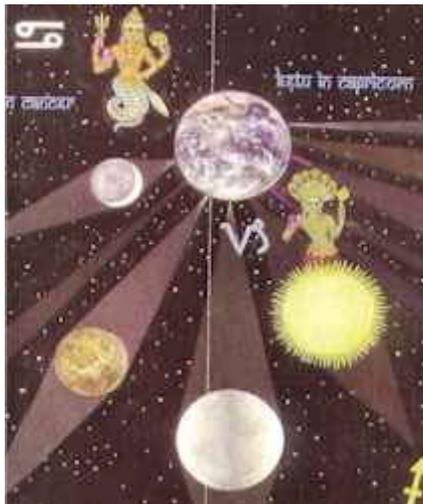
**Mountstuart Elphinstone** wrote: "Proofs of very extraordinary proficiency in their astronomical writings are found."

The Hindu astronomy not only establishes the high proficiency of our ancestors in this department of knowledge and exacts admiration and applause: it does something more. It proves the great antiquity of the Sanskrit literature and the high literary culture of the Hindus. "**Monsieur Bailly**, the celebrated author of the History of Astronomy, inferred from certain astronomical tables of the Hindus, not only advanced progress of the science, but a date so ancient as to be entirely inconsistent with the chronology of the Hebrew scriptures. His argument was labored with the utmost diligence and was received with unbounded applause. All concurred at the time with the wonderful learning, wonderful civilization and wonderful institutions of the Hindus!"

(source: [History of British India - By James Mill](#) Volume II. p. 97-98).

**Albrecht Weber** (1825-1901) says: "Astronomy was practiced in India as early as 2780 B.C." "The fame of Hindu astronomers spread to the West, and the Andubarius (or probably, Ardubarius), whom the Chronicon Paschale places in primeval times as the earliest Indian astronomer, is doubtless none other than Aryabhatta, the rival of Pulisa, and who is likewise extolled, by the Arabs under the name of Arjabahar."

(source: [Indian Literature - By Albrecht Weber](#) p. 30-255).



But some of the greatest modern astronomers have decided in favor of a much greater antiquity. Cassini, Bailly, Gentil and Playfair maintain "that there are Hindu observations extant which must have been made more than three thousand years before Christ, and which evince **even then a very high degree of astronomical science.**"

**Count Magnus Fredrik Ferdinand Bjornstjerna** 1779-1847) proves conclusively that Hindu astronomy was very far advanced even at the beginning of the Kaliyug, or the iron age of the Hindus (about 5,000 years ago). He says: "According to the astronomical calculations of the Hindus, the present period of the world, Kaliyug, commenced 3,102 years before the birth of Christ, on the 20th of February, at 2 hours 27 minutes and 30 seconds, the time being thus calculated of the planets that took place, and their tables show this conjunction. Bailly states that Jupiter and Mercury were then in the same degree of the ecliptic, Mars at a distance of only eight,

and Saturn of seven degrees; whence it follows, that at the point of time given by the Brahmans as the commencement of Kaliyug, the four planets above-mentioned must have been successively concealed by the rays of the sun (first Saturn, then Mars, afterwards Jupiter and lastly Mercury)....The calculation of the Brahmans is so exactly confirmed by or own astronomical tables, that nothing but an actual observation could have given so correspondent a result."

The learned Count continues: "He (**Bailly**) further informs us that Laubere, who was sent by **Louis XIV** as ambassador to the King of Siam, brought home, in the year 1687, astronomical tables of solar eclipses and that other similar tables were sent to Europe by Patouillet (a missionary in the Carnatic - India), and by Gentil, which later were obtained from the Brahmans in Tirvalore, and that they all perfectly agree in

their calculations although received from different persons, at different times, and from places in India remote from each other. On these tables Bailly, makes the following observation. The motion calculated by the Brahmins during the long space of 4,385 years (the period eclipsed between these calculations and Bailly's), varies not a single minute from the tables of Cassini and Meyer; and as the tables brought to Europe by Laubere in 1687, under Louis XIV, are older than those of Cassini and Meyer, the accordance between them must be the result of mutual and exact astronomical observations." Then again, "Indian tables give the same annual variation of the moon as that discovered by Tycho Brahe, a variation unknown to the school of Alexandria, and also to the Arabs, who followed the calculation of this school."

"These facts," says the erudite Count, "sufficiently show the great antiquity and distinguished station of astronomical science among the Hindus of past ages." The Count then asks "if it be true that the Hindus more than 3,000 BC., according to Bailly's calculation, had attained so high a degree of astronomical and geometrical learning, how many centuries earlier must the commencement of their culture have been, since the human mind advances only step by step on the path of science."

The length of the Hindu tropical year as deduced from the Hindu tables is 365 days, 5 hours, 50 minutes, 35 seconds, while La Callie's observation given 365-5-48-49. This makes the year at the time of the Hindu observation longer than at present by 1'46". It is however, an established fact that the year has been decreasing in duration from time immemorial and shall continue to decrease.

(source: [The Theogony of the Hindoos with their systems of Philosophy and Cosmogony - By Count Bjornstjerna](#) p. 32).



**Paul G Johnson** has observed in his book, *God and World Religions*:

"In 600 B.C.E. the writer of Genesis perceived Earth to be the motionless centerpiece of creation, and above its flat surface were two great lights – the Sun and the Moon. **Fourteen centuries before, the Hindu scripture – The Rig Veda – had a more accurate picture. Not only did the Sun, Moon, and Earth revolve in orbits, but “the Earth in its orbit revolves around the Sun.”** (8:2).

(source: [God and World Religions - By Paul G Johnson](#) p. 3 ).

"In India, we see the beginning of theoretical speculation of the size and nature of the earth. Some one thousand years before Aristotle, the **Vedic Aryans** asserted that the earth was round and circled the sun. A translation of the **Rig Veda** goes: " In the prescribed daily prayers to the Sun we find..the Sun is at the center of the solar system. ..The student ask, "What is the nature of the entity that holds the Earth? The teacher answers, "**Rishi Vatsa holds the view that the Earth is held in space by the Sun.**"

"Two thousand years **before Pythagoras, philosophers** in northern India had understood that gravitation held the solar system together, and that therefore the sun, the most massive object, had to be at its center." "Twenty-four centuries before Isaac Newton, the Hindu **Rig-Veda** asserted that **gravitation held the universe together**. The Sanskrit speaking Aryans subscribed to the idea of a spherical earth in an era when the Greeks believed in a flat one. The Indians of the fifth century A.D. calculated the age of the earth as 4.3 billion years; scientists in 19th century England were convinced it was 100 million years."

(source: [Lost Discoveries: The Ancient Roots of Modern Science - By Dick Teresi](#) p. 1 - 8 and 159 and 174 -239). For more on Dick Teresi refer to chapters [Quotes301 320](#), [GlimpsesVI](#) and [GlimpsesVII](#) ).



Historian **A. L. (Arthur Llewellyn) Basham** wrote:

"The procession of the equinoxes was known, and calculated with some accuracy by medieval astronomers, as were the lengths of the year, the lunar month, and other astronomical constants. These calculations were reliable for most practical purposes, and in many cases more accurate than those of the Greco-Roman world. Eclipses were forecast with accuracy and their true cause understood."



These were achieved without the help of a telescope. Accurate measurement was made possible by the decimal system of numerals, invented by the Indians.

It is certain that the Vedic Indians knew something of astronomy and that it had a high utilitarian value for them as it did for all peoples of antiquity. The Vedic priests had to make careful calculations of times for their rituals and sacrifices, and also had to determine the time of sowing and harvest. Moreover, astronomical periods played an important role in Vedic thought for they were considered to be successive parts of the ever returning cosmic cycle.

The Rig Veda lists a number of stars and mentions twelve divisions of the sun's yearly path (rashis) and also 360 divisions of the circle. Thus, the year of 360 days is divided into twelve months. The sun's annual course was described as a wheel with twelve spokes, which correspond to the twelve signs of the zodiac.

The theory of the great cycles of the universe and the ages of the world is of older origin than either Greek or Babylonian speculations about the "great year," the period within which all the stars make a round number of complete revolutions. But there is remarkably close numerical concordance in these theories. The Indian concept of the great year (mahayuga) developed from the idea of a lunisolar period of five years, combined with the four ages of the world (yugas) which were thought to be of unequal perfection and duration, succeeding one another and lasting in the ration of 4:3:2:1.

The last, the **Kaliyuga**, was one-tenth of the mahayuga or 432,000 years. This figure was calculated not only from rough estimates of planetary and stellar cycles, but also from the 10,800 stanzas of the Rig Veda, consisting of 432,000 syllables. The classical astronomers calculated the great period as one of 4,320,000 years, the basic element of which was a number of sidereal solar years, 1,080,000 a multiple of 10,800. According to Berossus, the Babylonian great year was a period of 432,000 years, comprising 120 "saroi" of 3,600 years apiece.

The Rig Veda talks about the annual motion of the earth. The diurnal motion is described in the Yajur Veda. The Aiteriya Brahmana explains that "the sun neither sets nor rises, that when the earth, owing to the rotation on its axis is lighted up, it is called day" and so on.

(source: [Haug's Aitreya Brahmana](#) Volume II. p. 242).

The Indian astronomer, **Aryabhata** lived in during the period in which the **Surya Siddhanta** was composed. He was born in 476 and reputedly completed his famous work, **Aryabhatiya**, at the age of twenty-three. A concise and brilliant work of astronomy and mathematics.

The Aryabhatiya introduced certain new concepts, like Aryabhata's new epicyclic theory, **the sphericity of the earth, its rotation on its axis and revolution around the sun**, the true explanation of eclipses and methods of forecasting them with accuracy, and the correct length of the year were his outstanding contributions. The Arabs preserved the theory of sphericity of earth, and Pierre d'Ailly employed it in 1410 in his map, which was used by Columbus.

As regards the stars being stationary, **Aryabhata** says:

"The starry vault is fixed. It is the earth which, moving round its axis, again and again causes the rising and setting of planets and stars." He starts the question: "Why do the stars seem to move? and himself replies: "As a person in a vessel, while moving forwards sees an immovable object moving backwards, in the same manner do the stars, however immovable, seem to move daily."

The Polar days and nights of six months are also described by him. **T. E. Colebrooke** says: "Aryabhata affirmed the diurnal revolutions of the earth on its axis. He possessed the true theory of the causes of solar and lunar eclipses and disregarded the imaginary dark planets of mythologists, affirming the moon and primary planets to be essentially dark and only illuminated by the sun."

(source: [T. E. Colebrooke's Essays](#), Appendix G. p. 467). For more refer to [Surya Siddhanta](#).

As regards to the size of the earth, it is said: "The circumference of the earth is 4,967 yojanas and its

diameter is 1,581 1/24 yojanas. A yojanas is equal to five English miles, the circumference of the earth would therefore be 24, 835 miles, and its diameter 7, 905 5/24 miles.



The Yajur Veda says that the earth is kept in space owing to the superior attraction of the sun. The theory of gravity is thus described in the **Siddhanta Shiromani** centuries before Newton was born:

"The earth, owing to its force of gravity, draws all things towards itself, and so they seem to fall towards the earth." etc..

As regards to the solar and lunar eclipses it is said: "When the earth in its rotation come between the sun and the moon, and the shadow of the earth falls on the moon, the phenomenon is called lunar eclipse, and when the moon comes between the sun and earth the sun seems as if it was being cut off - this is solar eclipse.

The following is taken from **Varahamihira's** observations on the moon:

"One half of the moon, whose orbit lies between the sun and the earth, is always bright by the sun's rays; the other half is dark by its own shadows, like the two sides of a pot standing in the sunshine."

About the eclipses, he says: "The true explanation of the phenomenon is this: in an eclipse of the moon, he enters into the earth's shadow; in a solar eclipse the same thing happens to the sun. Hence the commencement of a lunar eclipse does not take place from the west side, nor that of the solar eclipse from the east."

(source: **Brihat Samhita** Chapter V v. 8).

**Brahmagupta who was born in 598 and worked in Ujjain, foreshadowed Newton by declaring that " all things fall to the earth by a law of nature, for it is the nature of the earth to attract and keep things".** But the law of gravitational itself was not anticipated.

Recognition of the superiority of the Vedic mathematics was also recorded as long as 662 A.D. by **Severus Sebokht, the Bishop of Qinnasrin in North Syria**. As reported in **Indian Studies in Honor of Charles Rockwell** (Harvard University Press. Cambridge, MA. Edited by W. E. Clark, 1929), **Sebokht wrote that the Indian discoveries in astronomy were more ingenious than those of the Greeks or Babylonians, and their numerical (decimal) system surpasses description.**

"I will omit all discussion of the science of the Hindus [Indians], a people not the same as Syrians, their subtle discoveries in the science of astronomy, discoveries more ingenious than those of the Greeks and the Babylonians; their valuable method of calculation [the decimal system]; their computing that surpasses description. I wish only to say that this computation is done by means of nine signs. If those who believe because they speak Greek, that they have reached the limits of science should know these things, they would be convinced that there are also others who know something."

(source: **Proof of Vedic Culture's Global Existence - By Stephen Knapp**. World Relief Network ISBN: 0961741066 p 22)

The celebrated European astronomer, **John Playfair** (1748-1819) says: "The Brahmin obtains his result with wonderful certainty and expedition in astronomy."

(source: **Playfair on the astronomy of the Hindus**. Transactions of the Royal Asiatic Society of Great Britain and Ireland. Volume II. p. 138-139).

Professor **Sir M. Williams** wrote: "It is their science of astronomy by which the (Hindus) heap billions upon millions, trillions upon billions of years, and reckoning up ages upon ages, eons upon eons, with even more audacity than modern geologists and astronomers. In short, an astronomical Hindu ventures on arithmetical conceptions quite beyond the mental dimensions of anyone who feels himself incompetent to attempt a task of measuring infinity."

**Mrs. Charlotte Manning** exclaimed: "The Hindus had the widest range of mind of which man is capable."

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### **Bramin's Observatory At Benares - By Sir Robert Barker**

Benares in the East Indies, one of the principal seminaries of the Bramins or priests of the original Gentoos of Hindostan, continues still to be the place of resort of that sect of people; and there are many public charities, hospitals, and pagodas, where some thousands of them now reside. **Having frequently heard that the ancient Brahmins had a knowledge of astronomy**, and being confirmed in this by their information of an approaching eclipse both of the Sun and Moon, I made inquiry, when at that place in the year 1772, among the principal Bramins, to endeavor to get some information relative to the manner in which they were acquainted of an approaching eclipse.

(source: [Indian Science and Technology in the 18th Century - By Dharampal](#)).

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### **Sun the center of the Solar System**

**Dick Teresi** has observed that:

"The Vedas recognized the sun as the source of light and warmth, the source of life, and center of creation, and the center of the spheres. This perception may have planted a seed, leading Indian thinkers to entertain the idea of heliocentricity long before some Greeks thought of it. An **ancient Sanskrit** couplet also contemplates the idea of multiple suns:

**"Sarva Dishanaam, Suryaham Suryaha, Surya."**

Roughly translated this means, "There are suns in all directions, the night sky being full of them," suggesting that early sky watchers may have realized that the visible stars are similar in kind to the sun. A hymn of the **Rig Veda**, the **Taittiriya Brahmana**, extols, nakshatravidya (nakshatra means stars; vidya, knowledge)."

**"Two thousand years before Pythagoras, philosophers in northern India had understood that gravitation held the solar system together, and that therefore the sun, the most massive object, had to be at its center. "**

(source: [Lost Discoveries: The Ancient Roots of Modern Science - By Dick Teresi](#) p. 1 and 130). For more refer to [Surya Siddhanta](#).

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### **Earthquakes and Meteorology**

The concept of "**earthquake clouds**", has been dealt with in detail in the 32nd chapter of **Varahamihira's Brihat Samhita**.

The greatness of philosopher, mathematician and astronomer Varahamihira (505-587 AD) is widely acknowledged. The Ujjain-born scholar was one of the Navaratnas in the court of King Vikramaditya Chandragupta II. His works, **Pancha-Siddhantika** (The Five Astronomical Canons) and Brihat Samhita (The Great Compilation), are considered seminal texts on ancient Indian astronomy and astrology.

Varahamihira was a celebrated astronomer-astrologer-mathematician sought to study earthquakes on the Indian subcontinent. He drew correlations between terrestrial earth, the atmosphere and planetary influences. He described earth as a mass floating on water and spoke of unusual cloud formations and abnormal animal behavior as precursors to earthquakes."

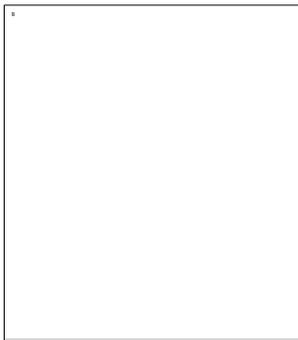
What has astonished scientists and Vedic scholars here and has renewed interest in the **Brihat Samhita**,

are references to unusual "earthquake clouds" as precursor to earthquakes. The 32nd chapter of the manuscript is devoted to signs of earthquakes and correlates earthquakes with cosmic and planetary influences, underground water and undersea activities, unusual cloud formations, and the abnormal behavior of animals. "I find it rather odd that the description of earthquake clouds in Brihat Samhita matches the observations made by Zhonghao Shaou at the Earthquake Prediction Centre in Pasadena, California," said B D Kulkarni, head of the National Chemical Laboratory's Chemical Engineering Division.

Varahamihira categorises earthquakes into different kinds and says that the indications of one particular kind will appear in the form of unusual cloud formations a week before its occurrence: "Its indications appearing a week before are the following: Huge clouds resembling blue lily, bees and collyrium in colour, rumbling pleasantly, and shining with flashes of lightning, will pour down slender lines of water resembling sharp clouds. An earthquake of this circle will kill those that are dependent on the seas and rivers; and it will lead to excessive rains."

(source: [A temblor from ancient Indian treasure trove?](#)).

### Angirasa's Tract on Meteorology



Maharishi Angirasa, whose name occurs in the Puranas frequently, is the Author of the interesting work on Cloud formation named "**Meghotpatti-Prakarna.**" This book contains detailed descriptions regarding formation of water by electric discharges during thunder and lightning; thunder bolts and their description; also different varieties of lightning, some of which are beneficial as they are water forming while others are 'destructive'(as they contain electric charge which is killing, causing thunder-bolts). There is another similar book by the same author Maharishi Angirasa called "Karka Prakarana." The title signifies "Thunders and thunderbolts." But in fact, the book deals with different forms of electric discharges and energy-emissions from the Sun as well as from the atmosphere; also described in the book are the different properties of sun's rays and how different kinds of cloud-formations are caused by the different rays of the sun.

This second book is strikingly original in its theories about the origin of various precious stones and crystals in the earth which result from different kinds of Solar flares or Sun's radiations. It has a very interesting theory regarding the origin of insects, different animals and plants which occur as sudden outbursts at certain times and again as suddenly disappear with the change in atmosphere at other times (like locust swarms, for instance). These sudden waves of seasonal or periodic changes in plant and animal life, according to Angirasa Rishi, are caused by different kinds of weather which in turn, is a result of difference of Sun's rays. All such atmospheric changes, cloud-formations, thunder and lightning, outbursts of plant and vegetable life, electric discharges in the atmosphere, are all dealt with in this marvelous book "Karakaprakarana" which is a masterly analysis of the Sun's rays.

(source: [Hinduism in the Space Age - by E. Vedavyas](#) Published for Vedavyasa Bharathi, University of Vedic Sciences, Yoga Brotherhood of America (Inc) USA; ASIN: 8174600000 p. 143-144).

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## Fables, Music and Games

### Fables

**Lin Yutang** (1895-1976) Chinese scholar and author of the book, [The Wisdom of China and India](#), writes:

**"India is the home of fables...one must say that the Hindu mind is fabulous. The genius for creating fables seems inexhaustible in Indian literature...."**

**Ernest Rhys** (1859-1946) in his [Introduction to Fable, Aesop and Others](#) justly remarks, "We have to admit that the beast-fable did not begin with him (Aesop), or in Greece at all. We have, in fact, to go East and to look to India and burrow in the 'tale of tales' of [Hitopadesa](#) to get an idea how old the antiquity of the fable actually is. When one remembers also that many of the stories in the Arabian Nights, including that of the famous Sindbad the Sailor, are of Hindu origin, it is not easy to accept the view that such tales

are not of native Indian growth."

(source: [The Wisdom of China and India - By Lin Yutang](#) p. 265-7).

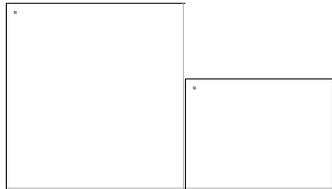
The Hindu achievements in this branch of literature establish once for all their intellectual superiority. It is this part of their literature that has made its way to the remotest corners of Europe and America. Its sway over the mind of the civilized world is almost complete.

**Professor Horace Hyman Wilson** (1786-1860) observed: "Fables constitutes with the Hindus practical ethics - **the science of Niti or Polity** - the system of rules necessary for the good government of society in all matters not of a religious nature - the reciprocal duties of the members of an organized body either in their private or public relations. Hence it is specially intended for the education of princes, and proposes to instruct them in those obligations which are common to them and their subjects, and those which are appropriate to their princely office; not only in regard to those over whom they rule, but in respect to other princes, under the contingencies of peace and war."

**Sir William Wilson Hunter** (1840-1900) says: "The fables of animals, familiar to the Western world from the time of Aesop downwards, had their original home in India. The relation between the fox and the lion in the Greek versions had no reality in nature, but it was based upon the actual relation between the lion and his followers, the jackal, in the Sanskrit stories. Panchatantra was translated into the ancient Persian in the 6th century A.D. from that rendering all the subsequent versions in Asia Minor and Europe have been derived. The most ancient animal fables of India are at the present day the nursery stories of England and America. This graceful Hindu imagination delighted also in fairy tales, and the Sanskrit compositions of this class are the original source of many of the fairy stories of Persia, Arabia and Christendom."

**Friedrich Max Muller** (1823-1900) says:

**"The King of Persia, Khusro Nausherawan (531-579 A. D) sent his physician, Barzoi, to India in order to translate the fables of the Panchatantra from Sanskrit into Pahlavi."**



**Hitopdesa** (hita = good and updesa = advice) as **Mrs. Manning** says, is the form in which the old Sanskrit fables became introduced into the literature of nearly every known language. She remarks on the **Panchatantra**: "Each fable will be found to illustrate and exemplify some reflection on worldly vicissitude or some precept for human conduct; and instead of being aggregated promiscuously or without method, the stories are all strung together upon a connected thread and arranged in a framework of continuous narrative, out of which they successively spring."

**Fabel** maintains the Indian origin of the fables common to India and Greece, which proves the antiquity of the Hindu fables.

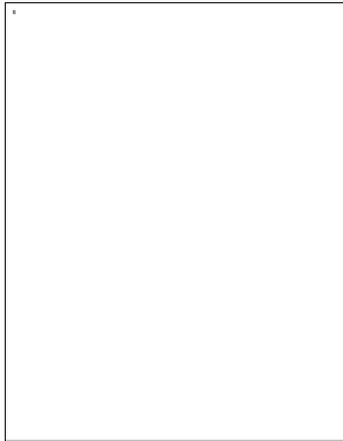
**Professor Albrecht Weber** (1825-1901) says: " Allied to the fables are the fairy tales and romances, in which the luxuriant fancy of the Hindus has, in the most wonderful degree, put forth all its peculiar grace and charm."

**Professor Horace Hyman Wilson** (1786-1860) writes: "The Fables of the Hindus are a sort of machinery to which there is no parallel in the fabling literature of Greece and Rome." He also says that the Hindu literature contained collections of domestic narrative to an extent surpassing those of any other people. "In a manuscript of the Parable of Sendebār (Sindbad), which existed in the British Museum, it is repeatedly asserted in anonymous Latin notes that the work was translated out of the Indian language into Persian and Arabic, and from one of them into Hebrew. Sendebār is also described as a chief of the Indian Brahmins, and Beibar, the King, as a King of India." (source: [Metrical Romances - By George Ellis](#) Vol. III.).

A careful study of the subject will show that even the books which appear to have a distinctive Persian character and are generally regarded to be of Persian origin are in reality Hindu to the core. **Count**

**Bjornstjerna** remarks: "The thousand and one Nights, so universally known in Europe, is a Hindu original translated into Persian and thence into other languages. In Sanskrit the name is Vrihat Katha. **Professor Lassen** of Paris asserts that "the Arabian Nights Entertainments are of Hindu origin."

**Jean-Louis-Auguste Loiseleur-Deslongchamps** (1774-1849) says: "The book of Sindabad is of Indian origin"



A decisive proof of Sindbad being an Indian is the direct evidence on the subject, of the eminent Arabic writer, **Masudi**. In his Golden Meadows (Mirajul Zeheb), in a chapter on the ancient Kings of India, he speaks of an Indian philosopher named Sindebad, who was contemporary with Kurush, and was the author of the work entitled, "The Story of Seven Vaziers, the tutor, the young man and the wife of the king." "This is the work," he adds, "which is called the book of Sendebad."

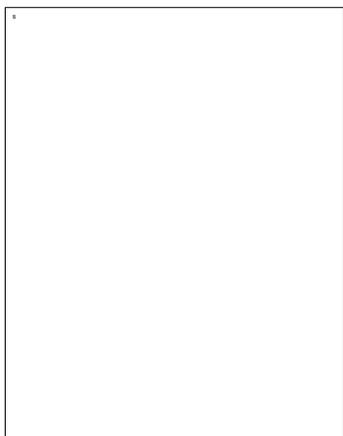
(source: [Hindu Superiority - By Har Bilas Sarda](#) p. 262-268).

**Franklin Edgerton** wrote: "No other work of Hindu literature has played so important a part in the literature of the world as the Sanskrit story-collection called the **Pancatantra**. Indeed, the statement has been made that no book except the Bible has enjoyed such an extensive circulation in the world as a whole. This may be---I think it probably is---an

exaggeration. Yet perhaps it is easier to underestimate than to overestimate the spread of the Pancatantra."

It has been claimed that **India is the original home of literary fiction and intellectual games**. There is no doubt that stories of Indian origin have long been told in distant lands of Asia and Europe in a variety of forms, giving delight to countless people, often without reference to or awareness of their sources. Centuries before **Kalidasa's Sakuntala** captured the fascination of Western intellectuals at the end of the eighteenth century, Indian myths and tales were widely known, and the influence of **Visnusarma**, the legendary author of the **Pancatantra**, the most famous collection of Indian fables was widely felt. Once again it was mainly the Arabs, and the Iranians, before them, who transmitted Indian fables and folklore to Europe, either through Turkey and Spain. From Constantinople Indian stories were transmitted to Venice and Naples through trade contacts and thence **they found their way into the works of Boccaccio, Chaucer, Cervantes, Shakespeare, Le Sage, La Fontaine, Voltaire, and other famous Western writers**. With each story-teller the story assumed a new look, eventually reaching a stage at which it often bore only a feeble resemblance to the original. It was not until Western scholars discovered Sanskrit language and literature in the latter part of the eighteenth century that the Indian contribution to the world's fiction came to be appreciated, although its full extent is yet to be systematically assessed.

Throughout mediaeval Christendom, **Barlaam and Josaphat**, was accepted as an exposition of the ideals of Christian monasticism and asceticism. The churches celebrated the festival days associated with the Indian hermit Barlaam and his royal pupil Prince Josaphat (Buddha) with appropriate solemnity, and "their relics were invested with exceptional healing power." In the literary world too, the influence of the Barlaam story was deep and lasting. It inspired outstanding writers such as Guy de Cambrai, and Lope de Vega, Leo Tolstoy, and Shakespeare, who borrowed from it the story of the Caskets.



The worldliness and sensuality of the Indian fables must have helped to bring European literature back to its natural course. **Hence, almost immediately after their arrival in Europe, Indian fables appeared in Giovanni Boccaccio's (1313-1375) Decameron and Don Juan Manuel's Conde Lucanor, unrivalled example of mediaeval prose.**

Other popular European storybooks such as the fourteenth century Chaucer's Canterbury Tales; **La Fontaine's** Fables; and Grimm's Tales include fables of Indian origin. The Indian fables became known in Europe as the **Fables of Bidpai (Pilpay)** because in the translation one of the wicked kings is reclaimed to virtue by a Brahman sage, Bidpai.

**Jean de La Fontaine** (1621-1695) French poet, in his second edition of

Fables, published in 1678, **expressly confessed his indebtedness to Indian tradition.**

In the Preface he says: " **It is not necessary that I shall say whence I have taken the subjects of these new fables. I shall only say, from a sense of gratitude that I owe the largest portion of them to Pilpay the Indian sage.**" The story of the ebony horse in Geoffrey Chaucer's "Squires' Tale" came from India via Persia, Egypt, and Spain to France. (Le Cheval de Fust) and thence to Chaucer's ears.

The theme of the three caskets and of the pound of flesh in the Merchant of Venice are of Buddhist origin, and stories derived from the Pancatantra - the " Gullible Husband" and the "Butler and the Blinded Brahman" - were adapted by Boccaccio (1313-1375). Many of the immensely popular tales found in Hans Christian Andersen's fairy tales, such as the "Magic Mirror" "Jack and the Beanstalk" and the "Purse of Fortunatus," have been traced to Indian sources. Many of these tales are also traced to the Jatakas, Kathasaritsagara, So are the Arabian Nights which have been traced to Indian sources. **The world famous story of Sindbad is a tale of Indian origin. The Arab historian Al Masudi expressly said that the Kitab el Sindbad was derived from India.**

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### Music - Sangita

**Charles Coleman** writes in his book **Mythology of the Hindus** preface p. ix:

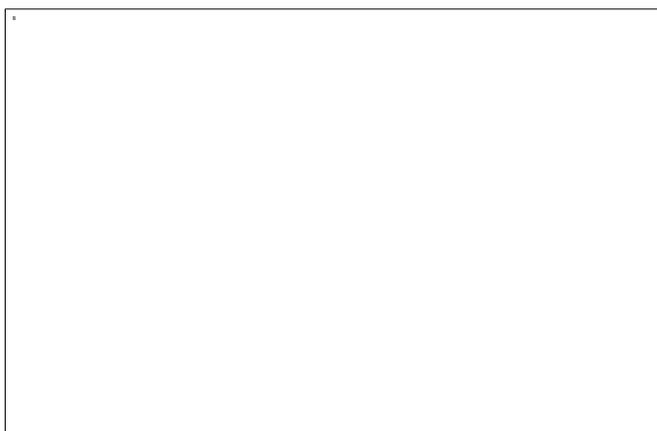
"An account of the state of musical science amongst the Hindus of early ages and a comparison between it and that of Europe is yet a desideratum in Oriental literature. From what we already know of the science, it appears to have attained a theoretical precision yet unknown to Europe, and that too in a period when even Greece was little removed from barbarism."

**Anne C. Wilson** adds: "It must, therefore, be a secret source of pride to them to know that their system of music, as a written science, is the oldest in the world. Its principles were accepted by the Mahomedan portion of the population in the days of their pre-eminence, and are still in use in their original construction at the present day."

**Dr. Ananda Coomaraswamy** (1877-1947) the late curator of Indian art at the Boston Museum of Fine Arts, and author of The Dance of Shiva: Essays on Indian Art and Culture, has written:

"Music has been a cultivated art in India for at least three thousand years. The chant is an essential element of Vedic ritual; and the references in later Vedic literature, the epics, the scriptures of Buddhism, show that it was already highly developed as a secular art in centuries before the beginning of the Christian era. Its zenith may perhaps be assigned to the Imperial age of the Guptas - from the 4th to the 6th century A.D. This was the classic period of Sanskrit literature, culminating in the drama of Kalidasa; and to the same time is assigned the monumental treatise on the theory of music and drama."

(source: **The Wisdom of Ananda Coomaraswamy - presented by S. Durai Raja Singam** 1979 p. 84).



Music in India has a history of at least three thousand years. The Vedic hymns, like all Hindu poetry, were written to be sung; poetry and song, music and dance, were made one art in the ancient ritual. Sangita, the Indian tradition of music, is as old as Indian contacts with the Western world, and it has graduated through various strata of evolution: primitive, prehistoric, Vedic, classical, mediaeval, and modern. It has traveled from temples and courts to modern festivals and retaining a clearly recognizable continuity of tradition.

Sangita which originally meant drama, music and dance, was closely associated with religion

and philosophy.

According to Indian philosophy the ultimate goal of human existence is *moksha*, liberation of the atman from the life-cycle, or spiritual enlightenment; and *nadopasana* (literally, the worship of sound) is taught as an important means for reaching this goal. The highest musical experience is ananda, the "divine bliss." This devotional approach to music is significant feature of Indian culture. The Indian music tradition can be traced to the Indus (Saraswati) Valley civilization. The goddess of music, Saraswati, who is also the goddess of learning, is portrayed as seated on a white lotus playing the *vina*.

Indian music is based upon a system of *ragas* and is improvised or composed at the moment of performance. The notes which are to convey certain definite emotions or ideas are selected with extreme care from the twenty-five intervals of the *sruti* scale and then grouped to form a raga, a mode or a melodic structure of a time. It is upon this basic structure that a musician or singer improvises according to his feeling at the time. Structural melody is the most fundamental characteristic of Indian music. The term *raga* is derived from Sanskrit root, ranj or raj, literally meaning to color but figuratively meaning to tinge with emotion.



German author **Albert Weber** writes in his book, [Indian Literature - By Albrecht Weber](#) ISBN: 1410203344 (p. 27):

"The Hindus scale - Sa, Re, Ga, Ma, Pa, Dha, Nee has been borrowed by the Persians, where we find it in the form of do, re, ma, fa, so, le, ci. It came to the West and was introduced by **Guido d' Arezzo** in Europe in the form of do, re, mi, fa, sol, la, ti....even the 'gamma' of of Guido (French gramma, English gamut) goes back to the Sanskrit gramma and Prakrit gamma and is thus a direct testimony of the Indian origin of our European scale of seven notes."

He observes: "According to **Von Bohlen** and **Benfrey**, this notation passed from the Hindus to the Persians," and from these again to the Arabs, and was introduced into European music by Guido D'Arezzo at the beginning of the 11th century."

More information on how the Indian system of music traveled to Europe is provided by **Ethel Rosenthal's** research in her book, [The Story of Indian Music](#) (South Asia Books; ; 1 edition (August 1, 1990) ISBN 8186142908) and its Instruments, on page 3, in which she observes, "In [The Indian Empire](#), **Sir William Wilson Hunter** remarked that:

"A regular system of notation had been worked out before the age of Panini and the seven notes were designated by their initial letters. This notation passed from the Brahmins through the Persians to Arabia, and was then introduced into European music by Guido d' Arezzo at the beginning of the 11th century....Hindu music after a period of excessive elaboration, sand under the Muhammadans into a state of arrested developments....."

**Sir William Wilson Hunter** (1840-1900) further observes, "Not content with the tones and semi-tones, the Indian musicians employed a more minute sub-division, together with a number of sonal modifications which the Western ear neither recognizes or enjoys. Thus, they divide the octave into 22 sub-tones instead of 12 semi-tones of the European scales. The Indian musician declines altogether to be judged by the new simple Hindu airs which the English ear can appreciate."

The two phenomena, which have already been stated as the foundation of musical modes, could not long have escaped the attention of the Hindus, and their flexible language readily supplied them with names for the seven Swaras, or sounds, which they dispose in the following order: Shadja, pronounced Sharja, Rishabha, Gandhara, Madhyama, Pachama, Dhaivata, Nishada, but the first of them is emphatically named Swara, or the sound, from the important office, which it bears in the scale; and hence, by taking the seven initial letters or syllables of those words, they contrived a notation for their airs and at the same time exhibited a gamut, at least as convenient as that of Guido: they call it Swaragrama or Septaca, and express it in this form:

*Sa, ri, ga, ma, pa, dha, ni,*

three of which syllables are, by a singular concurrence exactly the same, though not all in the same places, with three of those invented by David Mostare, as a substitute for the troublesome gamut used in his time, which he arranges thus: Bo, ce, di, ga, lo, ma, ni.

(source: [The Story of Indian Music - By Ethel Rosenthal](#) p. 3 and 177-178).



The ancient Western world was aware of the existence of a highly developed system of Indian music. According to Curt Sachs, it was the South Indian drum tambattam that was known in Babylonia under the name of timbutu, and the South Indian kinnari shared its name with King David's kinnor. Strabo referred to it, pointing out that the Greeks believed that their music, from the triple point of view of melody, rhythm, and instruments, came to them originally from Asia. Arrian, the biographer of Alexander, also mentions that the Indians were great lovers of music and dance from earliest times. The Greek writers, who made the whole of Asia, including India, the sacred territory of Dionysos, claimed that the greater part of music was derived from India.

Sir Yehudi Menuhin (1916-1999), American-born violinist, one of the foremost virtuosos of his generation, was convinced that:

" We would find all, or most, strands beginning in India; for only in India have all possible modes been investigated, tabulated, and each assigned a particular place and purpose. Of these many hundreds, some found their way to Greece; others were adopted by nomadic tribes such as the Gypsies; others became the mainstay of Arabic music."

(For additional information on Indian Music, Visit - [Music of India](http://trumpet.sdsu.edu/M345/Music_of_India1.html) [http://trumpet.sdsu.edu/M345/Music\\_of\\_India1.html](http://trumpet.sdsu.edu/M345/Music_of_India1.html)).

Regarding the growth and development of music in India, Yehudi Menuhin, the well known violinist who visited India (1952) writes in an American literary magazine The Saturday Review of Literature that he found "there was so much new and satisfying to him that in India the equilibrium of life is better balanced than elsewhere, a greater unity of thought and feeling prevail than in the West." In his view Indian music, culture and philosophy "are quite sufficient, soundly conceived and adequate for the needs not only of Indian but capable of being beneficial if adopted in a wider sphere of humanity. Indian music is a traditional crystallized form of expression in which the performers and auditors partake of the resignation of environment and fact. It invites to attain a sense of meditation, of oneness with God."

(source: [Ancient Indian Culture At A Glance - By Swami Tattwananda](#) p. 147-148).

The Sakuntala furor has lasted till almost today. One of the noblest "overtures" in European music is the [Sakuntala overture](#) of the Hungarian composer **Carl Goldmark** (1830-1915).

(source: [Creative India - By Benoy Kumar Shenoy](#) p. 110).

The Hindus first developed the science of music from the chanting of the Vedic hymns. The Sama Veda was especially meant for music. And the scale with seven notes and three octaves was known in India centuries before the Greeks had it. Probably the Greeks learnt it from the Hindus. It is interesting to know that German composer, **Richard Wagner** was indebted to the Hindu science of music, especially for his principal idea of the "leading motive"; and this is perhaps the reason why it is so difficult for many Western people to understand Wagner's music. He became familiar with Eastern music through Latin translations, and his conversation on this subject with **Arthur Schopenhauer**. (refer to [Quotes1-20](#) page for Schopenhauer).

(source: [India And Her People - By Swami Abhedananda](#) - p.221).

As **M. Bourgault Ducodray** (1840 - 1910) writes: "The Hindu music will provide Western musicians with fresh resources of expression and with colors hitherto unknown to the palate of the musicians." It seems **Wagner** got the idea of leading motive from India through Latin translations. The Gregorian mode in Western music introduced by Pope Gregory, the Great, are of Indian inspiration, which he got when he was ambassador at Constantinople. Indian music has ardent admirers in the West. Romain Rolland told

Dilip Kumar Roy that by his capacity for continuous improvisation, the executant in Indian music was always a creator, while in European music he was only an interpreter. **George Duhamel**, the eminent French author and critic, told Roy that Indian music was "indeed a novel but delightful experience with me. **The music of India is without doubt one of the greatest proofs of the superiority of her civilization.**"

**Leopold Stotowski, Yehudi Meuhudin and others have spoken in glowing words of the subtle intricacies of Indian rhythm from which the West has much to learn. Ravi Shanker has held spell-bound many a Western audience, by playing on his Sitar.**

(source: [The Soul of India - By S. Patel](#) p. 45-48).

### **Ancient Indians made 'rock music'**

**Archaeologists have rediscovered a huge rock art site in southern India where ancient people used boulders to make musical sounds in rituals.**

The Kupgal Hill site includes rocks with unusual depressions that were designed to be struck with the purpose of making loud, musical ringing tones. It was lost after its discovery in 1892, so this is the first fresh effort to describe the site in over a century. **Granite percussion** The boulders which have small, groove-like impressions are called "musical stones" by locals. When struck with small granite rocks, these impressions emit deep, "gong-like notes".

(source: [Ancient Indians made 'rock music' - BBC.com](#)).

### **In Shiva's temple, stone pillars make music - an architectural rarity**

Shiva is the Destroyer and Lord of Rhythm in the Hindu trinity. But here he is Lord Nallaiyappar, the Protector of Paddy, as the name of the town itself testifies — nel meaning paddy and veli meaning fence in Tamil. Prefixed to nelveli is tiru, which signifies something special — like the exceptional role of the **Lord of Rhythm** or the unique musical stone pillars in the temple. In the [Nellaiyappar](#) temple, gentle taps on the cluster of columns hewn out of a single piece of rock can produce the keynotes of Indian classical music. **"Hardly anybody knows the intricacies of how these were constructed to resonate a certain frequency. The more aesthetically inclined with some musical knowledge can bring out the rudiments of some rare ragas from these pillars."**

The Nelliappar temple chronicle, Thirukovil Varalaaru, says the nadaththai ezhuppum kal thoongal — **stone pillars that produce music — were set in place in the 7th century during the reign of Pandyan king Nindraser Nedumaran.** Archaeologists date the temple before 7th century and say it was built by successive rulers of the Pandyan dynasty that ruled over the southern parts of Tamil Nadu from Madurai. Tirunelveli, about 150 km south of Madurai, served as their subsidiary capital.

**Each huge musical pillar carved from one piece of rock comprises a cluster of smaller columns and stands testimony to a unique understanding of the "physics and mathematics of sound."** Well-known music researcher and scholar Prof. Sambamurthy Shastry, the **"marvellous musical stone pillars"** are **"without a parallel"** in any other part of the country. **"What is unique about the musical stone pillars in the Tirunelveli Nallaiyappar temple is the fact you have a cluster as large as 48 musical pillars carved from one piece of stone, a delight to both the ears and the eyes,"** The pillars at the Nallaiyappar temple are a combination of the Shruti and Laya types.

**This is an architectural rarity and a sublime beauty to be cherished and preserved.**

(source: [In Shiva's temple, pillars make music](#) - telegraphindia.com).

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There are many pillar in the Vithalla temple in Hampi which sound like various musical instruments when struck. There is one at the Ajanta caves too. In fact these are 56 pillars of Vithala Temple Complex in Hampi ruins dating back to 13th century of Vijayanagara Empire. These type of pillars emanating the sa..re..ga..ma.. notes are also found in Belur and Halebid in Karnataka.

(For more refer to "[If dreams were made out of stone, it would be Hampi](http://karnataka.com)" - [karnataka.com](http://karnataka.com)).

For more on Music, please refer to chapter on [Hindu Music](#)).

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## Games

### Chess

Chess, **the game of mind and intellect**, was a gift of India to the world in the late 6th or early 7th century.

#### Sissa's request and Chess

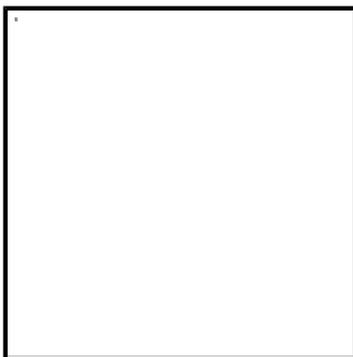
Among the fascinating legends told about the origin of chess is the story of **Sissa**, a Brahmin and the inventor of the game. In western India, Raja Balhait had asked his advisers to create a game that demonstrated the values of prudence, diligence, foresight, and knowledge. Sissa brought a chessboard to the raja and explained that he had chosen war as a model for the game because war was the most effective school in which to learn the values of decision, vigor, endurance, circumspection, and courage. The raja was delighted with the game and ordered its preservation in temples. He considered its principles the foundation of all justice and held it to be the best training in the art of war.

The raja said to his subject Sissa, "Ask any reward. It will be yours." Being a scientist, Sissa felt rewarded by the pleasure his invention was giving others; but the kind insisted, and finally Sissa said, "Give me a reward in grains of corn on the chessboard (ashtapada). On the first square one grain, on the second two, on the third four, on the fourth double of that, and so on until the 64th and last square."

The raja would not hear of it. He insisted that Sissa ask for something of more worth than grains of corn. But Sissa insisted he had no need of much and that the grains of corn would suffice. Thereupon the raja ordered the corn to be brought; but before they had reached the 30th square, all the corn of India was exhausted. Perturbed, he looked at Sissa, who laughed and told his raja that he knew perfectly well he could never receive the reward he had asked because the amount of corn involved would cover the whole surface of the earth to a depth of nine inches.

The raja did not know which to admire more: **the invention of chess or the ingenuity of Sissa's request**. The number involved is 18,446,744,073,709,551,615 grains. This number had been previously calculated by the early Indian mathematicians, who incidentally, had invented the decimal system long before it reached the Arabs and Europe.

(source: [Feast of India: A Legacy of Recipes and Fables - By Rani](#) p. 84).



Chess, one of the world's oldest war games, which was invented in northern India. The original pieces were based on the infantry, cavalry, elephants, and chariots of the ancient Indian army. These troops were led onto the chessboard by the king and his chief minister, the vizier.

For a long time the invention of chess was ascribed to various peoples ranging from the Egyptians to the Welsh, and ever since the Arabs transmitted it to Europe more than a thousand years ago, it has been held in great esteem there. It commands an authority which no other board game has ever attained, and has been described as "a philosophy, a contest of mental athletics." It was after the discovery of Sanskrit by European scholars that the Indian ancestry of chess was realized and acknowledged.

**Said al-Andalusi** (1029-1070) Arabic scholar, focused on India as a major center for science, mathematics and culture.

**“That which has reached us from the discoveries of their clear thinking and the marvels of their**

**inventions is the (game) of chess.** The Indians have, in the construction of its cells, its double numbers, its symbols and secrets, reached the forefront of knowledge. They have extracted its mysteries from supernatural forces. While the game is being played and its pieces are being maneuvered, there appear the beauty of structure and the greatness of harmony. It demonstrates the manifestation of high intentions and noble deeds, as it provides various forms of warnings from enemies and points out ruses as well as ways to avoid dangers. And in this, there is considerable gain and useful profit.”

(source: In the eleventh-century, an important manuscript titled **The Categories of Nations** was authored in Arabic by **Said al-Andalusi**, who was a prolific author and in the powerful position of a judge for the king in Muslim Spain. A translation and annotation of this was done S. I. Salem and Alok Kumar and published by University of Texas Press: “Science in the Medieval World”. This is the first English translation of this eleventh-century manuscript. Quotes are from Chapter V: “Science in India”).

**Sir William Jones** (1746-1794) wrote that chess had been known to Indians in antiquity as **Caturanga**, meaning the four wings of the army, which are described in the **Amarakosa** as elephants, horses, chariots, and infantry. One of the early Sanskrit texts, the Bhavishya Purana, contains a tale of a prince who lost all his possessions in a game of chess played with dice. Chess must indeed go deep into early Indian history, because it was associated with astronomical symbolism throughout its growth.



According to **H. J. R. Murray**, who published his monumental study **A History of Chess** (Benjamin Publisher. December 1985 ASIN 0936317019) in 1913, chess descended from an earlier Indian game called **astapada**, played on a board containing 8 x 8 cells. **Chaturanga** was taken to Persia in the sixth century during the reign of Anushirvan (531-579) where it came to be known as *Chatrang*, which according to the Arabic phonetic system it became *Shatranj*. The earliest reference to chess in Persia, is found in the Karnamak-i-Artakh Shatr-i Papakan, written about 600. In the tenth century, the poet Firdusi related a traditional story in his epic poem Shahnama of how chess came to Persia through an envoy of the King of Hind (India). Subsequently, it became known to the Arabs and also to the Byzantine court. For example, Al Masudi, writing about 950, mentions that chess had existed possibly as long as a thousand years before his generation.

From India, **Chaturanga** traveled to China and then to Japan. The earliest reference to chess in China is found in Niu Seng-Ju's Yu Kuai Lu (Book for Marvels) written at the end of the eighth century. The countries of Southeast Asia learned chess both directly from India, and as in the case of Siam, indirectly from China. Indian games seems to have reached as far as Mexico. Writing in 1881, **Edward Tylor**, the first important exponent of parallelism in cultural development, pointed out that the ancient and popular Mexican game of patolli was very similar to the Indian **pachisi**, and concluded that it must have come from India.

In China the first indisputable sources appeared only around 800 AD. "**The King of Kanauj had sent the game of chess to the court of Sasanian King Kusrau I Anshirvan** (531-579).

Several **games** now familiar across the world owe their origins in India, particularly, the games of **chess**, **ludo** (including ladders and snake), and **playing cards**.

The famous epic **Mahabharata** narrates an incidence where a game called Chatrang was played between two groups of warring cousins. In some form or the other, the game continued till it evolved into chess. **H. J. R. Murray**, in his work titled “**A History of Chess**”, has concluded that “chess is a descendant of an Indian game played in the 7th century AD”. **The Encyclopedia Britannica** states that “we find the best authorities agreeing that chess existed in India before it is known to have been played anywhere else.”

The game of cards also developed in ancient India. Abul Fazal was a scholar in the court of Mughal emperor Akbar. In his book, “Ain-e-Akbari”, which is a mirror of life of that time, records game of cards is of Indian origins.

**Martial arts** by the name of *Kalaripayattu* were a native of **Kerala**, a state of **India**. **Kalaripayattu** consists of a series of intricate movements that train the body and mind. These are believed to have traveled,

through [Buddhist monks](#), to eastern [China](#), where they got merged with local martial traditions.

(source: [Science and technology in ancient India - Wikipedia](#)). Refer to chapter on [War in Ancient India](#).

### Snakes & Ladders / Mokshapat

The earliest version of Snakes and Ladders is credited to 13th century saint-poet of Maharashtra Gyandev, who called his creation **Mokshapat** (Moksha=Salvation, pat=cloth). **The 'game', however, was not about entertainment; it was created to explain the basic tenets of Hinduism to the common man.**

The game was drawn out on a cloth divided into blocks called houses, each representing emotions like daya, karuna and darr. The ladders represented virtues and the snakes, vices. The snake at hinsa would take one down to mahanarak while Vidyabhyas would take one to the Shastras. The game was played with dices and cowrie-shells.

**The game travelled to Thanjavur in the 17-18th century.** It was magnified in size and called **Parama Pada Sopana Pata** and went through other alterations as well. The morality of the game must have appealed to the Victorians, who took to the game when it was published in 1892 in England.

### Ganjipha



The playing cards, too, had a religious sanction. They were circular in shape and varied from 20 mm to 120 mm in size. They were covered with various kinds of material or with lac and paintings, depending on the owner's economic background. While the poor would use paper or starched cloth for their cards, the wealthy would go in for cards in ivory, tortoise-shell or mother-of-pearl.

There was a basic set of 12 cards featuring various aspects of Indian mythology, but the Dashavtari (referring to the 10 incarnations of Vishnu) Ganjipha was played with 120 cards and three players. The Navagraha

Ganjipha was a game with 108 cards divided into nine suites, representing the nine planets. Ganjipha was popular right up to the 19th century among royal families.

(source: [Ancient Wisdom Deals A New Hand - Indian Express](#)).

### Parchisi

an Indian race game, that dates back at least 2,200 years. Pachisi (also spelt Parcheesi, Pachisi, Parchisi, Parchesi; also known as Twenty-Five) is the National Game of India. The name comes from the Indian word "pachis" which means twenty five, the highest score that could be thrown with the cowry shells. Pachisi is, in fact, the younger sister of **Chaupar** (or Chausar or Chaupad), a more venerable, complex and skilful game that is still played in India.

### Polo

Of the earliest forms of the equestrian game is said to have been played around 34 AD (some even date it to 2,000 BC) in the northeastern Indian state of Manipur where it was locally called Sagol Kangjei (lit. *sagol* = horse, *kang* = ball, *jei* = stick). Muslim settlers in India later introduced the Persian (*Chaugan*) and the Afghani (*Buzkashi*) version in the country. The first king of Delhi Sultanate, Qutub-ud-din Aibak, died in 1210 AD of injuries sustained after he fell off his horse during a game of *Chaugan*. The modern version was codified in the 19th century by British planters in northeast India. It consists of four horse-riders from two teams attempting to score goals, using long Polo sticks to move the ball while they remain on horseback. India also became home to the world's first Polo Club when the Calcutta Club was founded in 1865 by British Indian Army officers.

This game was also played at Angkor Vat. Polo players played under the eye of King Jayavarman VII, seated beneath a parasol on the royal Elephant Terrace at Angkor Thom. (please refer to the chapter on [Suvarnabhumi](#)).

### Badminton

Though the modern version of the racket sport developed in England, **badminton derives its origins from the 2,000-year-old game of battledore and shuttlecock played in ancient India.** The first modern rules of the game were evolved in 1876 at Pune in the western Indian state of Maharashtra. It is one of the Olympics newest sports, named after its place of origin at Badminton Hall in Gloucestershire, England, the seat of the Dukes of Beaufort.

(source: [About.com](#))

### **Kabaddi**

Kabaddi is a game of speed, strength, strategy and, most importantly, lungpower. **Kabaddi was developed about 4000 years ago to help Indian soldiers develop their self-defense skills** (not to mention their pronunciation of the word Kabaddi skills).

It was known by various names in various places. For example Chedugdu, or Hu-tu-tu in Southern parts of India, Hadudu (Men), Chu kit-kit (Women) in Eastern India and Kabadi in Northern India.

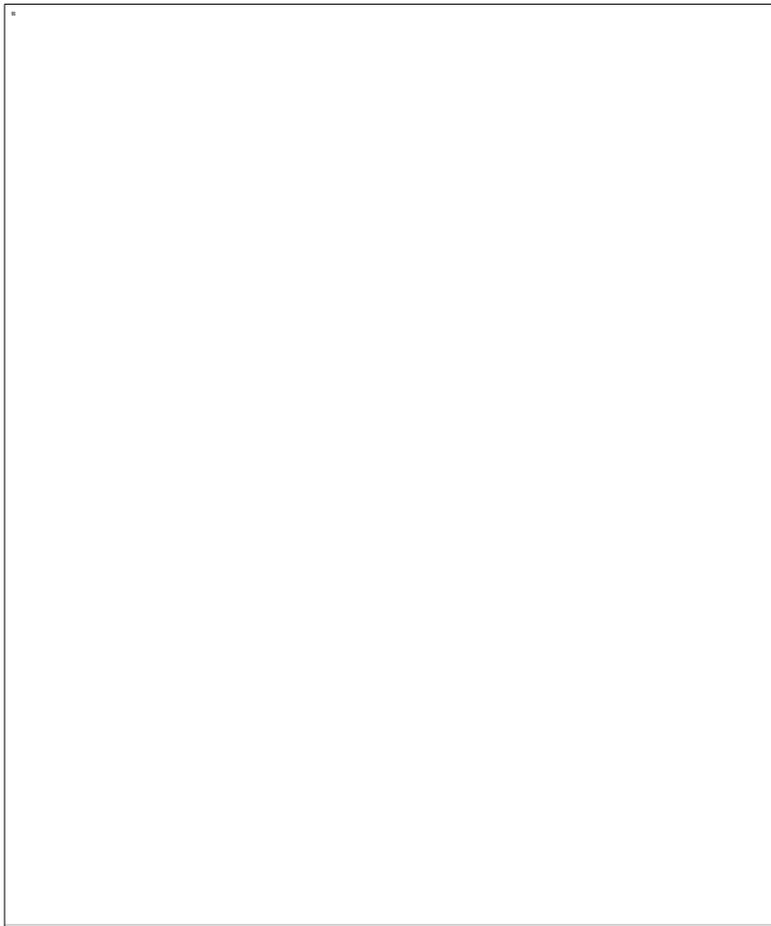
(source: Kabadi <http://www.geocities.com/kennykabb/>).

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[Martial Arts](#)



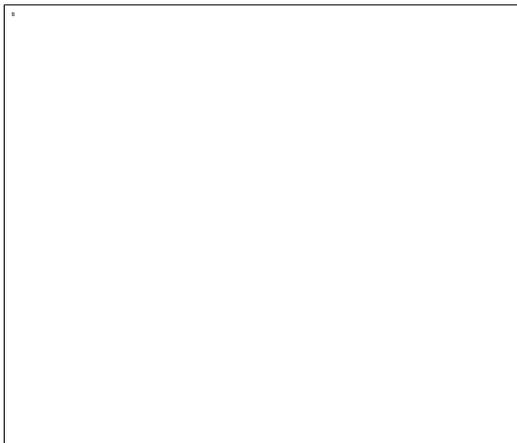


*"Fighting without weapons was a specialty of the Ksatreya (caste of Ancient India) and foot soldier alike.*

*Danger and Divinity: Originating at least 1,300 years ago, India's Kalaripayit is the oldest martial art taught today. It is also one of the most potentially violent. Weaponless but nimble, a karipayit master displays for his students how to meet the attack of an armed opponent.*

\*\*\*

According to author **Terence Dukes**:



**"Fighting without weapons was a specialty of the Ksatreya (caste of Ancient India) and foot soldier alike.**

**For the Ksatreya it was simply part and parcel of their all around training, but for the lowly peasant it was essential. We read in the Vedas of men unable to afford armor who bound their heads with turbans called Usnisa to protect themselves from sword and axe blows.**

**This indigenous martial arts, under the name of Kalari or Kalaripayit exists only in South India today. Kalarippayat is said to be the world's original martial art.** Originating at least 1,300 years ago, India's Kalaripayit is the oldest martial art taught today. It is also the most potentially

violent, because students advance from unarmed combat to the use of swords, sharpened flexible metal lashes, and peculiar three-bladed daggers. The "Urimi" is the most extraordinary weapon of Kalari, unique in the world. This double-edged flexible sword which the old-time masters used to wrap around the waist to keep coiled in one hand, to suddenly whip at the opponent and inflict mortal blows, is hardly used today in trainings, for it is much too dangerous. **More than 2,000 years old, it was developed by warriors of the Cheras kingdom in Kerala.** Training followed strict rituals and guidelines. The entrance

to the 14 m-by-7 m arena, or kalari, faced east and had a bare earth floor. Fighters took Shiva and Shakti, the god and goddess of power, as their deities. From unarmed kicks and punches, kalaripayat warriors would graduate to sticks, swords, spears and daggers and study the marmas—the 107 vital spots on the human body where a blow can kill. Training was conducted in secret, the lethal warriors unleashed as a surprise weapon against the enemies of Cheras.

**Kalari payatt was banned by the British in 1793.** (Refer to chapter on [European Imperialism](#)).

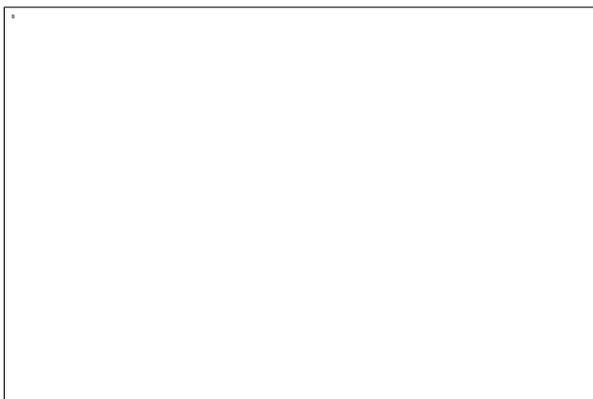


Fighting on foot for a Ksatreya was necessary in case he was unseated from his chariot or horse and found himself without weapons. **Although the high ethical code of the Ksatreya forbid anyone but another Ksatreya from attacking him, doubtless such morals were not always observed, and when faced with an unscrupulous opponent, the Ksatreya needed to be able to defend himself, and developed, therefore, a very effective form of hand-to-hand combat that combined techniques of wrestling, throws, and hand strikes. Tactics and evasion were formulated that were later passed on to successive generations.**

This skill was called Vajramukhti, a name meaning "thunderbolt closed - or clasped - hands." The tile Vajramukti referred to the usage of the hands in a manner as powerful as the **Vajra** maces of traditional warfare. Vajramukti was practiced in peacetime by means of regular physical training sessions and these utilized sequences of attack and defense technically termed in Sanskrit **nata**."

"Prior to and during the life of the Buddha various principles were embodied within the warrior caste known as the **Ksatreya** (Japanese: Setsuri). **This title - stemming from Sanskrit root Ksetr meaning "power," described an elite force of usually royal or noble-born warriors who were trained from infancy in a wide variety of military and martial arts, both armed and unarmed.**

In China, the Ksatreya were considered to have descended from the deity Ping Wang (Japanese: Byo O), the "Lord of those who keep things calm." Ksatreyas were like the Peace force - to keep kings and people in order. Military commanders were called Senani - a name reminiscent of the Japanese term Sensei which describes a similar status. The Japanese **samurai** also had similar traits to the Ksatreya. Their battle practices and techniques are often so close to that of the Ksatreya that we must assume the former came from India perhaps via China. The traditions of sacred Swords, of honorable self-sacrifice, and service to one's Lord are all found first in India.



**"In ancient Hinduism, nata was acknowledged as a spiritual study and conferred as a ruling deity, Nataraja, representing the awakening of wisdom through physical and mental concentration.**

However, after the Muslim invasion of India and its brutal destruction of Buddhist and Hindu culture and religion, the Ksatreya art of nata was dispersed and many of its teachers slain. This indigenous martial arts, under the name of **Kalari or Kalaripayit** exists only in South India today. Originating at least 1,300 years ago, **India's Kalaripayit is the oldest martial art taught today. It is also the most potentially violent, because students advance from unarmed**

**combat to the use of swords, sharpened flexible metal lashes, and peculiar three-bladed daggers.**

When Buddhism came to influence India (circa 500 B.c), the Deity **Nataraja** was converted to become one of the four protectors of Buddhism, and was renamed Nar (y)ayana Deva (Chinese: Na Lo Yen Tien). He is said to be a protector of the Eastern Hemisphere of the mandala."



Father and founder of Zen Buddhism (called C'han in China), Boddidharma, a Brahmin born in Kacheepuram in Tamil Nadu, in 522 A.D. arrived at the courts of the Chinese Emperor Liang Nuti, of the



6th dynasty. He taught the Chinese monks Kalaripayattu, a very ancient Indian martial art, so that they could defend themselves against the frequent attacks of bandits. In time, the monks became famous all over China as experts in bare-handed fighting, later known as the Shaolin boxing art. The [Shaolin temple](#) which has been handed back a few years ago by the communist Government to the C'han Buddhist monks, inheritors of Bodhidharma's spiritual and

martial teachings, by the present Chinese Government, is now open to visitors. On one of the walls, a fresco can be seen, showing Indian dark-skinned monks, teaching their lighter-skinned Chinese brothers the art of bare-handed fighting. On this painting are inscribed: "Tenjiku Naranokaku" which means: "**the fighting techniques to train the body (which come) from India...**"



(source: [The Bodhisattva Warriors: The Origin, Inner Philosophy, History and Symbolism of the Buddhist Martial Art Within India and China](#) p.3 - 158-174 and 242).

The famous **Shao-lin** style of boxing is also attributed to Indian influence. **Bodhidharma**, (8th century AD) who believed in a sound mind in a sound body, taught the monks in the Shao-lin temple this style of boxing for self-defense for rejuvenating the body after exacting meditation and mental concentration.

According to the History channel martial arts were introduced in China by an Indian named **Bodhidharma**, who taught it to the monks so that they could defend their monasteries. He was also said to have introduced the concept of **vital energy or chi ("prana" probably corresponds to this)**. **This concept is the basis acupuncture.**

**Chuan Fa, the Buddhist martial arts, preserved many Ksatreya techniques in their original forms.** The monks to practiced Chuan Fa were often the sole preservers of the Ksatreya art of **Avasavidya**, called in Chinese Huo Ming or Hua Fa.

(For more information please refer to the chapters on [India and China](#) and [War in Ancient India](#)).

## Yoga



**Carl G. Jung** the eminent Swiss psychologist, described yoga as 'one of the greatest things the human mind has ever created.' Yoga is an integral part of the Hindu religion. There is a saying: "There is no Yoga without Hinduism and no Hinduism without Yoga." The country of origin of Yoga is undoubtedly India, where for many hundreds of years it has been a part of man's activities directed towards higher spiritual achievements.

Yoga sutra consists of two words only: yogash chitta-critti-nirodah, which may be translated: "Yoga is the cessation of agitation of the consciousness."

Yoga, which means "to yoke," is an ancient eight-pronged approach to achieving union with God, is a 5,000-year-old Indian tradition. While the Upanishads are the original source of yoga philosophy, yoga is expounded in many

sections of the Hindu epic **Mahabharata**. The **Bhagavad Gita** gives universal expression to the yogic teachings.

Yoga is not a religion. It is a method or a technique of training the mind and developing its subtle powers of perception to discover spiritual truths that provide the basis for religious beliefs and practices. The **Sanskrit** word yoga is derived from the root word yuj, meaning union with the divine. A man who seeks after this union is called yogin or yogi. There are four divisions of yoga: Karma, Yoga, Bhakti Yoga, Jnana Yoga and Raja Yoga. The science of Raja Yoga was systemized and codified by **Sage Patanjali** (250-350 BCE). His work, known as "**Yoga Sutras of Patanjali**" or "**The Aphorisms of Yoga by Patanjali**" consists of 196 sholkas (verses).

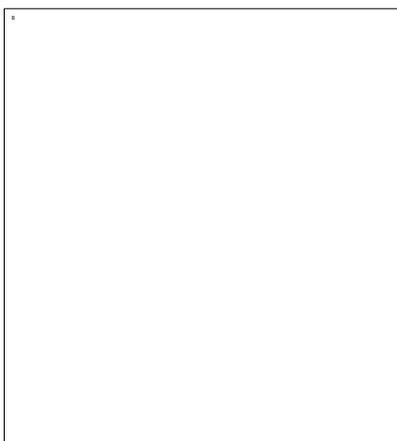
The purpose of Raja Yoga is to purify the body and mind for developing perfect concentration. It is also called Ashtanga Yoga, "The Yoga of eight limbs or steps" Ashta means eight and anga means limb or part.

(source: [The Hindu Mind - Fundamentals of Hindu Religion and Philosophy for All Ages - By Bansi Pandit](#) p. 61-75).

**The Sanskrit dhyana becomes Ch'an in Chinese which becomes Thom in Vietnamese, Son in Korean, Zen in Japanese.**

(source: [Yoga and The Teaching of Krishna - By Ravi Ravindra](#) p. 48). For more on yoga refer to chapter on [Yoga and Hindu Philosophy](#)).

## Silambam – Indian Stick Fighting



The art **Nillaikalakki Silambam**, which exists for more than five thousand years, is an authentic art which starts with the stick called **Silambambo** (1.68 meters long). It originates from the Krunji mountains of south India, and is as old as the Indian sub-continent itself.

The natives called Narikuravar were using a staff called Silambambo as a weapon to defend themselves against wild animals, and also to display their skill during their religious festivals. The Hindu scholars and yogis who went to the Krunji mountains to meditate got attracted by the display of this highly skilled spinning Silambambo. The art Nillaikalakki Silambam therefore became a part of the Hindu scholars and yogis training, as they were taught by the Narikuravar.



They brought the art to the royal court during the reign of the Cheran, Cholan and Pandian emperors, once powerful rulers of

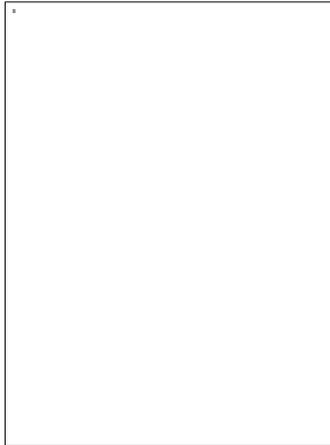
India.

(source: [Silamban – Indian Stick Fighting](#)).

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## Philosophy



**" On action alone be thy interest,  
Never on its fruits  
Abiding in discipline perform actions,  
Abandoning attachment  
Being indifferent to success or failure.**

**- Bhagavad Gita I:25**

As a religion, Hinduism has set side by side in peaceful coexistence every shade of belief ranging from the most primitive sort of animism to a highly sophisticated monism, with this has come a corresponding range of worship of practice extending from the simplest disease spirits to the most concentrated mediation designed to produce knowledge of abstract impersonal deity.

**Swami Vivekananda** describes it thus, " From the high spiritual flights of the Vedanta philosophy, of which the latest discoveries of science seem like echoes, to the low ideas of idolatry with its multifarious mythology, the agnosticism of the Buddhists, and the atheism of the Jains, each and all have a place in the Hindu religion."

Unlike other religions, Hinduism has no founder. It does not depend for its authority on the personality of any man - a messiah, a savior, a prophet or guru. Its authority is eternal Truth which has revealed itself through the minds of great rishis who perfected themselves by long penances and are said to have heard in their hearts eternal truths as Sruti. Thus it has become a cumulative record of metaphysical experimentation.

Rig Veda is the Veda par excellence, the real Veda that traces the earliest growth of religious ideas in India. It is in poetical form, has one thousand twenty eight hymns called Samhita. It is much full of thought that at this early period in history no poet of any nation could have conceived them. The sublimity, the nobility, the natural justice, the equality, the love and welfare of all humanity as a whole is the theme of the Rig Veda. The Vedic God has no partisan attitude of the jealous and vindictive God.

**Philosophically, Hindus accept no dogma, no laws, no rules, no rites or rituals and no requirements of temple or place of worship.**

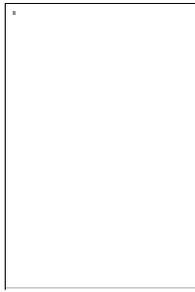
According to **Romain Rolland** (1866-1944) author of [Inde Journal](#), French Nobel laureate, professor of the history of music at the Sorbonne and thinker:

**"Religious faith in the case of the Hindus has never been allowed to run counter to scientific laws,** moreover the former is never made a condition for the knowledge they teach, but there are always scrupulously careful to take into consideration the possibility that by reason both the agnostic and atheist may attain truth in their own way. Such tolerance may be surprising to religious believers in the West, but it is an integral part of Vedantic belief."

The goal is not to find God, a god, the heaven, a kingdom of God on earth, permanent youthfulness, or eternal life, but it is the abolishment of individual identity for merger into the Ultimate.

**"As flowing rivers disappear in the sea, losing their name and form, thus a wise man, freed from**

name and form, goes to the divine person who is beyond all." This philosophy has satisfied the philosophical Hindu mind with astonishing continuity.



**Albrecht Weber** (1825-1901) in his book [The history of Indian literature](#) p. 126, says: "It is in this field and that of grammar that the Indian mind attained the highest pitch of its marvelous fertility."

"The Hindu, says **Friedrich Maximilian Muller** (1823-1900) "were a people remarkably gifted for philosophical abstraction."

**Frederich von Schlegel** (1772-1829) in his book, [History of Literature](#) p. 109, says: "India is preeminently distinguished for the many traits of original grandeur of thought and of the wonderful remains of immediate knowledge."

Like all other things in India, the Hindu philosophy, too, is on a gigantic scale. Every shade of opinion, every mode of thought, every school of philosophy has found its expression in the philosophical writings of the Hindus and received its full development.

(source: [Hindu Superiority - By Har Bilas Sarada](#) p.276 -277).

**William Enfield** (1741-1797) wrote: "We find that it (India) was visited for the purpose of acquiring knowledge by Pythagoras, Anaxarchus, Pyrrho, and others who afterwards became eminent philosophers in Greece." "Some of the doctrines of the Greeks concerning nature are said to have been derived from the Indians.

(source: [The History of Philosophy from the earliest times to the beginnngs of the present century; drawn upon Brucker's Historia Critica Philosophiae - By William Enfield](#) p 70).

**Hopkins** says "Plato is full of **Samkhyan** thought worked out by him but taken from Pythagoras. Discussing the historical genesis of Greek antiquity, **J. P. Mayer** observes: " Egyptian, Persian and Indian cultural influences were absorbed into the Greek world from very early times." (source: [Political Thought, The European Tradition](#), p.7).

**John Bowle** categorically declares that **Plato was influenced by Indian ideas.**

(source: [A New Outline of World History - By John Bowle](#) p. 91).

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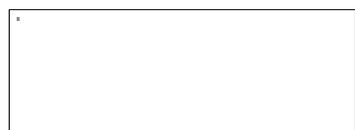
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## Government and Constitution

The saying of the greatest English exponent of Political Philosophy, Edmund Burke, that no country in which population flourishes can be under a bad government, introduces us to the subject of the political constitution of Ancient India.

**Megasthenes** says that "there are 120 nations in India." Arrian admits that the Indians were the most numerous people and that it was impossible to know and enumerate the cities in Aryavarta. Prof. Max Dunker says "the Indians were the largest of the nations." Ctesias states that "they (Hindus) were as numerous as all the other nations put together."

**Arrian** mentions with admiration that every Indian is free. **Lt. Colonel Mark Wilks**, while discussing the political system in its provincial working, says, " Each Hindu township is, and indeed always was, a particular community or petty republic by itself." "The whole of India," he says again, "is nothing more than one vast congeries of such republics."



**Sir Charles Metcalf** (1785 -1846) says: "The village communities are little republics having nearly everything they can want within themselves and almost independent of any foreign nation. They seem to last where nothing lasts. Dynasty after dynasty tumbles down, revolution succeeds



revolution, and Pathan, Moghuls, English are all masters in turn, but the village communities remain the same. This union of village communities, each one forming a separate little state in itself, is in a high degree conducive to their (Hindu) happiness, and to the enjoyment of a great portion of freedom and independence."

The benevolent nature of the Hindu civilization is proved by the fact that the Hindu colonies and dependencies enjoyed the same Constitution as the mother country. **Sir Stamford Raffles** (1781-1826) says about Bali, an island east of Java:

"Here together with the Brahminical religion, is still preserved, the ancient form of Hindu municipal polity."

Abu Sabhbad had the Rajniti translated into Persian in 1150 A.D. Buzarchameber, the renowned minister of Nausherwan the Just, received his political education and training in India.

**Sir William Jones** (1746-1794) wrote: "The laws of Manu very probably were considerably older than those of Solon or even of Lycurgus, although the promulgation of them, before they were reduced to writing, might have been covered with the first monarchies established in Egypt and India."

(source: [Land Tax of India - By Colonel Briggs](#) p. 24).

Sir William Jones also points out: "Although perhaps Manu was never in Crete, yet some of his institutions may well have been adopted in that island, whence Lycurgus a century or two after may have imported them into Sparta."

(source: [Preface to Haughton's Institutes of Hindu Law](#) p xii).

**Louis Jacolliot** (1837-1890) writes in [The Bible in India](#): "The Manu Smriti was the foundation upon which the Egyptian, the Persian, the Grecian and the Roman codes of law were built, and that the influence of Manu were still felt everyday in Europe."

**Horace Hyman Wilson** (1786-1860) says that the Hindus had " a code of laws adapted to a great variety of relations which could not have existed except in an advanced condition of social organization."

(source: [History of British India - By James Mill](#) Volume II p. 282).

A writer in the **Asiatic Journal** (p. 14) says: "All the requisite shades of care and diligence, the corresponding shades of negligence and default are carefully observed in the Hindu law of bailment, and neither in jurisprudence nor in the legal treatises of the most civilized States of Europe are they to be found more logically expressed or more accurately defined. In the spirit of Pyrrhus, observation on the Roman legions, one cannot refrain from exclaiming: "I see nothing barbarous in the jurisprudence of the Hindus."

Of the **Commentary of Calluca on Manu**, **Sir William Jones** says: "It is the shortest yet the most luminous; the least ostentatious yet the most learned; the deepest yet the most agreeable commentary ever composed on any author ancient or modern, European or Asiatic."

(source: [Preface to Haughton's Institutes of Hindu Law](#) p. 18 and [Hindu Raj in the World - By K. L. Lal](#) p.1-22).

Before the Greeks, before Buddhism, India had developed a style of local government which endured up to modern times, just as it had developed an amazingly modern system of town and village planning and almost fool proof economic and social structure. That's what kept the country so stable through all disturbances and invasions, and gives a definite continuity to its culture.

(source : [The Power of India – Michael Pym](#) p. 218-219).

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## Law

Law is a test of good government. **The great Hindu work on law is a marvel of simplicity and wisdom.** Without being complex, it satisfied all the diverse wants of the people. Sir William Jones says: "The laws of Manu very probably were considerably the promulgation of them, before they were reduced to writing, might have been coeval with the first monarchies established in Egypt and India."

The Bible in India says that the Manu Smriti was the foundation upon which the Egyptian, the Persian, the Grecian and the Roman Codes of Law were built, and that the influence of Manu was still every day felt in Europe.

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**H. T. Coleman** in his book, **Mythology of the Hindus**, p. 8, says: The style of it (Manu) has a certain austere majesty that sounds like the language of legislation and extorts a **respectful awe**. The sentiments of independence on all beings but God, and the harsh administrations even to kings are truly noble, and the many panegyrics on the Gayatri prove the author to have adored the divine and incomparably greater light which illumines all, from which all proceed, to which all must return, and which can alone irradiate our intellect."

**William Robertson** in his book, **An Historical Disquisition Concerning the Knowledge which the Ancients had of India** p. 217 says:

"With respect to the number and variety of points that Hindu code considers it will bear a comparison with the celebrated Digest of Justinian, or with the systems of jurisprudence in nations most highly civilized. The articles of which the Hindu code is composed are arranged in natural and luminous order. They are numerous and comprehensive, and investigated with that minute attention and discernment which are natural to a people distinguished for acuteness and subtlety of understanding, who have been long accustomed to the accuracy of judicial proceedings, and acquainted with all the refinements of legal practices. Whoever examines the whole work cannot entertain a doubt of its containing the jurisprudence of an enlightened and commercial people. Whoever look into any particular title will be surprised with a minuteness of detail and nicety of distinction which, in many instances, seem to go beyond the attention of European legislation; and it is remarkable that some of the regulations which indicate the greatest degree of refinement were established in periods of the most remote antiquity."

An eminent authority, the late Chief Justice of Madras, **Sir Thomas Strange** (1756-1841) says of the **Hindu Law of Evidence**:

**"It will be read by every English lawyer with a mixture of admiration and delight, as it may be studied by him to advantage."**

(source **India - By James Mill** Volume II. p. 512 and **Hindu Superiority - By Har Bilas Sarda** p. 13-26).

**Louis Francois Jacolliot** (1837-1890), who worked in French India as a government official and was at one time President of the Court in Chandranagar, translated numerous Vedic hymns, the **Manusmriti**, and the Tamil work, **Kural**. His masterpiece, **La Bible dans l'Inde**, stirred a storm of controversy.

## Manu – Hindoo Law



**The Hindoo law were codified by Manu more than 3,000 years before the Christian era, copied by entire antiquity and notably by Rome, which alone has left us a written law – the code of Justanian, which has been adopted as the base of all modern legislations.**

Besides, what antiquity wholly overlooked, but what we cannot too much admire in India, is its respect for women, almost amounting to worship. This extract from Manu (shloka 55) will not be read without surprise:

"Women should be nurtured with every tenderness and attention by their fathers, their brothers, their husband, and their brother-in-law, if they desire great prosperity." "Where women live in affliction, the family soon becomes extinct, but when they are loved and respected, and cherished with tenderness, the

family grows and prospers in all circumstances.” **This veneration of women produced in India an epoch of adventurous chivalry during which we find the heroes of Hindoo poems accomplishing high deeds, which reduce all the exploits of Amadis, knights of the Round Table, and the Paladins of the Middle Ages, to mere child’s play.”**

## Jurisprudence

“Observe, en passant, this striking coincidence with French law, that the Hindoo wife, in default of her husband’s authority may release from her incapacity, by authority of justice. “

“The contract made by a man who is drunk, foolish, imbecile or grievously disordered in his mental condition....” **Manu** further adds – “What is held under comprehension – held by force is declared null.”

**Would not this be thought a mere commentary on the Code of Napoleon?** Of 4-5,000 years after “How far is all this from those barbarous customs of first ages, when every question was solved by violence and force, and what admiration should we feel for a people who, at the epoch at which Biblical fall would date the world’s creation, had already reached the extraordinary degree of civilization indicated by laws so simple and so practical.”

(source: [La Bible dans l'Inde - By Louis Jacolliot](#) p. 40 - 45).

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## Democracy

**Arrian** mentions with admiration that every Indian is free. (refer to [Indica](#), ch. X and [Ephinstone's India](#) p. 239).

**Will Durant**, American Historian says: " **India is the mother of democracy**" He points out that the Greek Assembly, the Roman Agora or the German Moot, the antecedents of modern democracy, were derived from the Indian institution known as Samiti or Sabha recorded in the Vedas. In fact, there was a democratic deity called Samajnana to whom the last hymn of the Rig Veda makes salutation."

(source: [The Soul of India - By Satyavrata R Patel](#) p.137).

**Luigi Miraglia** (1846-1903) author of [Comprehensive Legal Philosophy](#), wrote: "Among the Aryans there was never arisen that all-controlling despotism which blots out man, as in Egypt, Babylon, China, among the Mussalman and Tartar tribes; or if it has appeared, it has not been of long duration."

(source: [Comprehensive Legal Philosophy - By Luigi Miraglia](#) p. 120).

**Lt. Colonel Mark Wilks**, (1760?-1831) while discussing the political system in its provincial working says:

"Each Hindu township is, and indeed always was, a particular community of petty Republics by itself. The whole of India is nothing more than one vast congeries of such Republics."

(source: [Historical Sketches of the South of India](#), Volume I. p. 119).

Even historian **James Mill** (1773-1836) was forced to admit that "in examining of the spirit of these ancient constitutions and laws, we discover evident traces of a germ of republicanism. "The village communities are little Republics having nearly everything they could want within themselves and almost independent of any foreign nation. They seemed to last where nothing else lasted."

(source: [Hindu Raj in the World - By K. L. Lal](#) Akshat Publications ASIN: 8185069085 p.1-22).

Old inscriptions recently discovered also furnish incontestable proof of the representative form of government prevailing in India in ancient times.

Indeed, in ancient India, monarchical thinking was constantly battling with another vision, of self-rule by

members of a guild, a village, or an extended kin-group, in other words, any group of equals with a common set of interests. Though evidence for non-monarchical government goes back to the Vedas, republican polities were most common and vigorous in the Buddhist period, 600 B.C.-A.D. 200. But the literature, Pali and Sanskrit, Buddhist and Brahmanical, shows that non-monarchical forms of government were omnipresent. There was a complex vocabulary to describe the different types of groups that ran their own affairs.



Such an organization, of whatever type, could be designated, almost indifferently, as a **gana or a sangha**; and similar though less important bodies were labeled with the terms sreni, puga, or vrata. Gana and sangha, the most important of these terms, originally meant "multitude." By the sixth century B.C., these words meant both a self-governing multitude, in which decisions were made by the members working in common, and the style of government characteristic of such groups. In the case of the strongest of such groups, which acted as sovereign governments, the words are best translated as "**republic.**"

That there were many sovereign republics in India is easily demonstrated from a number of sources. Perhaps it is best to begin with the Greek evidence, even though it is not the earliest, simply because the Greek writers spoke in a political language that is familiar.

Perhaps the most useful Greek account of India is Arrian's Anabasis of Alexander, which describes the Macedonian conqueror's campaigns in great detail. The Anabasis, which is derived from the eyewitness accounts of Alexander's companions, portrays him as meeting "**free and independent**" **Indian communities at every turn**. What "free and independent" meant is illustrated from the case of Nysa, a city on the border of modern Afghanistan and Pakistan that was ruled by a **president named Aculphis and a council of 300**.

Such a development is hinted at in **Kautilya**: according to him, there were two kinds of janapadas, ayudhiya-praya, those made up mostly of soldiers, and sreni-praya, those comprising guilds of craftsmen, traders, and agriculturalists. As **Panini's** most thorough modern student has put it, there was "a craze for constituting new republics" which "had reached its climax in the Vahika country and north-west India where clans constituting of as many as one hundred families only organized themselves as Ganas." Furthermore, power in some republics was vested in a large number of individuals. In a well-known **Jataka** tale we are told that in the **Licchavi** capital of Vesali, there were 7707 kings (rajās), 7707 viceroys, 7707 generals, and 7707 treasurers.

(source: [Democracy in Ancient India - By by Steve Muhlberger](#)).

Then came the British, who, like a heavy steamroller, confounded and dejected the soul of India. But yet at the village level democracy flourished in the form of the **Gram-Panchayats**. **Sir Charles Napier Metcalfe** in an official report to the British Parliament writes, "The village communities are little republics having nearly everything they want within themselves. They seem to last when nothing else lasts. Dynasty after dynasty tumbles, revolution succeeds revolution, but the village community remains the same."

(source: [The Soul of India - By Satyavrata R Patel](#) p.144).

**C. E. M. Joad** (1891-1953) British philosopher and author. He became head of the department of philosophy at Birbeck College, Univ. of London, in 1930 wrote:

The Sabha, Vidathaand Sena: A feature of the social organization of the Vedic age was the Sabha, a word which means literally, "a body of men shining together", and conveys the suggestion that those who were entitled to a seat in the Sabha were thereby invested with luster. The Sabha seems to have been a sort of standing committee of selected persons of the kind whom the English call "elder statesmen", appointed by the Samiti and acting under its supervision as the judicature of the community. The religious

life of the community was organized through the assembly known as the Vidatha, which also performed certain civil and military functions. The Sena, or army, which was in those early times more or less identical with the whole community in arms, ranked as a separate constitutional unit.

The characteristic form of government of post-Vedic times is Republicanism. Megasthenes, writing about 300 B.C. records that sovereignty (kingship) was dissolved and that democratic governments were set up in a number of places. The historians of Alexander's campaign also mention **a number of States as "free, autonomous and independent."** During his retreat Alexander actually came across a number of Indian republics. Indeed, all the states with which he made contact on his way back appear to have been under republicanism form of government. The most powerful of these were the **Khudrakas** and the **Malavas**. From the description in the writings of Greek historians, we gather that the populations of the republics were large, their territories wide; that they contained a number of cities and that some of them were very rich. In a word they were independent, wealthy, prosperous and highly organized.

**The Buddha himself was born in a republican country**, and it is not without significance that he should have called the monastic order he founded the Republic of the Bhikkus (Monks), the name "Republic" suggesting that he transferred the constitution of a political to a religious order. Thus, independent democratic and aristocratic republics seem to have flourished widely throughout the continent of India for a period of nearly a thousand years, a period which ended with the establishment of the Gupta Empire in A.D. 300. The outstanding feature of the republican system during this period is known as the **"gana rajya"**, or rule of numbers, that is to say, the rule of many persons.

(source: [The Story of Indian Civilization - By C. E. M. Joad](#) p. 108-111).

**American Rev. Jabez T. Sunderland** (1842-1936) has written:

**"The fact is, not Europe but Asia seems to have been the cradle of political liberty, the cradle of democratic and republican government, in the world...research makes it clear that the democratic and republican institutions of Europe and America actually send their roots back to Asia, and especially to India.** Republics actually existed in India at least as early as the days of the Buddha (6th century before Christ). The republican form of government in ancient India had a duration of at least a thousand years. We have records of no other country, ancient or modern, where republics have existed and continued for so long a period. Even more important than her republics has been the spirit of freedom and democracy which has manifested itself in many forms among the Indian people from the earliest ages. The **Vedas** show that the principle of representative government were held by the ancient Aryans 12-13 centuries before the Christian era."

(source: [India in Bondage: Her Right to Freedom - By Rev. Jabez T. Sunderland](#) p 196 -197).

The **Marquess of Zetland** former Viceroy of India, has written:

"And it may come as a surprise to many to learn that in the Assemblies of the Buddhists in India, 2,000 years and **more ago, are to be found the rudiments of our Parliamentary practice of the present day.** The dignity of the Assembly was preserved by the appointment of a special officer - the embryo of 'Mr. Speaker' in our House of Commons. A second officer was appointed whose duty it was to see that when necessary a quorum was secured - the prototype of the Parliamentary 'Chief Whip' in our own system. A member initiating business did so in the form of a 'motion' which was then open for discussion. In some cases this was done once only, in others three times, thus anticipating the practice of Parliament in requiring that a Bill be read a third time before it becomes a law. If discussion disclosed a difference of opinion, the matter was decided by a vote of the majority, the voting being a ballot."

(source: [The Legacy of India](#) - edited By G. T. Garrett p. x-xii).

The state of Nysa was an oligarchy, governed by a Council of 300 aristocrats, while another was democratic, with an Assembly Of 5,000 members. The Yaudheyas, the Malavas, and the Arjuneyas had democratic constitutions. It is interesting to study the working of the village-republics of which we have definite and widespread evidence. It was about the survivals of these, in the early 19th century, that **Sir Charles Metcalfe** in the **Report of the Select Committee of the House of Commons**, London, 1832, wrote in admiration: "They seem to last where nothing else lasts. Dynasty after dynasty tumbles down; revolution succeeds revolution; but the village-communities remain the same. This union of the village-communities, each one forming a separate little State in itself, has, I conceive, contributed, more than any other cause, to the preservation of the peoples of India, through all the revolutions and changes

which they have suffered, and is, in a high degree, conducive to their happiness and to the enjoyment of a great portion of freedom and independence.

**Sir George Birdwood**, author of **Industrial Arts of India**, remarked that, though India has undergone more religious and political revolutions than any other country in the world, these village communities have stood like a rock in the midst of the rising and the falling tide, 'in full municipal vigor all over the peninsula.'

(source: [Our Heritage and Its Significance - By Shripad Rama Sharma](#) p. 90-103).

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### Logic in Ancient India

**Rabindra Chandra Dutt** (1912- ) says: "Comparing dates, we are disposed to say of this as of many other sciences, **the Hindus invented logic, the Greeks perfected it.**" We must not forget the historical fact that there was a close intercourse between the Greeks and the Hindus from the time of Pythagoras, who, it is said, went to India to gather the wisdom of the Hindus. Alexander himself was so deeply impressed, when he heard about the Hindu philosophers, that he desired to make their acquaintances. It is also said that he brought back many Hindu philosophers back to Greece with him. These two schools of philosophy, the Vaisheshika and the Nyaya, supplement each other, and have at present many followers in some parts of India, especially in Bengal and among the Jains.

